

REPORT
ON
TUBEWELL COMMAND AREA
DEVELOPMENT PROJECT

Dr. Md. Amzad Hossain

**FACULTY OF IRRIGATION MANAGEMENT
RURAL DEVELOPMENT ACADEMY
BOGRA
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Abbreviations

ARDO	: Assistant Rural Development Officer
BADC	: Bangladesh Agricultural Development Corporation
BRDB	: Bangladesh Rural Development Board (previously IRDP)
BWDB	: Bangladesh Water Development Board
CA.D	: Command Area Development
DAE	: Department of Agricultural Extension (previously DAEM)
DAEM	: Directorate of Agriculture (Extension & Management)
DTW	: Deep Tubewell
FAO	: Food and Agricultural Organization
FIM	: Faculty of Irrigation Management at RD.
GOB	: Government of Bangladesh
IMED	: Implementation, Monitoring & Evaluation Division
IMP	: Irrigation Management Programme
IRDR	: Integrated Rural Development Programme
KSS	: Krishak Samabaya Samity
LGRD & Coop.	: Ministry of Local Government, Rural Development & Cooperatives
Md	: Maund (82 pounds)
NCC	: National Coordination Committee
RDA	: Rural Development Academy, Bogra
RWP	: Rural Works Programme
S.M.O	: Subject Matter Officer
SO	: Sectional Officer
STW	: Shallow Tubewell
TCAD	: Tubewell Command Area Development
TEO	: Thana Extension Officers (now UAO)
TOT	: Training of Trainers
UAO	: Upazila Agricultural Officer
UCCA	: Upazila Central Cooperative Association
UIP Overseers	: Upazila Irrigation Programme Overseers of RWP under LGRD & C.
UIT	: Upazila Implementation Team
UNDP	: United Nations Development Programme
UO	: Unit Officer
URDO	: Upazila Rural Development Officer (previous TPO)
USAID	: United States Agency for International Development
UTDC	: Upazila Training and Development Centre

CHAPTER - I

INTRODUCTION

The country has been suffering from chronic food deficit for a long time. As such, top priority on agricultural development has been emphasized by Government of Bangladesh to attain self-sufficiency in food production in Second Five Year Plan. This could be achieved by increasing cropping intensity and per acre yield of crops with the help of irrigation. Land in Bangladesh is already limited. So the only way left is to utilize the land more intensively for crop production by maximizing capacity utilization of irrigation equipments.

In recent years irrigation equipments : LLPs, DTWs and STWs have been installed in large numbers. Most of these equipments, especially the DTWs, are not being used to their optimum capacity, thus leading to low yield and their gross under-utilization. This situation called for increased command area of the potential area of the equipments. With this objective in view various Command Area Development Projects have been undertaken by the Government. The Tubewell Command Area Development (TCAD) was one of such projects implemented by the RD., Bogra.

a. Background :

The "Support for Tubewell Command Area Development North-West Bangladesh" Project was taken up for implementation as a consequence of the experience gathered about irrigation management from a Pilot Project under Rural Development Project - I (RD-I). UNDP and F.O worked on irrigation management at the farmers' level in the pilot project. A joint Mission of the GOB and UNDP-F.O reviewed the previous pilot project and recommended for replication on the basis of results of the pilot project in the field of irrigation management and adaptive research in North-West Bangladesh. RD., Bogra, therefore, took up this project for implementation in North-West Bangladesh (Rajshahi Division) for a period of 3 years (1981-84). After expiry of the project period the project continued for one year more. The main concern of the project was to impart training to upazila level officers on command area development and irrigation management.

Command area means the maximum area that can be irrigated from a particular irrigation equipment depending on many factors. Command Area Development (CAD) includes all activities to expand irrigation from the present to the potential area and to increase its productivity through engineering, agronomic and institutional developments. Command area aims

at (i) increasing area, (ii) increasing production, (iii) lowering cost of production, (iv) generation of employment in the rural areas etc. The success of C.A.D largely depends on a package of activities. They include (i) development of institutions concerned with expansion of irrigation area, (ii) provision of necessary equipment to supply required irrigation water, (iii) provision of on-farm facilities to enable efficient use of irrigation water, (iv) provision of necessary service facilities to ensure the sustained operation of irrigation equipments, (v) provision of credit to ensure availability of complementary inputs e.g. HYV seeds, fertilizers and plant protection materials and (vi) training of field staff and farmers associated with C.A.D.

With a view to increasing area and providing adequate irrigation water much emphasis was put on deep tubewell (DTW) installation. But due to deficiencies in operation, water distribution, water management and cropping systems in irrigated command area under the deep tubewells was far below the desired level. The reasons were mainly social, economic and technical.

b. Objectives :

The project was undertaken with the following objectives :

- i) To carry on adaptive research with a view to optimise
 - a) Command area per unit of irrigation equipment,
 - b) Production per acre and
 - c) Participation of farmers including small and marginal farmers per irrigation equipment.
- ii) To train key personnel of the concerned agencies namely, Bangladesh Agricultural Development Corporation (B.A.D.C), Department of Agricultural Extension (D.A.E) and Bangladesh Rural Development Board (BRDB) and Inspectors, Managers and Model Farmers of Upazila Central Cooperative Association-Krishak Samabaya Samity (UCCA-KSS) system of BRDB who shall in turn serve as trainers for cooperative farmers engaged in irrigated agriculture.
- iii) To build and strengthen the Faculty of Irrigation Management at the Rural Development Academy (R.D.A.), Bogra to continuously carry on adaptive research and to conduct trainers' training on a regular basis, and to specialize in management of irrigation agriculture.

CHAPTER - II

IMPLEMENTATION OF THE PROJECT

According to the agreement between the GOB and F.O/UNDP, the Rural Development and Co-operatives Division of the Ministry of Local Government, Rural Development and Co-operatives had been assigned the responsibility to sponsor and the Rural Development Academy, Bogra to execute the project. Aside from this, for successful implementation of the project, direct involvement of the concerned agencies particularly D.A.E, B.A.D.C and BRDB was necessary.

1. Management Committees :

Two committees, National Coordination Committee at national level and Technical Committee at project level, were formed respectively for the purpose of overall management and administration of the project, and guidance to the Faculty of Irrigation Management at RD., on the training syllabi and the adaptive research.

2. Faculty of Irrigation Management :

The Faculty of Irrigation Management (FIM) had been established to specialize in irrigation management in order to organize training courses and carry on adaptive research on Command Area Development and Irrigation Management. For this, four Faculty Members from RD., Bogra had been deputed to work in the disciplines of Irrigation Engineering, Irrigation Agronomy, and Rural Institution and Extension. Later on, the number of members in the FIM increased to six.

3. Expatriate Experts :

Six foreign experts from F.O/UNDP in the fields of Irrigation Engineering, Irrigation Agronomy, and Rural Institution and Extension had been associated with the above mentioned Faculty to conduct training courses and adaptive research on irrigation management. The number of experts now reduced to two (Irrigation Engineering and Irrigation Agronomy).

4. Counterpart Officers :

Eight Counterpart Officers, two from each of D.A.E, B.A.D.C, L.G.R.D and BRDB were scheduled to be deputed for each year under the project. The job of the Counterpart Officers was to attend the training classes meetings, seminars, conferences, workshops, etc. They were also responsible for collecting information on technical, social and economic problems of irrigation management from the farmers and the officers, give sugges-

tions to find out alternative solutions and sometimes to conduct training classes so that on return they could provide leadership in Command Area Development and Irrigation Management in their respective places of posting.

5. Supporting Services :

In addition to the Members of FIM, Expatriate Experts and Counterpart Officers, some officers and staff had been recruited to support the training and adaptive research activities on a regular basis. They were one Research Officer, one Training Officer and one Junior Officer, a group Field Investigators and some office staff of the project

CHAPTER - III

ACTIVITIES AND DISCUSSIONS

1. Physical Performances :

At the beginning, there were targets to impart training to 138 upazila level officers and 700 selected Inspectors of UCCAs, Managers and Model Farmers of KSS in the Project Proposal (appendix - A). Later on, it was decided in a meeting of National Coordination Committee that all upazila level officers of five districts of Rajshahi Division (North-West Bangladesh) would be trained. On that basis the planned target became 470 officers. Four officers (one URDO of BRDB, one U.O of DAE and two SO/VO of BADC) from each of 115 upazilas totalling 460, and 10 UIP Overseers of LGRD & Cooperatives (already trained in first batch), which made 470. Besides, if possible, 700 or a reasonable number of DTI user-farmers would be trained. So, the targets of the project were to impart training to the 470 upazila level officers and 700 selected DTI user-farmers; and to conduct some adaptive researchers.

2. Training :

A number of training courses for officers and DTI users, and workshops at various levels had been conducted. The courses for the officers were designed with a view to orient them on the techniques involved in command area development and irrigation management and also to develop a team spirit among the multi-disciplinary officials of BADC, DAE, BRDB and Local Government (RGP) at upazila level. Upon completion of the training the officers from these departments were expected to impart training to the selected farmers using irrigation equipments.

Methods used in the training of the upazila level officers were class lectures, slide show, field visits, field practices, group discussion, and report writing and presentation by the trainees.

In the training classes the trainees were given ideas on the principles of installation of the equipment, alignment for the water conveyance system, water requirement, water scheduling, pump-engine operation & maintenance, soil productivity, crops, cropping patterns, crop planning, cost and return, DTI based KSS group, water distribution, irrigation budget, farmers training, and strengthening and management of the irrigation groups.

In the field visit and field practices, the trainees were divided into several groups and were given demonstration and assignments. Before field visits and practices, the trainees were given clear ideas and guidelines in the class room. The trainees were to survey or collect information on problems and probable solutions on different aspects.

The trainees were evaluated with one entry examination followed by examinations at middle and at end of the longer courses.

(1) Training of Upazila Officers on Tubewell Command Area Development (T.C.A.D.) :

During the period from July, 1981-82 to December, 1983, twelve courses of 4-week duration for sectional Officers and Unit Officers of BADC, Upazila Agricultural Officers and Subject Matter Officers of DAE, Upazila Rural Development Officers and Assistant Rural Development Officers of BRDB, UIP Overseers of Local Government for R&P and Sub-Assistant Engineers of BKB were arranged on Tubewell Command Area Development. After conducting the first course, the training for UIP Overseers of LG (R&P) was stopped as they did not have direct involvement in irrigation management. On request of BKB, its Sub-Assistant Engineers were called for attending from the second course. During the third course, when the peak irrigation season was running, the training was designed for only Upazila Rural Development Officers of BRDB. Course-wise details of the progress of training courses are given below :

Table 1 : 4-week course on Subewell Command Area Development (T.C.D) for Sectional Officers of B.D.C, Upazila Agricultural Officers of D.E, Upazila Rural Development Officers of BRDB, UIP Overseers of LG, and Extension Officers of BKA.

Course No.	Duration	Planned total	Actually attended					Total No.	Percentage of attendance
			BADC	D.A.E	BRDB	LG	BKB		
<u>1981-82 :</u>									
1st	23 Nov.- 23 Dec.,81	44	8	9	11	10	-	38	86
2nd	17 Jan.- 20 Feb.,82	44	5	7	10	-	2	24	55
3rd	16 May- 14 Jun.,82	50	-	-	24	-	-	24	48
Total		138	13	16	45	10	2	86	62
<u>1982-83 :</u>									
4th	3 Oct. - 25 Oct.,82	47	2	17	10	-	-	29	62
5th	23 Jan.- 17 Feb.,83	47	6	11	7	-	-	24	51
6th	22 Feb.- 17 Mar.,83	60	-	12	14	-	-	26	43
7th	13 Apr.- 28 Apr.,83	60	-	19	18	-	-	37	62
8th	2 May- 25 May,83	70	4	12	12	-	-	28	40
9th	4 Jun.- 30 Jun.,83	70	3	15	8	-	-	26	37
Total		354	15	68	69	-	-	170	48
<u>1983-84 :</u>									
10th	23 Jul.- 18 Aug.,83	52	22	11	8	-	-	41	79
11th	20 Aug.- 15 Sep.,83	52	3	14	7	-	-	24	46
12th	1 Oct.- 31 Oct.,83	50	3	10	9	-	-	22	44
Total		154	28	35	24	-	-	87	56
Grand total		646	66	137	138	10	2	343	53

(2) Training of Upazila Officers on Irrigation Management Programme (IMP) :

While the Faculty of Irrigation Management (FIM), RD., Bogra was conducting the training courses for the upazila level officers on Tubewell Command Area Development (T.C.D), it received the demand for imparting training on Irrigation Management Programme (IMP) in later part of October, 1983. By that time the FIM had already provided 4-week T.C.D training to 343 upazila level officers. The training on IMP also required 4-week duration in order to give complete idea. Four courses on IMP were conducted during January to June, 1984 and the emphasis was given more on IMP implementation procedure. Batch-wise details of the training courses on upazila level officers are given below :

Table 2 : 4-week course on Irrigation Management Programme (IMP) for Sectional Officers of B.D.C, Upazila Agricultural Officers of D.E, Upazila Rural Development Officers of BRDB and Asstt. Engineers of B.D.B.

Course No.	Duration	Planned total	Actually attended						Total No.	Percentage of attendance
			B.D.C	D.E	BRDB	LG	BKB	B.D.B		
1983-84 :										
1st	22 Jan.- 16 Feb., 84	50	10	14	14	-	-	1	39	78
2nd	4 Mar.- 29 Mar., 84	50	11	15	4	-	-	1	31	62
3rd	1 Apr.- 24 Apr., 84	50	13	-	9	-	-	1	23	46
4th	6 May- 31 May, 84	50	6	11	14	-	-	1	32	64
Total		200	40	40	41	-	-	4	125	63
Grand total		346*1	96	177	179	10	2	4	468	55*2

It would appear from the training courses conducted during the period from 1981-82 to 1983-84, that 468 upazila level officers of B.D.C, D.E, BRDB, LG, BKB and B.D.B were given 4 weeks' duration training on command area development and also on IMP at RD., Bogra against the planned target of 346, though the actual target was 470. In the initial courses, the participants did not turn up as were expected. The inability of their attending the course was due to involvement in departmental

*1 Actual target was 470.

*2 Actual percentage of attendance was 100 (based on actual target, 470).

programmes. As such in the subsequent courses, larger number of participants from the concerned organisations were invited so as to fulfill the target of trainees. The planned target mentioned herein therefore does not mean the actual target. The actual percentage of attendance was 100 based on actual target, though participation desired in each course was not satisfactory.

With the advent of 1984-85, the training on Irrigation Management Programme for officers of upazilas from whole of Bangladesh was started. By that time the TC.D Project was extended for 1984-85 with approval of utilization of its unspent balance amount. With this amount some long and short courses of training, workshops and farmers' rallies were conducted as mentioned below and also in the subsequent pages under the year 1984-85.

Table 3 : 4-week course on Irrigation Management Programme (IMP) for Sectional Officers-Unit Officers of BADC, Subject Matter Officers of DAE and Assistant Rural Development Officers of BRDB.

Course No.	Duration	Planned total	Actually attended						Total No.	Percentage of attendance
			BADC	DAE	BRDB	LG	BKB	BADB		
<u>1984-85 :</u>										
5th	11 Aug.- 4 Sep.,84	72	6	2	16	-	-	-	24	33
6th	11 Sep.- 11 Oct.,84	72	15	10	13	-	-	-	38	53
7th	20 Oct.- 13 Nov.,84	72	10	9	14	-	-	-	33	46
8th	24 Nov.- 20 Dec.,84	72	4	8	18	-	-	-	30	42
9th	5 Jan.- 31 Jan.,85	72	8	14	18	-	-	-	40	56
Total		360	43	43	79	-	-	-	165	46
Grand total		1206	139	220	258	10	2	4	633	58

(3) Short Orientation Course of Upazila Officers on IMP :

Due to shortage of time for the SOs of BADC, UOs of DAE, URDOs of BRDB and the Chairmen of UCCs before the start of the irrigation season and again as the officers were the supervisory personnel for IMP activities at the base level, 5-day duration courses were needed to familiarize them on IMP and its implementation. Of the nine short courses, four were conducted in 1983-84 and five in 1984-85. Base-wise details of the courses are given below :

Table 1 (A) : 5-day course on Irrigation Management Programme (IMP) for Sectional Officers of B.D.C, Upazila Agriculture Officers of DAE and Upazila Rural Development Officers of BRDB.

Course No.	Duration	Planned total	Actually attended				To- tal No.	Percentage of attendance
			B.D.C	DAE	BRDB	UCCA Chairmen		
1983-84 :								
1st	13-17 Nov.,83	80	22	7	20	-	49	41
2nd	20-24 Nov.,83	80	25	9	16	-	50	62
3rd	4- 8 Dec.,83	50	13	11	5	-	29	53
4th	11-15 Dec.,83	50	17	6	9	-	32	64
Total		260	77	33	50	-	160	62

Table 4 (B) : 5-day course on Irrigation Management Programme (IMP) for Upazila Agriculture Officers of D.A.E, Upazila Rural Development Officers BRDB and UCCA Chairmen.

Course No.	Duration	Planned total	Actually attended				To- tal No.	Percentage of attendance
			B.D.C	D.A.E	BRDB	UCCA Chairmen		
1984-85 :								
5th	4-18 Oct.,84	72	-	18	26	16	60	83
6th	18-22 Nov.,84	72	-	18	23	16	57	79
7th	9-13 Dec.,84	72	-	11	18	4	33	46
8th	22-26 Dec.,84	72	-	16	16	8	40	56
9th	12-16 Jan.,85	72	-	15	21	12	48	67
Total		360		78	104	56	238	66
Grand total		620	77	111	154	56	398	64

Out of 620 officials called for orientation course in nine courses, 398 attended the courses with an average attendance of 64%. Due to low participation of BRDB Officers in third course and UCCA Chairmen in seventh course, the percentage of attendance reduced to 53 and 46 respectively.

(4) Training of Farmers on Tubewell Command Area Development (T.C.A.D) :

Training programme for the Chairmen, Inspectors, Managers, Model Farmers, Drivers and Ordinary farmers were arranged at Academy and UTDCs of Bogra District. The purpose of these training courses was to acquaint them with command area development through irrigation management and also to gather some ideas as to how far the trained upazila officers had been able to convey knowledge to them. The attendance of the participants are given below.

Table 5 : Two-week course for some selected Inspectors, Managers and Model Farmers at Academy.

District	Course No.	Duration	Planned total	Actually attended			Total No.	Percentage of attendance
				Ins-pectors	Ma-nagers	Model-Far-mer		
Bogra	1st	31 Oct.- 10 Nov.82	47	15	14	14	43	91
Rajshahi	2nd	19 Dec.- 30 Dec.82	47	14	15	14	43	91
Pabna	3rd	16 Jan.- 27 Jan.83	47	3	17	19	39	83
Total			141	32	46	47	125	87

Table 6 : One-week course for Deep Tubewell User-Farmers at Academy.

Name of Upazila	Course No.	Duration	Planned total	Chair-man	Ma-na-ger	Mo-odel Far-mer	Ordi-nary Far-mer	To-tal No.	Percen-tage of atten-dance
Kahaloo and Adamdighi	1st	30 Mar.- 2 Apr.,83	60	7	2	1	51	64	102
Dhunat, Nandigram and Sherpur	2nd	21 Apr.- 24 Apr.,83	60	4	3	3	50	60	100
Dhunat, Gabtali, Sherpur and Bogra Sadar.	3rd	22 May- 25 May, 83	60	10	16	5	30	61	102
Total			180	21	21	9	131	182	101

Table 7 : One-week course for Deep Tubewell User-Farmers at UTDCs of Bogra District.

Name of Upazila	Course No.	Duration	Planned total	Chair-man	Manager	Model Farmer	Driver	Ordinary Farmers	Total No.	Percentage of attendance
Dhunat	1st	23-26 May, 83	60	6	6	8	6	33	59	98
	2nd	29 May-1 Jun. 83	60	6	7	1	46	0	60	100
	3rd	5-8 Jun. 83	60	6	6	5	37	6	60	100
	4th	12-15 Jun. 83	60	6	0	6	6	42	60	100
Sherpur	1st	5- 8 Jun. 83	60	12	12	12	12	12	60	100
	2nd	12-16 Jun. 83	60	8	8	17	5	27	60	100
	3rd	19-23 Jun. 83	60	6	6	18	6	2	60	100
Gabtali	1st	29 May-1 Jun. 83	60	12	11	12	11	14	60	100
	2nd	12-16 Jun. 83	60	10	12	12	11	12	57	95
	3rd	19-23 Jun. 83	60	10	10	11	11	13	55	62
Nandigram	1st	29 May-1 Jun. 83	60	11	11	11	11	11	55	62
	2nd	5- 8 Jun. 83	60	12	12	12	12	12	60	100
	3rd	12-15 Jun. 83	60	12	12	12	12	12	60	100
Kahaloo	1st	22-23 May, 83	60	12	12	12	12	12	60	100
	2nd	5- 8 Jun. 83	60	12	12	12	12	12	60	100
	3rd	12-15 Jun. 83	60	12	12	12	12	12	60	100
	4th	19-22 Jun. 83	60	12	12	12	12	12	60	100
Dupchan- chia	1st	22-25 May, 83	60	6	6	5	5	37	59	98
	2nd	3 -6 Jun. 83	60	6	6	6	6	36	60	100
	3rd	7-10 Jun. 83	60	5	6	5	6	36	59	90
	4th	12-15 Jun. 83	60	6	6	6	6	36	60	100
Adamdighi	1st	25-28 May, 83	60	12	12	12	12	12	60	100
	2nd	6- 9 Jun. 83	60	11	11	12	11	14	60	100
	3rd	12-15 Jun. 83	60	12	12	15	12	9	60	100
Total			1440	223	220	247	292	441	1423	99

It appears from Tables 5, 6 and 7 that out of total target of 1761 trainees selected, 1730 actually received training at the Academy and at the UTDCs of Bogra District.

It reveals from both officers and farmers training that the participation in the training of farmers level was much higher than that of the upazila officials.

(5) Workshop :

Coordination for the implementation of IMP activities between the field level and the national level is done by the district level officials. As such, two orientation-workshops of 3-day duration were arranged at the Academy with the objectives of familiarizing them with the IMP and also helping them to exchange their views on the IMP implementation procedures.

Table 8(A) : 3-day Orientation Workshop on Irrigation Management Programme for District Level Officers of BADC, DAE and BRDB, and District Federation Chairmen:

Workshop No.	Duration	Planned total	Actually attended				Total No.	Percentage of attendance.
			BADC	DAE	BRDB	Dist. Federation Chairman		
<u>1984-85</u> :								
1st	2-4 Oct, 84	64	1	5	11	1	18	28
2nd	11-13 Nov. 84	64	18	12	34	3	65	102
Total		128	19	17	43	4	83	65

Eighty three district level officials of BADC, DAE, BRDB and District Federation attended the IMP orientation course at RDA, Bogra in 2 workshops as against the target of 128. Rain and flood were the reasons for lower participation in the first workshop.

Another three-day workshop was arranged at the Academy to know the impact of irrigation management training in Rajshahi Division. Review of irrigation management training, presentation of reports by the upazila officers and threadbare discussions among the participants were made in the workshop. District level officers, selected upazila officers of BADC, DAE and BRDB, and some selected DTW-KSS farmers participated in the workshop.

Table 8(B) : 3-day workshop on Impact of Irrigation Management Training in Rajshahi Division for District Level Officers, and Selected Upazila Officers of BRDB, DAE, BADC and Selected DTW-KSS Farmers :

Workshop No.	Duration	Planned total	Actually attended				Total No.	Percentage of attendance
			BADC	DAE	BRDB	DTW-KSS Farmers		
1984-85 :								
1st	12-14 May, 85	75	7	12	15	25	59	79

Out of 75 officers and farmers scheduled to participate, 59 actually participated.

(6) One-day Farmers Field Rally on Irrigation Management :

In total three rallies of one-day duration were conducted with the Managers, Model Farmers and Pump Operators of Gabtali, Bogra Sadar, Kalai, Sherpur and Kahaloo Upazilas in order to acquaint them with IMP and growing of crops through IMP, and also to show the boro crop situation in areas other than their own. At the academy the participants were given some ideas by the members of FIM. They were then taken to the field where the whole day was spent on visit, discussions and exchange of views between the farmers of the field area and the participants.

Table 9 : One-day Field Rally on Irrigation Management Programme for farmers of different upazilas in Bogra District.

Rally No.	Name of Upazila from where participants attended	Name of fields visited	Date of Rally	Planned total No.	Actually attended			Total No.	Percentage of attendance
					Ma-ger	Model Far-mer	Pump Opera-tor		
1st	Gabtali, Bogra Sadar & Kahaloo.	Shilkour KSS of Kahaloo.	3 May, 1985.	60	14	14	14	42	70
2nd	Gabtali, Bogra Sadar, Kahaloo & Kalai.	Satghoria KSS of Bogra Sadar.	15 May, 1985.	60	20	21	19	60	100
3rd	Gabtali, Bogra Sadar, Kahaloo, Kalai & Sherpur.	Mirer-Chalk KSS of Shibganj.	17 May, 1985.	60	22	18	18	58	97
Total				180	56	53	51	160	89

Sixty farmer-participants consisting of Managers, Model Farmers and Pump Operators were invited in each rally. The first rally was attended by 70% while the second and the third were respectively by 100% and 97% participants. Lack of communication was the reason for lower participation in the first rally.

(7) Training of Counterparts :

Two counterparts from each of the three departments were scheduled to work with the project (Appendix - A), but actually this did not happen. All the departments could not depute their counterparts in time. Seven counterparts of senior level officers : two from BADC, one from DAE and two from BRDB in 1982-83, one from DAE and one from BRDB in 1983-84, and only one from BRDB in 1984-85 were attached to the project. Their attachments were shown in Table 10.

Table 10 : Year-wise attachments of departmental counterparts.

Department	81-82	1982-83	1983-84	1984-85
BADC	-	2	-	-
DAE	-	1	1	-
BRDB	-	2	1	1
Total	-	5	2	1

The counterparts were to attend the training course and to participate in the discussions. They were also to study the DTAs and farmers group and collect information. They took classes as and when felt needed. After return from attachments they were expected to provide leadership in their places of posting on command area development and IIP implementation.

(8) Seminars :

Three seminars of one day duration were held during 1982-83. The seminars, one with 18 NIPA trainees and the other with 4 international experts were held at RD., Dacca. The third seminar was held at COTA, Dhaka organised by RBA, and 125 upazila officers of BADC, DAE and BRDB participated.

On completion of every two or three courses of training, a two-day seminar was felt important to be held for discussion with the already trained officers to know the impact and effect of training and its utilization in irrigation management. The seminar would provide an opportunity

for the supervising officers to make them acquainted with the training to evaluate the impact of training in the field. Unfortunately, no such seminar was held with the already trained officers and their supervisors.

Impact of Training :

The impact of the training could be visualized by the increased number of farmers trained by officers, increase of command areas, increase of yield per acre, decrease of cost of irrigation per acre and increase of participation of farmers in the irrigated crop production.

(1) Farmers Trained by Officers :

The upazila level officers after receiving training at Rural Development Academy, Bogra were imparting training to the farmers. Five upazilas in five greater districts of North-west Bangladesh were checked and it was observed that every year a significant number of farmer level personnel were being trained by upazila officers (Appendix - B).

(2) Area, Yield and Farmers Participation :

Information regarding increase in command area per DTW, yield per acre, cost of irrigation per acre and participation of farmers were collected from 12 DTWs as per prescribed proforma through interview with the society managers (Appendix - C). It seems that the command area increased to some extent. But the yield per acre did not increase significantly as it was expected. Irrigation cost however did not decrease due to increased price of oil-fuel and spare-parts. It had decreased only where the DTW had been electrified. Participation of farmers in growing irrigated crops increased year by year. In one DTW of Boshmuri in Hakimpur Upazila the participation decreased to some extent. The information in brief is shown in the following table.

Table 11 : Average area covered per DTW, yield and cost of irrigation per acre, and participation of farmers.

Sl. No.	Particulars of items	Before Training (Base figure 1981-82)	After training		
			1982-83	1983-84	1984-85
1.	Area per DTW (Acre)	29	67	78	78
2.	Yield per acre (in maund)	45	49	52	52
3.	Cost of irrigation per acre (in Taka)	800	795	719	820
4.	Participation of farmers in irrigation.	61	68	87	85

It appears from Table 11 that coverage per DTa (in acre), yield per acre and the participation of farmers gradually increased from 1981-82 to 1984-85 in the selected 5 upazilas. On the other hand, cost of irrigation per acre declined over the three years of the project period. The declining trend in the per acre cost of irrigation would have been lowered further if the prices of fuel, mobil, etc. would have not gone up.

(3) Report Prepared on Training :

Several reports have been prepared and published. These are mentioned in Appendix - D.

In addition to the above, there was impact on other areas which are given below :

i) Many of the farmers had been applying their ideas in the field what they learned from trainers who received training at RBA. They were also increasing their command areas and crop production.

ii) The survey revealed that many of the Upazila Agricultural Officers were producing good yields in the demonstration plots. Some of them were **improving** the cropping patterns and inserting legumes or green manure to improve soil condition. They were also training the farmers about compost making, crop protection and general techniques of crop production.

iii) It was also revealed from the same survey that some trainees had been observed giving training to the Block Supervisors and Inspectors of UCCA. The latter were improving the organizational set-up, book-keeping and accounting of funds. In some cases meetings were held regularly to thrash out management problems. Some even carried out a bench-mark survey.

iv) The trainees also indicated that they could satisfactorily explain the role of agriculture in improving the nutrition of the people and the necessity of a village institution or village organization and the need for a fully planned on-farm water management system.

Observation in Training :

i) At the beginning, upazila officers from BADC, DAE, BRDB and LG (RWP) were desired for giving training. Later on, the officers from LG (RWP) were omitted as they were not directly involved in irrigation command area development.

ii) While preparing the project proforma (PP), provision was made to impart training to 138 upazila officers and 700 selected Inspectors, Managers and Model Farmers (Appendix - A). However, after one year it was decided that 470 upazila level officers as well as a reasonable number of DT user-farms would be imparted training. As a result a total of 470 upazila officers were scheduled to be trained in TCAD. In addition to the training of upazila officers, the training at farmers level was also arranged in the later part of the project period. The total number of officers participated was 633 in long course and 398 in short course, and that of farmers was 1730.

In spite of training to 468 officers against a target of 470 in long courses (both TCAD and IMP) in Rajshahi Division, it was observed during checking of five upazilas of five districts that some officers were still left to be trained at FIM, RDA. This was due to transfer or promotion or resign of old officers and replace by or posting of new untrained officers. (Appendix - E).

In procuring upazila officer-trainees, necessary efforts were made. In spite of this effort, participation was not found satisfactory in each of the courses. The reason for less participation of officers was mentioned as their involvement in departmental programmes.

The participation in the farmers courses was almost cent percent, while that in officers course was not upto the satisfaction.

iii) While conducting several courses for farmers of different DTW areas, some more training courses for the Inspectors, Managers and Model Farmers of UCCA-KSS system of BRDB was demanded by the trainees to be conducted at FIM, RDA. This had been expressed by the respondents during the evaluation.

iv) Most of the trainees indicated that for learning development of command areas, specifically how to increase irrigated area of the irrigation scheme and how to increase agricultural production, a multi-disciplinary approach and cooperation among the upazila officers was needed to effect the development. Majority of the trainees indicated that they attained their objectives either satisfactorily or very satisfactorily.

v) In general they felt that the course provided important topics required for acquiring knowledge of the officers of the three disciplines necessary for performing their jobs properly. However with different backgrounds and experiences, the trainees felt that the duration of the multi-disciplinary course should be longer to absorb the different topics taught.

vi) The trainees also felt that more practical demonstration and assignments should be incorporated in the curriculum and class room instructions should be reduced to minimum. As an explanation, they wanted more field trips and site seeing. It was believed that field trips were desirable only to a certain extent and there were many aspects that were beneficial to the trainees, could be taken up and discussed inside the class room.

vii) Initially most of the sessions^s were held in the class room with theoretical lectures. To make it more meaningful and useful, the training was then made field oriented at farmers field and D.F. area with a few lectures in the class room. It was made demonstrative and research result oriented.

viii) In order to form a complete team of irrigation management at each upazila, full participation of Sub-Assistant Engineers, Upazila Agricultural Officers, Subject Matter Officers, Upazila Rural Development Officers, and Assistant Rural Development Officers from particular upazila was desired in each training course. Practically it did not happen. All the three officers from each upazila did not attend the courses as a team at a time.

ix) The farmers level personnel such as Inspectors, Managers, Model Farmers, Drivers and Mechanics having only High School level of education could not follow English well. As such, the Faculty Members, departmental counterparts and guest speakers from concerned agencies were utilized for taking classes so that proper knowledge and skills would be transmitted to them during the two-week course and four-day course at the Academy. The training at UTDCs was designed and imparted by the upazila level officers.

Limitations in Training :

i) The project was scheduled to commence on 1 July, 1981 but actually it commenced its activity in November, 1981. This was due to delay in approval of the project by the government as well as delay in signing the agreement between Bangladesh Government and USAID, the donor agency.

The activities of the project : training, research and FIM development could not progress due to lack of availability of fund and vehicle in time.

ii) It had been observed in the field that the trained officers were busy with their own departmental programmes instead of irrigation management programme. The Sub-Assistant Engineers were busy in the installation and commissioning of D.F.s, the Upazila Agricultural Officers in the implementation of Training and Visit system and the Upazila Rural Development Officers in the disbursement of crop loans. Integrated and cooperative approach of the three departmental officers did not work cohesively. The cooperation is not stronger as was expected.

iii) English was used as medium of instruction in the training at the beginning. It was opined by most of the trainees that Bengali should be used for their active participation in the discussion and better understanding. This was not possible as the project was supported by some foreign experts attached to it.

iv) In order to study D.F.s, conduct research and training activities and contact guest speakers vehicles were essential. Availability of one Land Cruiser Jeep at later part did not satisfy the need of the Members of FIM for research and training components of the project. For smooth functioning of the project one more vehicle should have been provided to the Faculty of Irrigation Management.

v) The strength of FIM with 6 members was not enough.

vi) Counterparts were not sufficient in number to help the FIM.

Development of Training Materials :

Training materials in the form of lecture sheets, charts, graphs, flip charts, reports, booklets, a audio-visual aids etc. for use in the training class were developed (appendix -D). But these were not sufficient.

A Training Manual for Upazila Officers was prepared in English and handed over to the trainees for their use. Many of the training expressed that this should have been prepared in Bengali for their understanding and handing over to the farmers. They stressed for preparation of more training materials, especially the audio-visual aids.

b. Adaptive Research :

The concept of research was totally absent in the original scheme. This was incorporated in the scheme quite late. Again it took much time to get approval of the scheme and the fund was not available. Within these uncertain situations only two DTWs were undertaken for adaptive research. These were Shilkour DTW and Narhatta DTW. Besides, a few more researches were undertaken for adaptive researches.

A brief account of adaptive research is given below :

i) A new type of low cost irrigation channel was constructed and cropping system was planned under Shilkour village deep tubewell area. Three main straight earth channels of 3,500 feet long in 3 directions from the DTW were constructed involving village farmers. Of the total, 3,500 feet long, 9 feet width and one feet depth were lined with low cost materials such as soil, sand and cement in the proportion of 1:4:1 for conveying two cusec water. It cost Tk. 8.00 per running feet of main channel. The DTW had been able to cover 115.00 acres under boro paddy.

The important positive factors emerged from the experiment of Shilkour DTW. The farmers initiated and accepted the introduction of improved technology in siting and construction of a lined main water supply channel for command area development. They also constructed the earthen foundation and lined the main channel with the mixture of soil, sand and cement with the assistance of Faculty of Irrigation Management. The villagers supplied most of the labour inputs voluntarily. Due to varying thickness of the channel as little as 1 inch, some fractures and cracks appeared in both walls and bed of the channel. However this defect could be overcome by applying improved technology and the longevity of the channel would be increased from 2 years to 5 years.

ii) A buried pipe irrigation system had been introduced in Narhatta deep tubewell costing Tk. 9,00,000. Four channels of 12,000 feet long underground pipes of 10" inch and 8" inch diameters made of asbestos cement had been laid under 3.5 feet depth to irrigate 166.40 acres in boro paddy. It saved about 1.00 acre land from channel making and also saved from social conflicts. It covered 136.00 acres under boro paddy during boro season of 1982-83.

In the buried pipe system of irrigation in Narhatta DTW the initial expenditure is high and it is beyond the capacity of the farmers society. However much area could be commanded by this system and the channel longevity would also be around 30-50 years, thus reducing the per acre cost of production. Besides, this system could save from botheration of channel repairing and social conflicts every year.

iii) A study on drawdown of static water level in one STW in Adamdighi Upazila of Bogra District was made and suggestions were made to place the STW engine-pump to a depth of 6 to 9 feet below the original level by digging the base of the tubewell. This system reduced the distance of water level from the centrifugal pump and helped to deliver more water for irrigation.

iv) A demonstration field exhibiting cropping practices, irrigation channels, infiltration rates etc. had been established at the Academy Demonstration Farm. These have been done with the help of FAO/UNDP experts and members of FIM.

v) Construction of 1,000 feet long Trapezoidal Irrigation Channel with asbestos cement materials had been made in the Academy Demonstration Farm. This cost Tk. 82 per running foot. It however enhanced water flow from delivery point to distant plots without loss of water through infiltration. It has ultimately helped to cover more area under irrigation.

vi) Another new type channel made of concrete slabs had been made in the Academy Demonstration Farm. It was found quite effective and less costly (Tk. 35 per running foot) compared to others. It is more durable than any type of the channels. In case any slab is damaged, it is easier to replace.

vii) A study of 10 DTWs under IMP in Bogra District had been made. It was observed that due to introduction of IMP, the command areas have increased in all sample tubewells. However, all farmers under the DTW were not aware of block system of irrigation. Block system of water distribution should be implemented in all command areas.

There was no general increased trend of unit production in the IMP command area. The farmers generally do not practise a sensible cropping pattern which sustain the soil productivity. Majority of them plant cereal crops especially rice every season without interrup-

tion of a legume or green manure crop or application of compost or soil attendments. The farmers need be oriented with these for better result.

Sound and strong coordination among the officers of BADC, DAE and BRDB was lacking in implementation of IMP. For best utilization of the DTWs through IMP, a better coordination and cooperation should be developed among these officers.

viii) A study on "Factors Affecting Command Area Development" under irrigation equipments in 5 Districts of Rajshahi Division was made covering Socio-Economic, Irrigation Agronomy and Irrigation Engineering aspects. From the study positive correlations of command area development were found with proper formation of managing committee, time required in forming managing committee, occupation of managers, level level of education of manager, remuneration of manager, coordination of manager with members, maintenance of accounts, number of farmers, methods of water distribution, cost of irrigation, site selection, availability of oil-fuel, break-down, spare parts & mechanics and time required for repairing. Pucca channels were suggested to arrest misuse of water. The farmers need motivation, credit, training and extension facilities and also availability of spare parts with quick repairing service facilities.

ix) A study on expansion of STWs in Dhunat Upazila showed that farm people are more interested on having STWs in spite of higher water charge compared to that of DTWs-LLPs. Advantages for accepting STWs over DTWs and LLPs were of smaller management, smaller investment and regular water supply. Many STWs were operated within the command area of DTWs or LLPs creating problems. Yield of boro crop per acre under STWs was found more than that found under DTWs or LLPs. One-fourth portion share of the harvest of the crop is usually changed as the irrigation cost and is taken right at the field by the owner of the STW. STWs were found to be shifted very often from one place to the other.

Some of the reports of research activities had already been published (Appendix - D).

c. Development of Faculty of Irrigation Management :

Of the 4 FIM Members deputed in the project by the Academy, the one in the Irrigation Engineering discipline left the project for higher study in May, 1982 and joined the FIM in May, 1983. As such, the work in the

discipline suffered for sometime. To fill up this vacancy an Irrigation Engineer was recruited in the position of Training Officer for the project in November, 1982. With the deputation of one more Member to the FIM as Agricultural Economist, the total strength raised to six members.

Again, for comprehensive work on adaptive research and training, only 6 Members were not enough. There was a total need of twelve members; one Head of FIM, three in each of the disciplines of Irrigation Engineering, Irrigation Agronomy and Institution Building and two in Agricultural Economics.

Though there was a provision for higher training for the members of the Faculty of Irrigation Management, it could not be materialized. Only an arrangement for study tours for the members of Faculty of Irrigation Management was made in Thailand, India, Pakistan and Philippines for observations on irrigation management.

2. Financial Utilization:

The project was financed by Government of Bangladesh (GOB), United States Agency for International Development (USAID), and Food and Agriculture Organization (FAO)/United Nations Development Programme (UNDP). The total cost of the project and the utilization of the funds obtained from above sources are given below.

Table 12 : Cost of the project and utilization of funds.(Lakh Taka).

Source of Fund	Approved total cost	Utilization amount	Expenditure (%)	Remarks
GOB	22.45	14.06	5	For adaptive research.
USAID	39.21	30.30	12	For training allowance.
FAO/UNDP	212.78	212.78	83	For salary, transport & equipment.
Total	274.44	257.14	100	

Out of the approved cost of Tk. 274.44 lakh, Tk. 257.14 lakh were received. The entire received amount was utilize during the project period, July 1981 to June 1985. It may be seen from the above table that Tk. 212.78 lakh which was 83% of the total expenditure was spent directly by FAO/UNDP personnel engaged in the project for their salary, transport and some equipment.

CHAPTER - IV

RECOMMENDATIONS

In order to improve the training courses and to get the benefit the following recommendations were made.

- i) Participation of the upazila level officers of relevant departments did not work as a team. Instruction from concerned departments should be given to the participating upazila officers for attending the course in a team form so as to make the training effective. Those who are responsible for implementation of the courses in the field, should be imparted training. On return they should work as a team.
- ii) The training given at FRI, RD.C., should be disseminated. To help this topics of the training courses for WD.C. and T & V system should be included in the normal training programme of I.A.P.
- iii) In order to accomplish these activities the upazila officers should be provided with the necessary logistic support, like transport, office supplies etc.
- iv) There should be firm policy decisions on the part of the government followed by circulars, supervision on I.A.P. implementation and maintenance of channel etc. there on.
- v) Improved appropriate training materials such as manuals, films etc. adapted to the local conditions should be developed.
- vi) The on-going training on I.A.P. is actually the continuation of the training on I.C.D. The follow-up about impact of the present I.A.P. training should be done through evaluation every year at the field level for correction of defects, future guidance and adjustments with the changed circumstances. Continuous feedback from the field on the constraints should be made by FRI or a cell located at the Ministry of LG, RD.C. Cooperatives.
- vii) Participation of Upazila Officers and farmers leaders is needed from tubewell site selection to final installation of the irrigation equipment.
- viii) There should be a water law to solve the problems of siting and zoning of irrigation equipments and use of irrigation equipments and fixed water charge by private owners.

Plan for Trainees and Counterparts

(Extract from Project Proposal)

a. Distribution of Trainees from the Participating Agencies :

Batch No.	Trainees	1981-82	1982-83	1983-84	Total
I)	Thana Extension Officers of DAEM, Sectional Officers of BADC, Thana Project Officers of IRDP and TIP Overseers of LGRD.	44	-	-	44
II)	- Do -	44	-	-	44
III)	Thana Project Officers of IRDP.	50	-	-	50
IV)	Inspectors of UCCAs, Managers and Model Farmers of KSS.	-	50	-	50
V)	- Do -	-	50	-	50
VI)	- Do -	-	50	-	50
VII)	- Do -	-	50	-	50
VIII)	- Do -	-	50	-	50
IX)	- Do -	-	50	-	50
X)	- Do -	-	50	-	50
XI)	- Do -	-	-	50	50
XII)	- Do -	-	-	50	50
XIII)	- Do -	-	-	50	50
XIV)	- Do -	-	-	50	50
XV)	- Do -	-	-	50	50
XVI)	- Do -	-	-	50	50
XVII)	- Do -	-	-	50	50
<u>Total</u>		138	350	350	838

b. Distribution of Departmental Counterparts :

Two numbers of counterparts from each of IRDP, BADC, DAEM, and LGRD will stay and work on deputation for a duration of one year with the Tube-well Command Area Development Project.

Counterparts from DAEM	2	2	2
" " BADC	2	2	2
" " IRDP	2	2	2
" " LGRD	2	2	2
<u>Total</u>	8	8	8

Statement showing the Number of Farmers Trained

Name of Upazila	1981-82	1982-83	1983-84	1984-85	Total
Raiganj, Fabna	257	91	220	N.A.	
Nandigram, Bogra	41	174	200	301	
Singra, Rajshahi	127	209	325	N.A.	
Polashbari, Rangpur	15	278	462	486	
Hamimpur, Dinajpur	31	102	119	110	

Total

N.A. = Not available.

Statement showing Yearwise coverage, Yield per acre, Cost of Irrigation and Participation for sampled DTWs.

District & Upazila	Name of DTW	1981-82				1982-83			
		Area per DTW (acre)	Yield per acre (md.)	Cost of Irrigation per acre (Tk.)	Participation of farmer (in irrigation)	Area per acre (md)	Yield per acre (md.)	Cost of irrigation per acre (Tk)	Participation of farmers (in irrigation)
Raiganj, Pabna	Madhyapara,	40	36	700	45	55	42	700	58
	Khudrabasuria,	-	-	-	-	40	48	750	80
Manuigram, Bogra.	Batdighi	-	-	-	-	100	60	795	135
	Batlal.	-	-	-	-	75	55	900	51
	Dalgacha, Daughora	85	-	-	-	90	-	-	-
Singera, Rajshahi	Bashantapur,	-	-	-	-	-	-	-	-
	Isolbaria,	-	-	-	-	75	46	918	47
Polashbari, Rangpur	Noainpur,	42	42	900	65	57	44	750	76
	Ghorabandha,	-	-	-	-	40	35	750	30
Hakimpur, Dinajpur	Bashmuri	55	50	-	93	70	54	-	90
	Bishapara	48	54	-	40	52	60	-	48
Average :		29	45	800	61	67	49	795	68

Source : Collected from KSS Managers' Records.

District & Upazila	Name of DTW	Area per DTW (acre)	Yield per acre (md.)	Cost of irrigation per acre (Tk.)	Participation of farmers (in irrigation)	Area per DTW (acre)	Yield per acre (md.)	Cost of irrigation per acre (Tk.)	Participation of farmers (in irrigation)
Raiganj, Pabna	Madhyapara,	70	45	750	89	75	47	800	96
	Khudrahasuria,	70	60	600	125	74	69	750	130
Mandigram, Bogra	Batdichi	110	51	900	190	112	55	920	195
	Hatlal,	70	30	900	51	73	48	840	52
	Dalgacha,	87	-	-	-	84	49	900	55
	Dhanghora,	81	-	-	-	83	46	930	60
Sirpara, Rajshahi	Bashantapur,	82	63	520	58	80	54	700	59
	Isolbaria	81	60	952	58	78	55	910	62
Fokshbari, Rajshahi	Noinpur,	70	48	670	107	71	49	790	108
	Ghorasandha,	80	60	450	55	82	52	680	55
Hakimpur, Dinajpur	Bashmuri	70	45	-	88	71	48	820	89
	Bishapara	60	60	-	52	60	57	810	54
	Average	78	52	719	87	78	52	820	85

Reports and Publications on C.D./IMP.

Reports on Training :

1. Report of Training for Upazila Officers on Tubewell Command Area Development, 1984.
2. Report of Training for Farmers on Irrigation Command Area Development, 1984.
3. An Overview of Training on Irrigation, 1985 (Bengali).
4. Reports on Study Tours to Thailand, Philippines, India and Pakistan, 1984.

Training Materials :

1. Lecture Materials - Irrigation Engineering and water Management, Vol. I & II.
2. Lecture Materials - Agronomy.
3. Lecture Materials - Organization and Institution.
4. Lecture Materials - Extension.
5. Training Manual for Upazila Officers at RD., 1984.
6. The Plane Table Method of Survey.

Reports on Adaptive Research :

1. Low Cost Channel Lining for Irrigation (An Adaptive Research Under Deep Tubewell at Shilkour), 1984.
2. A Study on Management and Operation of DTWs under IMP in Bogra District, 1985.
3. Study of a Deep Tubewell in Jhinsi Village in Dhunat Upazila of Bogra, 1985.
4. Comparative Study of Channel Linings at Shilkour and at Academy Demonstration Farm, 1985.
5. Study on Expansion on Shallow Tubewells in Dhunat Upazila, Bogra, 1984.
6. Study on Factors Affecting Irrigation Command Area in North Bengal, 1984.
7. Underground Low Pressure Pipe System - Narhatta.
8. Assembled Data Relevant to Channel Linings in Bangladesh.

List of Trained and Non-trained Officers & Farmers

<u>Name of the Respondent</u>	<u>Designation</u>	<u>Trained/ Not trained</u>	<u>Remarks</u>
a. <u>Nandigram, Bogra.</u>			
1. Mr. Abdur Rahman Sarker	SO	Trained	
2. Mr. Enamul Haque	U.O	Trained	
3. Mr. Nazrul Islam	DTW Manager, Hatlal KSS	Not trained	
4. Mr. Yakub Ali Talukder	DTW Member, Hatlal KSS	Not trained	
b. <u>Raiganj, Pabna.</u>			
1. Md. Golam Mostafa	SO	Trained	
2. Mr. Rabindra Kumar Mazumder	U.O	Trained	
3. Md. Abu Baker Siddique	URDO	Not trained	
4. Md. Abed Ali	ex-Manager (DTW) Chandaikona- Madyapara.	Trained at Upazila	
5. Md. Jabed Ali	Member, Chandaikona Madyapara KSS	Trained at Upazila	
6. Md. Mosharruf Hossain	Manager DTW KSS	Trained at Upazila	
7. Md. A. Satter	Block Supervisor	Trained	
c. <u>Singra, Rajshahi.</u>			
1. A.H. Sakhawat Zaman	URDO	Trained	
2. Sree Atul Chandra Pramanik	Block Leader (DTW) Basantapur	Not trained	
3. Sree Nikail Chandra Sarker	Vice-Chairman (DTW)	Not trained	
4. Sree Rashini Mohanta	DTW Driver, Basantapur	Not trained	
d. <u>Polashbari, Rangpur.</u>			
1. Md. Shafiqur Rahman	U.O	Trained	
2. Mir. Md. Abdur Razzaque	SMO	Trained	
3. S.M. Aminur Rahman	URDO	Not trained	
4. Md. Saidur Rahman	DTW Manager, Daulatpur	Not trained	
5. Md. Rabiul Hasan	KSS Chairman, Daulatpur	Not trained	
6. Md. Azizur Rahman	Block Leader (DTW), Daulatpur	Not trained	

<u>Name of the Respondent</u>	<u>Designation</u>	<u>Trained/ Not trained</u>	<u>Remarks</u>
e. <u>Hakimour, Dinajpur</u>			
1. Md. Muslim Mia	U.O	Trained	
2. Md. Ali Azam	SMO	Trained	
3. Md. Lutfur Rahman	URDO	Trained	
4. Md. Abdus Satter	URDO	Trained	
5. Md. Anwaruzzaman	ARDO	Trained	
6. Md. Mahbubur Rahman	SO	Trained (Transferred)	
7. Mr. Nitta Ranjan Pal	UO	Not trained.	