

16

SUSTAINABILITY OF RURAL DEVELOPMENT PROJECTS :

A CASE STUDY OF RURAL DEVELOPMENT 1 PROJECT BANGLADESH

(IDA CREDIT NO. 631 BD)

**AKBAR ALI KHAN
ABDUL MUYEED CHOWDHURY
MD. AMINUL ISLAM BHUIYAN
A.H.M. NIZAMUDDIN CHOWDHURY**

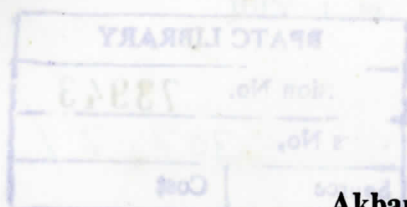
307.7
KHS

SUSTAINABILITY OF RURAL DEVELOPMENT PROJECTS

A CASE STUDY OF RURAL DEVELOPMENT 1 PROJECT

BANGLADESH

(IDA Credit No. 631 BD)



Akbar Ali Khan
Abdul Mueyed Chowdhury
Md. Aminul Islam Bhuiyan
A. H. M. Nizamuddin Chowdhury



Bangladesh Public Administration Training Centre

Savar Dhaka

19 SEP 1992

This Volume is published under the

BPATC CASE STUDIES SERIES-4

Copyright 1988

Bangladesh Public Administration

Training Centre

Savar, Dhaka

Published by

Md. Obaidul Azam

Publication Officer

Bangladesh Public Administration

Training Centre

Savar, Dhaka

*

BPATC LIBRARY	
Session No.	73943
Series No.	307.7 /
Source	Cost

LEA

Printed at

ABCO PRESS LTD.

31/A Rankin Street Wari

Dhaka-1203

Price :

Tk. 40.00 (Inland)

U. S. \$ 5.00 (Overseas)

This case study is the product of a co-operative programme between the Centre and the Economic Development Institute (EDI) of the World Bank, Washington D. C., U. S. A. Research on this project was jointly carried out by the professionals of the Centre and those of the Rural Development Academy, Bogra, Funds for the research were provided by the EDI.

CURRENCY EQUIVALENT

US \$ 1 =	Taka 13.00
Taka 1 =	US \$.077
Taka 1 million =	US \$ 76923

(At the time of appraisal)

FISCAL YEAR (FY)

JULY 1 to June 30

WEIGHTS AND MEASURES

1 acre (ac)	= 0.405 hectare (ha)
1 maund (md)	= 82.27 pounds (lbs) = 37.3261 kg.
1 seer (sr)	= 2.056 pounds (lbs) = 0.933 kg

ADMINISTRATIVE STRUCTURE

OLD		NEW
Union	6.12 villages	Union
Thana (police station)	6.15 unions	Upazila
Sub-division	5.12 Thanas	converted to zila (Districts)
District (Zila)	1.6 subdivision	Zila (Districts)
	12.30 upazilas	
Division	5.7 districts	

LIBRARY

Bangladesh public Administration
Training Centre
Savar, Dhaka.

LIST OF ABBREVIATION AND ACRONYMS USED

A.G.M.	Annual General Meeting
Aman	Rice planted before or during monsoon and harvested in November—January
Aus	Rice planted during March—April and harvested during July—August
BADC	Bangladesh Agriculture Development Corporation
BD	Bangladesh
BIGHA	Thirty three decimal (approx)
Boro	Rice planted in winter and harvested during April—June
BRDB	Bangladesh Rural Development Board
BSS	Bittaheen Samabay Samity (Cooperative for resourceless people)
DTW	Deep Tube Well
ERR	Economic Rate of Return
FY	Fiscal Year
GOB	Government of Bangladesh
Grameen Bank	Village Bank
HTW	Hand Tube Well
HYV	High Yielding Variety
IDA	International Development Association
IRD P	Integrated Rural Development Programme
Katcha Road	Di t Road
KSS	Krishi Samabaya Samity (Farmers' Cooperative Society)
Lac, Lakh	.1 million
L. Boro	Local Boro
LLP	Low Lift Pump
LT Aman	Local Transplanted Aman
MC	Managing Committee

MSS	Mahila Samabaya Samity (Women Cooperative Society)
MT	Medium Term
OED	Operation Evaluation Department of the World Bank
O & M	Operation and Maintenance
P.a.	Per Annum
PRMR	Pacca Road Metalled Road
PARD	Pakistan Academy for Rural Development
Parishad Council	
PCR	Project Completion Report
PP	Project Proforma
RDI	Rural Development Project I
RDII	Rural Development Project II
RWP	Rural Works Programme
SAR	Staff Appraisal Report
ST	Short Term
STW	Shallow Tube Well
TCCA	Thana Central Cooperative Association
Thana	Administrative Unit comprising of 6—15 unions or 60 to 150 villages
Thana Parishad	Thana Council
TIP	Thana Irrigation Programme
Tk.	Taka
TTDC	Thana Training and Development Centre
T & V	Training and Visit
UCCA	Upazila Central Cooperative Association
Upazila	Sub-District (upgraded former thana)

A CASE STUDY OF RURAL DEVELOPMENT I PROJECT : BANGLADESH

TABLE OF CONTENTS

	Page No.
I. Introduction	1
II. The RD I : A Project Profile	2
III. Indicators of Sustainability and Methodology	7
IV. Implementation of the Project :	
Financial and Physical Progress and Bottlenecks	11
V. Evaluation of Economic Efficiency	17
VI. Evaluation of Institutional Development	29
VII. Evaluation of Economic Equity	41
VIII. Findings and Lessons	50

List of Text Tables

1. Estimated Project Costs of RD I Project	6
2. Disbursement of IDA Credit in RD I Project	10
3. Component-wise Actual Expenditures in RD I	12
4. Achievement of Physical Works and Supply of Minor Irrigation Equipment	13
5. Estimated and Actual Irrigated Area of RD I Equipment	19
6. A Comparison of SAR Estimates of Paddy Acreage with Estimates in 1977—78 by Agriculture Department	20
7. Paddy Yield per Acre : SAR Projection and Actual	21
8. A Comparison of Economic Prices of Paddy and Per Acre Irrigation Cost 1974 and 1983	22
9. Upazila—wise Cropping Intensity, 1982—86	23
10. Irrigation Equipment in Use in RD I Project Area, 1987	25
11. RD I's Share in Total Irrigated Area	26

12. Total Yield : SAR Projection and Actual	26
13. Economic Analysis of RD I Project Under Various Assumptions	27
14. Command Area of Minor Irrigation Equipment and Economic Return	28
15. Growth of KSS (Projected and Actual)	30
16. Percentage of non-members in KSS Operated STW Groups in Bogra Project Area, 1987	31
17. Bangladesh Rural Development II Project : KSS Classification Criteria	32
18. Classification of KSS in RD I Project Area on the Basis of Performance, 1983—84 to 1985—86	33
19. Upazila—wise Classification of KSS in the Project Area, 1985—86	34
20. Shares and Savings per Cooperative Member in Bangladesh and RD I 1982—83 and 1983—84	34
21. Recovery of ST Credit in RD I	35
22. Overdue ST Credit, 1987	36
23. Recovery of MT Credit in RD I	37
24. Percentage of Overdues Yearwise in RD I 1987	38
25. Inoperative Irrigation Equipment in RD I	39
26. Own Income as % of Total Expenditure	40
27. A Comparison of the Percentage of Holdings by Size : Bogra Project Area, KSS Groups and Private Irrigation Groups	42
28. A Comparison of the Percentage of Land Operated by size of Holding in Bogra Project Area, KSS Groups and Private Irrigation Groups	43
29. A Comparison of the Share of Farmers with less than one Acre of Land in Bogra Project Area	43
30. Tenurial Status of the Users of Irrigation Equipment in Bogra Project Area	44
31. A Comparison of KSS and Private Irrigation Groups in Bogra Project Area	45
32. Income Groups of the MC Members of KSS and UCCAs in RD I Project Area, 1987	47
33. Length of Membership in KSS MCs	47
34. Income and Land Ownership of STW Owners	48

Introduction

The so-called Murphy's law- "if anything can go wrong, it will"—epitomizes the dilemmas and pitfalls of rural development projects in most of the developing countries. In fact, the failure rate of projects is the highest in agricultural sector. The World Bank's performance auditing in the last decade revealed that 26 percent agricultural projects failed whereas the overall failure rate of projects is only 14 percent¹. Within agricultural sector, rural development continues to be a highly vulnerable subsector. A study undertaken by the World Bank in 1980 showed that the average rate of return of rural development projects (17 percent) was lower than that of all other kinds of agricultural projects (20 percent)². Rural development projects are executed in a precarious environment. The physical outputs in such projects are largely influenced by caprices of nature. These natural risks are very often compounded by social structures which not only perpetuate unjust orders based on "the Quiet Violence" but also nurture antiproduktive forces³. These inherent weaknesses are further exacerbated by inappropriate technology, non-availability of necessary infrastructure and support systems, lack of beneficiary participation, inconsistency of the project design with socio-cultural tradition and administrative inefficiency⁴. The mere completion of a rural development project is not, therefore, a sufficient condition for its sustainability. In such a hostile environment, even a well-executed project may not be able to maintain critical minimum levels of production throughout projects' lifetime for ensuring its economic viability.

This paper attempts to examine the sustainability of RD 1 (Rural Development 1) project in Bangladesh. This project has been selected for three reasons. First, the rural Bangladesh has "an unprecedented concentration of extreme poverty"⁵. Bangladesh offers the most challenging test case for rural development. The RD 1 project is the oldest among the completed projects in Bangladesh's rural development subsector. The experience of this project, therefore, deserves special attention. Secondly, as an aided project, this offers an opportunity to examine the efficacy of foreign aid in alleviating rural poverty. Finally, it is the first integrated area development project in Bangladesh. It has been aptly described as "an attempt to replicate Comilla on a modest scale with lavish resources"⁶. This study would, therefore, shed light on strengths and weaknesses of integrated rural development programmes.

The paper is divided into seven sections. The first section presents a profile of RD 1 project. The second section reviews the indicators for sustainability of rural development projects and delineates in brief the methodology of this study. The third section describes the

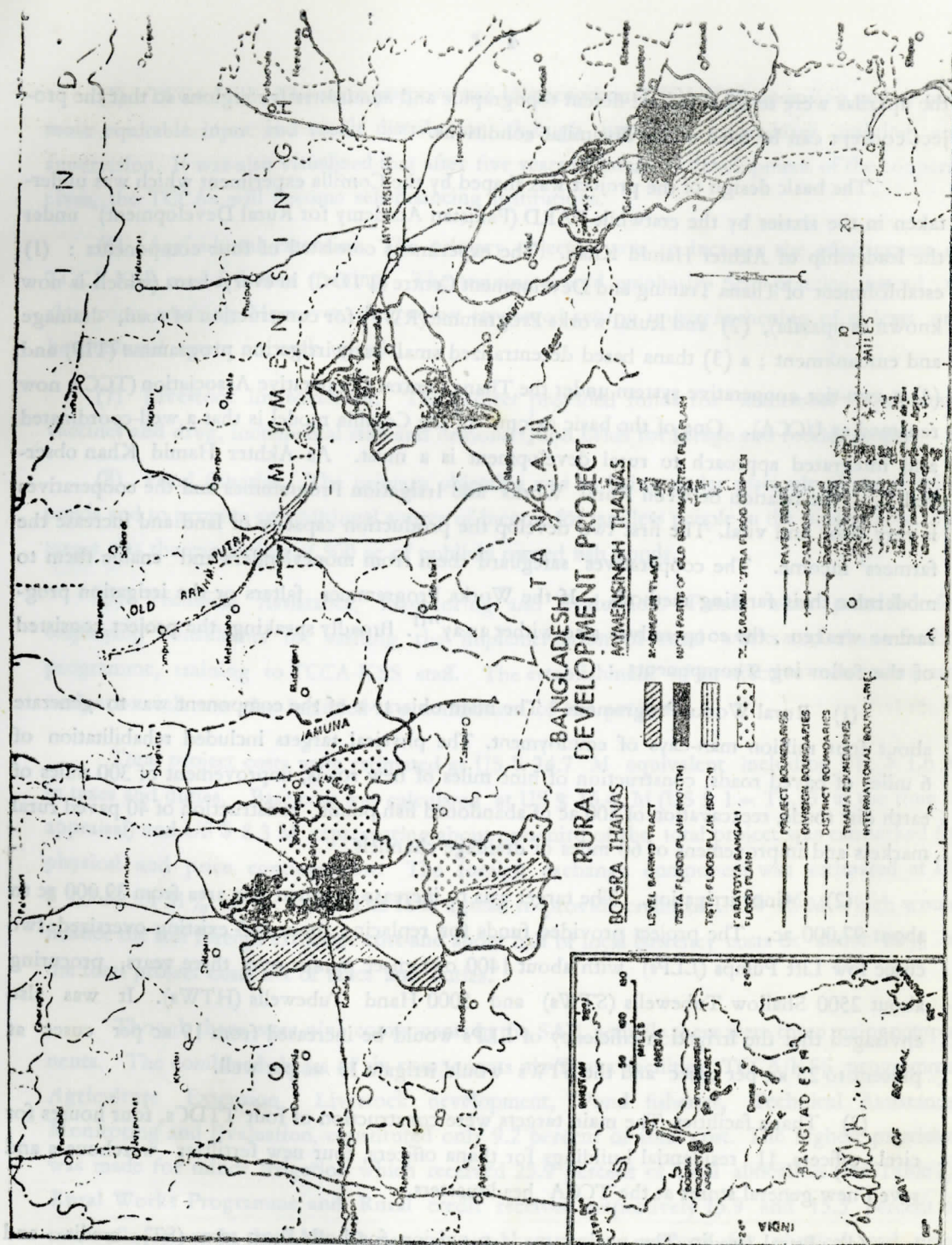
progress in implementation and bottlenecks which affected the economic viability of this project. The fourth section is devoted to an ex-post cost-benefit analysis of the project. The fifth section examines the efficacy of institutions for rural development which were actively promoted by the project. The sixth section analyses the overall impact of the project from the equity point of view. The final section summarizes the lessons learnt from the project.

1. The RD 1 : a Project Profile.

The RD 1 project was launched in 1970s as a part of the World Bank's "Assault on World Poverty"⁷. The project was originally appraised by a mission in November/December, 1974 and was firmed up in February/March, 1975. It was approved as an IDA Credit in 1976 (Credit-631 BD) and became effective from August 1976. It was originally stipulated that the project would be completed in five years. The project was not completed in time. It was extended to June 1983 and later to June 1984.

Because of limited experience of World Bank in rural development in the early 70s, it was undertaken as a pilot project. The objectives of the project were described in the Staff Appraisal Report (SAR) in the following manner : "The project seeks to evolve a model of rural development for Bangladesh, emphasizing : (a) initiating a program of low cost, short gestation, production oriented investments aimed at increasing agricultural production ; (b) building and strengthening rural institutions to improve agricultural supporting services and to ensure an equitable supply of scarce agricultural inputs to the small farmers; and (c) creating employment for rural landless people"⁸. It was further stated in the SAR that the project "is designed to strengthen and improve existing rural institutions ; to rectify domination of farm inputs and credit by the more prosperous farmers, to promote more rapid expansion of high yielding rice varieties of rainfed Aus and transplanted Aman, to increase the irrigated Boro area and to create employment opportunities by reactivating the Rural Works Program"⁹.

The project covered only 1.7 percent (956.25 square miles) of the total area in Bangladesh. The total population in the project area was about 1.7 million which constituted about 2.3 percent of the country's total population. It was envisaged that the project would directly benefit 150,000 farm families representing about 900,000 people. The project area was located in three separate blocks in Bogra and Mymensingh districts. Four upazilas in Bogra¹⁰ (Kotwali, Sherpur, Gabtali and Shariakandi) are contiguous and are about 35 air miles west of the Mymensingh upazilas (Muktagacha, Trishal and Gaffargaon) which are divided into two separate blocks (see map). These upazilas were selected on the basis of two criteria. First, the selected upazilas were economically depressed areas ; the per capita income (US\$ 70) in these upazilas was 30 percent less than the national average (US \$ 100). Secondly,



the upazilas were selected from different topographic and administrative regions so that the project concept can be tried under dissimilar conditions.

The basic design of the project was shaped by the Comilla experiment which was undertaken in the sixties by the erstwhile PARD (Pakistan Academy for Rural Development) under the leadership of Akhter Hamid Khan. The experiment consisted of four components : (1) establishment of Thana Training and Development Centre (TTDC) in every thana (which is now known as upazila), (2) and Rural Works Programme (RWP) for construction of road, drainage and embankment ; a (3) thana based decentralized small scale irrigation programme (TIP) and (4) a two-tier cooperative system under the Thana Central Cooperative Association (TCCA now renamed as UCCA). One of the basic axioms of the Comilla model is that a well-coordinated and integrated approach to rural development is a must. As Akhter Hamid Khan observed "...the relation between Rural Works and Irrigation Programmes and the cooperatives is very close and vital. The first two develop the production capacity of land and increase the farmers' income. The cooperatives safeguard them from moneylenders and enable them to modernize their farming methods. If the Works Programmes falters or the irrigation programme weakens, the cooperatives also wither away"¹¹. Broadly speaking, the project consisted of the following 9 components :

(1) Rural Works Programme. The main objective of the component was to generate about four million man-days of employment. The physical targets included rehabilitation of 6 miles of paved roads, construction of nine miles of new roads, improvement of 300 miles of earth dirt roads, reexcavation of 500 ac of abandoned fish ponds, construction of 40 paved rural markets and improvement of 60 miles of drainage channels.

(2) Minor irrigation. The target was to increase irrigated rice area from 39,000 ac to about 97,000 ac. The project provided funds for replacing about 805 existing oversized two cusec low Lift Pumps (LLPs) with about 1400 one cusec pumps over three years, procuring about 2500 Shallow Tubewells (STWs) and 5000 Hand Tubewells (HTWs). It was also envisaged that the irrigation efficiency of LLPs would be increased from 19 ac per cusec at present to 25 ac per cusec and the STWs would irrigate 15 ac per well.

(3) Thana facilities. The main targets were construction of four TTDCs, four houses for circle officers, 11 residential buildings for thana officers, four new fertilizer warehouses and seven new general stores at the TCCA headquarters.

(4) Rural Credit. The project made provision for both short-term (ST) credit and medium-term (MT) credit. The estimated net incremental ST credit requirement was calculated at Tk. 42 M and the target for MT credit was Tk. 70 M.

(5) TCCA-KSS. The main purpose was to strengthen TCCA-KSS operation and to promote equitable input and credit distribution through improved procedures, training and supervision. It was also visualized that after five years of intensive development of the cooperatives, the TCCAs will become self-financing institutions.

(6) Agricultural extension. The primary objective was to increase the effectiveness of TCCA-KSS model farmer training. The training would emphasize field practice instead of class room teaching. Moreover, the project envisaged setting up/strengthening of at least one horticultural estate in each upazila.

(7) Livestock improvement. The project provided funds for additional equipment, vaccines and drug, incremental staff and demonstration fields for forage and fodder crops.

(8) Pond fisheries. The primary objective was to bring under pisciculture the derelict ponds and to provide an additional source of income for landless people in the project area. The target was the excavation of 500 ac of publicly owned fish ponds.

(9) Technical Assistance, Monitoring and Evaluation. Funds were provided for employing consultants for assisting the implementation of rural works and thana facility programme, training to TCCA-KSS staff. The establishment of an effective monitoring and evaluation cell was also included as a component of the project.

Total project costs were estimated at US \$ 24.7 M equivalent including US \$ 1.6 M in taxes and duties. Base cost was calculated at US \$ 16.4 M (US \$ 1 = Tk.13 at the time of appraisal) and US \$ 8.3 M representing about one-third of the total project was earmarked for physical and price contingencies. The foreign exchange component was estimated at US \$ 7.7 M or 31% of the total. The IDA agreed to provide credit of US \$ 16 M which would finance the full foreign exchange cost and about half of local currency costs or about 69% of the total project costs net of taxes and duties.

Though there were nine components in the SAR, actually there were three major components. The combined shares of six components viz-Thana facilities, TCCA/KSS programme, Agriculture Extension, Livestock development, Pond fisheries, Technical Assistance, Monitoring and Evaluation, constituted only 9.2 percent of total cost. The highest provision was made for minor irrigation which received 25.9 percent of total allocation (see Table I). Rural Works Programme and Rural credit received respectively 15.9 and 15.5 percent of total allocation. In the SAR 33 percent total cost was reserved for physical and price contingencies. The estimates for various components were subsequently revised and these changes were incorporated in the revised PP. A comparison of the estimates of SAR

and the revised PP shows that three discernible changes took place in the estimates of the project. First, the shares of three components were significantly raised. The share of minor irrigation increased from 25.9% to 39% ; the share of RWP from 15.9% to 28.4% and the share of thana facilities from 2.9% to 6.3%. The shares of six other components decreased. Secondly, in the original appraisal, 33.5 percent of total cost was earmarked for contingencies. This was reduced to 2.6 percent in the revised PP. Finally, in the revised PP three new items were introduced. Funds were provided in the revised PP for rural industries programme for generating self-employment for rural poor and for horticulture development (see Table-I)

TABLE I
ESTIMATED PROJECT COSTS OF RD 1 PROJECT
(US \$ million)

Item	SAR estimate	cost of the item as% total as per SAR estimate	Revised PP estimate	Cost of the item as % of total as per revised PP estimate
Rural Works	3.93	15.9	6.94	28.4
Minor Irrigation	6.38	25.9	9.56	39.0
Thana facilities	0.73	2.9	1.54	6.3
TCCA/KSS Programme	0.36	1.4	0.34	1.4
Agricultural extension	0.13	0.5	0.07	0.3
Livestock development	0.51	2.1	0.26	1.0
Pond fisheries	0.32	1.3	0.17	0.7
Technical Assistance, Monitoring and Evaluation	0.24	1.0	0.18	0.7
Rural Credit	3.82	15.5	3.37	13.7
Rural industries	—	—	0.46	1.9
Horticulture development	—	—	0.88	3.6
RD-11 preparation	—	—	0.10	0.4
Base cost	16.42	66.5	23.87	97.4
Physical contingencies	1.01	4.1	—	—
Price contingencies	7.23	29.4	0.63	2.6
Total cost	24.66	100.0	24.50	100.0

Source : Project Completion Report, Bangladesh Rural Dev. 1 Project, p. 28.

III. Indicators of Sustainability and Methodology.

Literally, sustainability denotes "the ability to maintain adequate levels of production in the future"¹². In the context of a project, sustainability may be defined as "the ability of a project to maintain an acceptable level of net flow of benefits throughout its economic life"¹³. The economic rate of return (ERR) calculated a few years after the completion of the project is considered as the key indicator of project sustainability. According to Operation Evaluation Department (OED) of the World Bank, a project is considered to be sustainable if the ERR at impact evaluation is of an acceptable level "equal to or greater than the assumed opportunity cost of 10%"¹⁴. The impact evaluations are usually carried out approximately five years following the performance audit which is undertaken shortly after the completion of the project. Apart from the ERR, two additional factors are taken into account by the OED in judging project sustainability. First, a qualitative assessment of post-completion project activities vis-a-vis original project objectives are employed to complement the ERR results. This includes the assessment of operation and maintenance of technologies, efficiency of institutional arrangements and the overall policy environment. This assessment serves as the principal method of evaluating sustainability where ERRs are inconclusive or unavailable. Secondly, an acceptable ERR at impact evaluation is a necessary but not a sufficient condition for project sustainability. If the ERR is declining over time, the project may turn out to be not sustainable in the foreseeable future even if it is viable at the time of impact evaluation. So the ERR of a sustainable project should not "show a sharp decline from the audit estimates after completion, even if the estimate at impact evaluation appears acceptable in itself"¹⁵.

There are, however, several limitations of sustainability indicators used by the OED. First, the ERR may not be the appropriate tool for evaluating sustainability of projects in all sectors. For example, economic efficiency per se is not the main objective of rural development projects. Despite a high ERR, a rural development project which contributes to economic polarization would be counterproductive from social and political points of view. Such projects experience, what Albert O. Hirschman describes as "loss of soul". The projects that are prone to "loss of soul" are "those whose services can be diverted away from the intended beneficiaries, and it may happen primarily when a project...is meant to change a strongly entrenched social and economic structure by offering an advantage to a hitherto underprivileged group or region; frequently that structure is so strongly entrenched that at the end the project, in spite of all its good intentions, will further increase the advantages and fortunes of the privileged"¹⁶. The projects should not, therefore, be evaluated by the criterion of economic efficiency alone.

Secondly, ERR measures the worth of a project entirely on the basis of quantifiable costs and benefits. Very often, these can not be measured with acceptable reality. The ERR in such cases would be a poor indicator of sustainability.

Thirdly, the OED's indicators of sustainability are overly conservative. A project is not considered sustainable if the ERR in impact evaluation significantly declines compared to audit estimates of ERR. A project with ERR below cut-off level is not, however, classified as sustainable even though there is a steady improvement in the performance from a highly disappointing base. Thus ERR may not be an appropriate indicator of sustainability in projects with long gestation periods. It should be remembered that in the early stages of any development effort numerous disappointments are inescapable. Sustainability of a project should not, therefore, be measured in terms of financial success alone. The experience of overcoming teething problems also contributes to organizational sustainability.

Sustainability of a project can also be measured in terms of its ability to attain the project objectives. There are, however, three weaknesses of this approach. First a project usually does not attain all its objectives. It is difficult to determine the cut-off level of achievement for sustainability. Secondly, very often all objectives are not specified in quantifiable terms in project documents. Thus, sustainability cannot always be measured in terms of success in attaining the objectives. Finally, a project very often experiences metamorphosis. A project which may fail to attain its original objectives may contribute to other benefits which were not foreseen at the time of the preparation of the project. As Warren C. Baum and Stokes M. Tolbert rightly emphasize: "Projects frequently undergo a metamorphosis of their economic, institutional and social features in the years following completion as they adjust to the local environment and to local capabilities, often in ways that were not foreseen...".¹⁷ Thus sustainability of a project can not be evaluated by its capacity to attain project objectives alone.

The foregoing analysis suggests that the criteria for sustainability should vary from sector to sector and no single criterion may be satisfactory for all types of projects. Honadle and Vansant suggest the following three criteria for measuring the degree of sustainability of integrated rural development projects:

- (i) the percentage of project initiated goods and services that is still delivered and maintained five years past the termination of donor resources,
- (ii) the continuation of local action stimulated by the project,
- (iii) the generation of successor services and initiatives as a result of project-built local capacity.¹⁸

The indicators of sustainability, as suggested by Honadle and Vansant, are also confined to physical and institutional capacities of the project. The main object of rural development is not economic growth per se, but an improvement in the life of the rural poor. According to the definition of the World Bank, "Rural Development is a strategy designed to improve the economic and social life of a specific group of people—the rural people"¹⁹. In the same vein, Lele defines rural development 'as improving living standards of the mass of the low income population residing in rural areas and making the process of their development self-sustaining'²⁰. Thus a rural development project can not be considered to be sustainable unless it succeeds in delivering the benefits of economic development to rural poor.

The objectives of rural development projects are complex and multidimensional. No single indicator can satisfactorily assess the sustainability of projects in this subsector. Taking into account the characteristics of rural development projects, the following three types of indicators will be used in this study for judging the sustainability of RD 1 project :

- indicators of economic efficiency
- indicators of institutional development
- indicators of economic equity

Sustained increase in output is a necessary condition for alleviation of poverty. Sustainable rural development project must, therefore, be economically efficient. The development of appropriate institutions is a precondition not only for increased production but also for the equitable distribution of the benefits of growth. The institutions of sustainable rural development projects should be people-centred, self-supporting and efficient. The ultimate test of the sustainability of a rural development project is its ability to deliver the benefits of growth to rural poor. The details of these indicators are discussed in the subsequent sections.

Usually the sustainability of a project is assessed either five years after the performance audit or "five years past the termination of donor resources"²¹. Officially, the RDI project was closed on June 30, 1984 and disbursement continued till February 1985. In fact, 92.5 percent of donor resources for this project were disbursed before 10th June, 1982 and more than 80 percent of IDA's credit was spent by June 1981 (see Table-2). The project was extended from June 1982 to June 1984 for procurement of deep tubewells (DTWs) which were not included in the original Appraisal Report. Ultimately, IDA credit could not be utilized for the procurement of these DTWs and a few arrear bills were paid during the period July 1983 to June 1985. Though the project was officially closed in June 1984, the flow of donor resources

TABLE 2

DISBURSEMENT OF IDA CREDIT IN RD 1 PROJECT
(US \$ Million)

Year (Fiscal)	Actual cumulative	as % of total expenditure
1977	0.01	—
1978	0.20	1.9
1979	1.40	13.2
1980	4.40	41.5
1981	8.51	80.3
1982	9.80	92.5
1983	10.14	95.6
1984	10.30	99.0
1985	10.60	100.0

Source : Project Completion Report.

virtually ceased by 30th June, 1982. Thus the time is now ripe for an analysis of the sustainability of this project.

This study is based on both secondary and primary data. The benchmark data for this study were collected from World Bank's Staff Appraisal Report (SAR). This project was previously evaluated twice. First, a consultant prepared an Evaluation Report in June 1985.²² Secondly, the project completion Report was prepared by South Asia Regional office of World Bank in May 1986. The project was audited by OED in November, 1986. The data from these reports have been used in this study. Data on the performance of all the concerned UCCAs were collected through an elaborate questionnaire. This questionnaire may be seen at Annexure-I. The elected Chairmen and officials of upazila parishads were interviewed. Data on command area of STWs, the socio-economic characteristics of users of STWs and yield and cropping pattern were collected from 60 irrigation groups in four upazilas of Bogra. The questionnaire for this survey may be seen at Annexure-II. Data on the irrigation groups in Mymensingh upazilas were not collected because 87 percent of the irrigation equipment procured under this project were fielded in Bogra and the DTWs which were fielded in Mymensingh upazilas under the aegis of the project were not ultimately financed by the IDA. The irrigation

groups were selected on the basis of stratified random sampling to ensure the inclusion of all types of groups from the four upazilas. Data from the irrigation groups were collected in March-April 1987 during the boro irrigation season. Of the 60 irrigation groups covered, 40 are manned by cooperatives. The irrigation equipment in 20 groups is privately owned. The members of the team also visited physical facilities constructed under the project and a qualitative assessment of the operation and maintenance of these facilities were made.

IV. Implementation of the Project :

Financial and physical Progress and Bottlenecks.

The project implementation has been aptly described "as a long voyage of discovery in the most varied domains, from technology to politics".²³ Because of high degree of ignorance and uncertainty about various components of projects, the actual implementation of a project may often vary significantly from the project design. These variations influence the economic viability of the project as postulated at the appraisal. This section reviews the implementation of the project in financial terms. It also compares the physical targets and achievements and discusses the bottlenecks which impeded the implementation of this project.

Total outlay for this project was US\$ 24.66 M. Total actual expenditure was only US \$ 18.44 M. Only 74.7 percent of total outlay was spent for implementation of the project. (see table-3) Out of US \$ 18.44 M, IDA financed \$ 10.6 M and the Government of Bangladesh (GOB) financed 7.84 M. Only 66 percent of IDA's credit was utilized. However, 90 percent of GOB's share in the project was spent. Local expenses financed by the GOB increased, as a result of the extension and consequently the utilization of GOB's share is much higher than that of the IDA. There are three reasons for the low utilization of IDA's credit. First, the SAR earmarked 31 percent of the total cost for physical and price contingencies. The SAR was prepared at a time of galloping inflation and consequently an unusually large portion of the credit was earmarked for contingencies. However, the actual inflation rate turned out to be much lower. New items such as DTWs were subsequently included to increase the utilization of IDA's credit. Because of procedural disagreements, DTWs were not ultimately financed by IDA. Secondly, the SAR did not foresee the procedural and institutional weaknesses for utilization of rural credit. The actual utilization of rural credit was \$ 1.42 M short of SAR provision and this contributed to about 9 percent shortfall in the utilization of IDA's credit. Finally, the actual utilization of funds was lower than IDA's SAR estimates in 6 out of 9 components (see table 3). This may be attributed to lack of effective coordination among a number of government agencies which were entrusted with the execution of this project. As the Project Completion Report summed up "The principal problem causing delay in implementation was the

overall institutional weakness and lack of commitment of participating agencies and the inability of BADC to procure supplies of minor irrigation equipment under IDA conditions as well as the late introduction of deep tubewells into the project ...Throughout the first five years of the project, there was also serious confusion among the individual ministries and departments over implementation responsibilities relating to various components".²⁴

Table 3
COMPONENT-WISE ACTUAL EXPENDITURES IN RD I

Component.	Actual expenditure (US\$ Million)	Actual expenditure as % of SAR estimate.	Actual expenditure as % of revised PP.
1. Rural Works	6.00	176.00	86.40
2. Minor Irrigation	8.50	133.00	88.90
3. Thana facilities	0.40	54.00	25.90
4. TCC/KSS Programme	0.25	69.40	73.53
5. Agricultural Extension	0.06	46.15	85.70
5. Livestock Development	0.26	39.20	76.90
7. Pond fisheries	0.12	37.50	70.50
8. Technical Assistance, Monitoring and Evaluation.	0.31	129.10	172.20
9. Rural Credit	2.40	62.80	71.20
10. Horticulture Development	.20	—	22.70
Total	18.44	74.7	75.2

Source : Project Completion Report

The achievements of physical components of the project may be seen in table-4. As compared to the targets of revised PP, the physical achievements are unsatisfactory in two components. Only 51.8 percent of the LLP target was achieved. Moreover, only 69.6 percent of the targeted area for fish ponds was excavated. Except these two components, most of the physical targets of the project were ultimately achieved. The bottlenecks and shortcomings in the implementation of various components are discussed below.

TABLE 4

ACHIEVEMENT OF PHYSICAL WORKS AND SUPPLY OF MINOR IRRIGATION EQUIPMENT

Item.	Unit	Achievement	Achievement as% of SAR target.	Achievement as% of revised P.P. target.
A. Minor Irrigation :				
1. Low Lift Pump.	No.	726	51.80	51.80
2. Shallow tubewells.	No.	2500	99.10	99.10
3. Hand pump	No.	6000	120.00	120.00
B. Rural Works.				
1. Pacca Roads	miles	25.00	166.66	91.90
2. Katcha Roads	miles	300	100.00	100.00
3. Rural Markets	No.	40	100.00	100.00
4. Fish ponds	ac	348	69.60	69.60
5. Drainage channel	miles	52	96.30	96.30
C. Thana facilities				
1. T.T.D.C.	No.	4	100.00	100.00
2. Twin quarters	No.	11	218.00	100.00
3. TCCA Building	No.	1	—	100.00
4. Fertilizer godown	No.	4	100.00	100.00
5. General godown	No.	5	125.00	125.00

Source : Project Completion Report, p. 27

Six problems were encountered in the implementation of the minor irrigation component of the project. First, the requirement of LLPs was highly overestimated. As per SAR, 1400 one cusec LLPs were procured. At the time of project completion, only 726 LLPs were fielded, and about 48 percent LLPs were lying in the godowns. In 1985-86 boro season only 612 LLPs (44% of the equipment procured) were in operation and the command area of most of these equipment was sub-optimal. According to SAR, the main obstacle to LLP utilization was

institutional²⁵. Actually, enough surface water is not available for LLPs. Moreover, in many areas the STWs supplied by the project displaced LLPs. The cost of these unused LLPs which are lying in the godowns for last the five years would be about 10 percent of total credit disbursed by the IDA. Secondly, the SAR made wrong assessment about the ground water conditions in Mymensingh upazilas. The SAR assumed that 600 STWs will be utilized in three Mymensingh upazilas. Actually about 60 STWs are used in these upazilas. These areas are not suitable for STWs ; DTWs are more appropriate modes of irrigation for these upazilas.

Unfortunately, DTW was not included in the original project design. Thirdly, the IDA agreed to reimburse for 250 DTWs in three Mymensingh Upazilas. In view of the urgent need for irrigation, the BADC was requested to field DTWs from its existing stock and the BADC was promised that its stock would be replenished from RD I's procurement. Unfortunately, these DTWs could not at all be procured because of the difference of opinion between IDA and BADC regarding the procurement procedures. The BADC wanted to restrict the procurement from a few selected sources in order to standardize equipment and supply of spare parts. The IDA maintained that the BADC's proposal was inconsistent with the Bank's guidelines. Fourthly, the procurement of STWs, LLPs and HTWs were delayed. The Appraisal Report visualized that the supply of irrigation equipment would commence from FY 1976-77 and would be completed in the first half of the FY 1980-81. The supply of STW started in 1978-79. However, most of the STWs were fielded in 1980-81 and 1981-82. The supply of LLPs started in 1980-81. The delay occurred because of the difference of opinion between the BADC and the IDA over the awarding of tender for both LLPs and STWs. Fifthly, in Bogra district 117 locally assembled STWs were supplied. Most of these STWs went out of order as soon as they were commissioned. Similar complaints have also been received in cases of locally assembled engines for DTWs, which were installed by the BADC from its existing stock. Finally, the BADC was responsible for procurement of irrigation equipment whereas the IRDP (Integrated Rural Development Programme) which has now been institutionalized as BRDB, was responsible for the administration of project funds. Because of the difference in procedures the accounts of these two organizations have not been squared up as yet. Moreover, the field offices were not kept informed about the transactions between BADC and IRDP. Consequently, there is dispute between BRDB and BADC at the local level about the repayment of loans for irrigation equipments.

Eight major shortcomings may be discerned in the execution of the Rural Works Programme, First, 54 miles of drainage channel were excavated at a cost of about Tk.

4 M (in 1979-80 prices). These drainage channels do not serve any useful purpose at all. As the Project Completion Report rightly emphasized, "unfortunately, technical planning was seldom incorporated into the works with the result that some of the improvements have no drainage functions at all. The channels possess no structure to regulate or conserve water. Consideration was never given to the benefits which could be gained from a wider watershed approach nor to the problem of outlet... ..It has been claimed by some engineers that the only benefit of the component was the creation of employment opportunities".²⁶

Secondly, the programme for the rehabilitation of earth dirt road suffered from three problems. Because of poor supervision, weak compacting, indifferent leveling and poor repair works were done in some roads. Though 100 percent target for construction of katcha roads was achieved, all the culverts for these roads were not completed. The shortfall in culvert construction was to the tune of 17 percent. In the short run, roads may be made negotiable without culverts. But in the long run such roads are likely to be more adversely affected by the monsoon. Moreover, funds were not at all provided in the project for the maintenance of these roads during the project period. Thirdly, it was stipulated to provide 5,000 sq.ft of paved ground and a corrugated galvanized sheet iron roof to 40 markets. The project Completion Report noted faulty design and workmanship in the construction of rural markets. This is attributed to poor supervision and design of local consultants. Fourthly, the supervision of the district council was very lax in the case of paved roads. Serious irregularities were detected in case of the construction of the Trishal—Balipara Road. The road was, however, completed. Fifthly, the design and supervision of all components of Rural Works Programme left much to be desired. A report of the GOB in 1979 noted, "about 50 percent of the existing thana supervisory technical staff are of non-technical background and they lack proper knowledge in drawing up schemes with proper technical soundness. It should be noted that the level of technical staff itself is generally of lower standard."²¹ Sixthly, the Appraisal Report recommended the construction of only one paved road. Subsequently two new paved roads (Trishal-Balipara and Bogra-Chandanbaicha) were undertaken. The estimates of these new roads were not properly prepared and cost overrun delayed the execution of these roads. Seventhly, RWP components were executed by local governments who were not controlled by the project office. In some cases, the district Project Execution Committees and Thana Project Execution Committees made a number of irregular expenditures with funds provided for RWP. It is very difficult to enforce the discipline of the Project Proforma on local government. Finally, it is apprehended that there were leakages of resources from RWP component. As the Project Completion Report noted, "The muster rolls under the RWP section of the work pro-

gramme were often inflated by contractors and funds may have been disbursed in excess of the work completed."²⁸

The pond fishery component was included in the project for two reasons. First, it was designed to demonstrate the potential of improved pond fish culture for increasing the fish supply to local villages and rural markets. Secondly, it would provide an additional source of income to landless people. The SAR target was to reexcavate 500 ac of ponds. Actually 348 ac of ponds were undertaken for rehabilitation. However, of 159 ponds excavated at the cost of the project, 30 were found technically deficient and inadequate for pisciculture. It was stipulated that ponds under public ownership would be rehabilitated and leased out to landless groups. However, the project committees were very often tricked to rehabilitate private tanks. Only 54 out of 159 rehabilitated tanks were leased out to landless groups.

The construction of thana buildings and other facilities was more satisfactory than that of the RWP. However, the sub-centres for agricultural extension which were located outside upazila headquarters were not always properly designed and executed. Most of the sub-centres are not used at all.

The agriculture and livestock components of the project were neglected. Only 39.2 percent of funds earmarked for the components was utilized in this sector. In agriculture extension only 46.15% allocation was spent. The shortfall in the financial expenditure of these components also adversely affected their actual performance. The lack of close cooperation between the concerned agencies was the main reason for this poor performance.

The execution of the agricultural credit programme was handicapped by three factors. First, the supply of short-term credit could not be synchronized with the supply of irrigation equipment. As there was no significant improvement in agricultural productivity the credit recovery was poor. Secondly, MT credit for irrigation equipment was not channelled through the Sonali Bank. Because of donor's pressure to field irrigation equipment quickly, LLPs and STWs were made available to KSS-sponsored irrigation groups without making arrangements for the recovery of the loan. In most of the cases, necessary legal documents for MT credit were not also prepared. As the overdues of this MT credit are not known to banks this credit is not taken into account in assessing the creditworthiness of the UCCA. This is why the recovery of this credit is neglected. Thirdly, there was provision in the SAR for reimbursing Sonali Bank for agricultural credit. Because of GOB's procedural problems, this amount could not be reimbursed fully.

According to the Project Completion Report, the implementation of the institution-building component of the project was satisfactory. The project succeeded in covering 45% of

the total farm families. However, three problems of this component deserve special mention at this stage. First, there were two types of cooperatives in the project area : Three tier traditional cooperatives organized by the cooperative department and two-tier TCCA-KSS system based on the Comilla model. The two-tier was chosen as the vehicle for institutional development in the project. It was, therefore, proposed that traditional cooperative societies would be merged in the new system. This could not, however, be done because of the resistance of the officials of the cooperative department, unwillingness of the members of traditional societies and legal complications. Secondly, the rate of interest was lower in the rival programmes of the TCCA-KSS system (17.5% for TCCA-KSS and 12% for traditional cooperative). Moreover, the TCCA-KSS system demanded more rigorous financial and administrative discipline (such as weekly saving and meetings) than the traditional cooperative. The existence of rival programmes of the government reduced the effectiveness of the TCCA-KSS system. Finally, the leadership of the project lacked continuity. In eight years of the project's life, there were nine part-time or full-time executive directors of the project..

The monitoring and evaluation capability of the project left much to desired. As the Project Performance Audit Memorandum noted : "Monitoring and evaluation of the project was also not very satisfactory. At appraisal it was expected that a thorough evaluation of the project would be undertaken mid-way through the project and at project completion. In practice only a final evaluation was done and this was not considered very satisfactory. Management of the accounting function of the implementing agencies was also weak".²⁹ It has been estimated that the GOB could not claim reimbursement for about US\$ 1 million of eligible expenditure due to inefficient accounting of the implementing agencies".³⁰

V Evaluation of Economic Efficiency.

Opinions differ on the economic viability of RD 1 project. Both the Project Completion Report and the Project Audit Report maintain that despite the lapses in implementation, the project is economically viable. On the basis of impressionistic evidence, Rene Dumont concluded that the RD 1 "had almost no influence on agricultural production in seven thanas"³¹. Quoting an evaluation report, the Third Five Year Plan observed that the RD 1 "shows no discernible impact on agriculture as distinct from the areas outside the project"³². There are several conceptual and methodological problems in evaluating the economic efficiency of a project like RD 1.

For a multi-sectoral project like RD I, it is easier to quantify the costs than the benefits. The SAR mentioned the following benefits of the project :

(I) At full development, the project related increased production of 75, 000 tons of rice (about 115,000 tons of paddy) would represent an annual gross foreign exchange savings of about US\$ 19.0 M and a net annual saving of foreign exchange to the tune of US\$ 15 M.

(II) The project would also increase the production of jute and minor crops such as pulses, vegetables, potatoes and oil seeds etc. Rehabilitation of the 500 ac of fish ponds and strengthening of the fisheries programmes in the seven thanas would substantially increase the production of fish. The provision of vaccination services for the draft cattle would reduce the mortality rate and increase draft power availability.

(III) The construction and rehabilitation of roads and villages markets would indirectly contribute to an increase in farm production and directly in easing transportation and marketing problems.

(IV) The shift from the local varieties to HYV and the more intensive land use would create at full development additional annual farm labour requirements of about 11.2 M man-days. Non farm employment will be generated through backward and forward linkages of agricultural production. Moreover, the RWP would also create employment equivalent to 12,000 man-days.

(V) The landless and small farmers in the project would be directly and indirectly benefited from increased food grain production.

However, all these benefits except increased paddy production can not be quantified in a satisfactory manner. This is why only increased paddy production due to the project was counted in the SAR as the project benefit. All investment costs except price contingencies (Tk. 94.0 M), short term agricultural credit (Tk. 42.6 M), low lift pumps (base cost 20.6 M) and taxes and duties (Tk. 16.6) were included in the economic analysis. The investment costs were estimated at Tk. 14.6 M. Assuming a thirty year project life, the economic rate of return in the SAR was estimated to be over 40%. It is interesting to note that the SAR grossly understated the ERR. The Economic Rate of Return was recalculated on the basis of data furnished in Table 3 of Annexure 17 of the SAR. The ERR in this case is 75.6 percent-which is well over 40 percent. It is not, therefore, surprising that sensitivity analysis in the SAR showed that even if the benefits are 25% lower, the costs 25% higher, and full development is reached in 10 instead of 5 years after project completion, the ERR would be about 30 percent.

A priori, there are several reasons to suspect that the realized ERR would be lower than the anticipated ERR. First, the SAR estimated that 62 percent of incremental paddy production would come from the expansion of the HYV Boro which is solely dependent on the provi-

sion of irrigation facilities during the dry season. The SAR visualized that irrigated area would increase to the tune of 32.7 thousand ac. through the facilities provided by RD 1 project. Actually, the project contributed to an increase of 2.7 thousand irrigated acres over what would have prevailed in the absence of the project (see table-5). Around 80 percent of the shortfall in irrigated area can be attributed to a fall in the command area from 25.7 per cusec in SAR's estimate to 15.8 per cusec and the failure to field 719 LLPs out of 1400 LLPs supplied by the project. As compared to LLPs, the STWs have already reached 90 percent of the projected command area. Thus the short fall in irrigated area would considerably reduce the ERR of the project.

TABLE 5

ESTIMATED AND ACTUAL IRRIGATED AREA OF RD 1 EQUIPMENT

Period	Name of equipment	Number	Command Area per equipment (in ac)	Total Area irrigated (in 000 ac)
1. Before the project.	LLP	805	19.5 per cusec	29.0
2. SAR's estimate of future without the project.	LLP	805	20 per cusec	31.0
3. SAR's estimate of future with the project	LLP	1400	25.7 per cusec	36.0
4. Actual average of last three years (1984-85)	LLP	681	15.8 Per cusec	10.7.
5. Before the project	STW	200	7.5 per STW	1.5
6. SAR's estimate of future without the project.	STW	300	10 per STW	3.0
7. SAR's estimate of future with the project	STW	2500	12.3 per STW	30.7
8. Actual average of last three years.	STW	2370	11.1 per STW	26.4

Source : Table 2 of Annex 4 of SAR and data collected for this study

Secondly, the SAR exaggerated the projected benefits by underestimating "before the project acreage" and acreage of paddy crops in the future without the project. This is evident

from a comparison of the acreage under HYV before the project in 1975-76 and Agriculture Department's estimate (see table 6) of HYV acreage under paddy in the first year of the project (1977-78).

Thirdly, the SAR visualized that the shift from traditional varieties to HYV varieties of paddy will be facilitated by the intensive extension services provided by the project. This was specially important in case of rainfed HYV like Aus and Aman. The PCR shows that similar transition also took place in the upazilas outside the project area. An Evaluation Report of the project also concluded that both KSS and control households seem to have experienced similar cropping pattern changes. "What it probably means is that the control group of farmers, even if they had not received the help through the project would have adopted agronomic practices similar to KSS households".³³ Thus the SAR exaggerated the benefits accruing from the project.

TABLE 6

**A COMPARISON OF SAR ESTIMATES OF PADDY ACREAGE WITH ESTIMATES
IN 1977-78 BY AGRICULTURE DEPARTMENT. (in 000 ac)**

Type of crop	SAR estimate for 1975-76	SAR estimate of future without project.	Agriculture Departments' estimate in 1977-78
Local Aus	172.0	138.0	130.6
HYV Aus	23.0	82.0	70.4
Local T. Aman	306.0	218.0	222.1
HYV T Aman	46.0	134.0	82.3
Local boro	18.5	23.0	14.3
HYV boro	20.5	38.0	72.4
Total	586	553	592.1

Source : Project Completion Report.

Finally, the SAR underestimated the cost of the project by assuming an unusually low shadow price for unskilled labourers. The SAR valued all farm labour at about 45% of the peak market wage rate and construction labour at the market wage rate. In the SAR of RDII the

opportunity cost of labour is assumed to be 68% of the prevailing financial price. The National Water Plan in Bangladesh uses a conversion factor of 0.75 for wage.³⁴ According to the Trade and Industrial Policy Reform Programme, the economic wage for unskilled urban labour should be calculated at 0.732 of market wage rate whereas the conversion factors for rural unskilled labour and skilled labour are .711 and .819 respectively.³⁵ Thus the shadow wage rate in the SAR underestimates the true economic cost.

There are, however, three factors which would partially compensate the upward bias in the SAR's ERR arising from the overestimate of benefits and underestimate of costs. First, the SAR underestimated the yield of different crops at full development (see table-7). The actual estimates of yield for the years 1984-86 seems to be fairly reliable. These data were furnished by the upazila Agriculture Officers. They are, however, corroborated by the sample surveys on yield undertaken by the Project Evaluation Report and the present report³⁶.

TABLE 7

PADDY YIELD PER ACRE : SAR PROJECTION AND ACTUAL

Type of crop	SAR's before the project estimate.	Per Acre Yield (in maunds) SAR's future without the project estimate	SAR's future with the project estimate.	Average Yield for 1984-86 (1) : (2)
Local Aus	12.80	13.90	13.90	20.40
HYV Aus	20.10	24.10	27.10	37.30
Broadcast Aman	12.10	12.10	12.10	38.50
Transplanted local Aman	16.08	20.10	21.90	27.60
Transplanted HYV Aman	24.90	30.00	31.90	44.50
Local Boro	18.10	18.60	20.20	25.20
HYV Boro	31.20	38.09	45.00	47.26

Source : (1) Column 1 to 3 - SAR, Annex 2 Table-7

(2) Upazila Agriculture officers and Data collected for this study

Second, a comparison of the economic prices of RD I's and RD II's SARs showed that output prices have risen faster than irrigation costs (see table 8). The actual benefits of RD-I are likely

to be underestimated in the SAR on this count. Finally, the actual cropping intensity is much higher than the anticipated cropping intensity in RD I's SAR. It was anticipated that the cropping intensity would rise from 160% to 174%. The estimates for the years 1982-86 indicate that

TABLE 8

A COMPARISON OF ECONOMIC PRICES OF PADDY AND PER ACRE IRRIGATION COST, 1974 AND 1983

	Economic price in RD I SAR	Economic price in RD II SAR	% of increase in RD II SAR
Aman Paddy	Tk. 105 per maund	Tk. 210 per maund	200%
Boro Paddy	Tk. 95 per maund	Tk. 197 per maund	207%
per acre cost of irrigation by LLP (one cusec)	Tk. 290	Tk. 400	138%
Per acre cost of irrigation by STW	Tk. 460	Tk. 533	116%

Source : (1) Annex 4, Table 2, and Annex 7 of Table of RD I's SAR

(2) Annex 5, Table 3 and Annex 6, Table-1 of RD II's SAR

the cropping intensities vary from 1.88 to 2.35 in the project area (see table 9). The sample survey undertaken for the project Evaluation Report also supports the evidence of high cropping intensity¹⁷. It appears from the survey of the Project Evaluation Report that wheat and chillies are being cultivated on a significant scale in certain areas of the project³⁸. The benefit of wheat and chillies were not at all taken into account in the SAR's cost-benefit analysis.

The Project Completion Report did not undertake an economic re-evaluation of the project because the direct benefits of the project can not be clearly identified for the following reasons :

- Additional components have been incorporated into the project area. As such it is difficult to separate the effects of the project.
- Similar development measures such as minor irrigation, agriculture extension, roads etc, were executed in the adjacent areas of the project. It is not, therefore, possible to measure the situation which would have prevailed without the project.

TABLE 9

UPAZILA-WISE CROPPING INTENSITY, 1982-86

Upazila	1982	1983	1984	1985	1986
Shariakandi	2.1	2.2	1.95	2.05	2.00
Sonatala	—	—	2.3	2.35	2.35
Gab tali	2.0	1.93	1.56	.94	1.9
Bogra Kotwali	2.1	2.2	2.2	2.2	2.2
Sherpur	1.85	1.86	1.87	1.87	1.88
Muktagacha	2.11	2.13	2.13	2.17	2.17
Gaffargaon	2.06	2.06	2.08	2.09	2.10
Trishal	—	2.04	2.01	2.01	2.02

Source : Upazila Agriculture Office.

The PCR analysed the land use data and came to the conclusion that the increased cropped area of 191,000 ac were brought under paddy cultivation in the project area. Assuming a yield of 0.83 tons per acre, there was an incremental paddy production of 158,000 tons. The PCR concluded that such benefits would yield an economic rate of return of 12%.

There are two major weaknesses of the ERR analysis in the PCR. First, the actual investment cost of the project was substantially less than the appraised cost. The estimated incremental paddy production in the PCR (158 thousand tons) was 1.45 times higher than that of the SAR estimates (108.6 thousand tons). The PCR used paddy prices of RD II SAR which is higher than the RDI appraised estimates in both Taka and US \$ terms. There is no credible explanation as to why the realized ERR of the project is less than one sixth of the appraised ERR. Secondly, out of increased cropped area of 191,000 ac boro production increased by only 66,000 ac whereas the increased cropped area of HYV Aus and HYV Aman was estimated at 125,000 ac. The PCR itself expresses doubts about the reliability of data on HYV Aman and HYV Aus because available data indicate that local Aus and local Aman areas have remained more or less at the same level though there has been a significant expansion of acreage under HYV Aus and Aman. It is not known from where the additional acreage came. In fact, the statistics on paddy acreage collected by this study for the period 1984-86 seems to be more consistent. It appears that the increased area under Boro was provided by a fall in the area under Aus and Aman cultivation.

There are, two major methodological issues in assessing the benefits of RDI.

- Estimating the Future without Project
- Separating the benefits of RDI project from the benefits of other programmes in the project area.

The net benefit of a project is computed by deducting the benefits which would have accrued without the project from the actual benefits arising from the project. Net benefits in such cases are usually calculated by comparing post project production with actual production in similar areas not covered by the project (which are known as control areas). However, control areas for comparison with RDI can not be identified because similar areas in the same districts were covered by other projects. This problem has been compounded by the dubiousness of RDI benchmark data. In this paper, the future without project estimates of the SAR have been used for two reasons. First, even if it is proved that the benchmark data used in the SAR were underestimates, the SAR's estimate of future without the project may not be far from the reality. The SAR assumed that paddy production would increase by 20 percent at full development even in the absence of the project. This assumption was based on the hope that the acreage of LLPs would increase from 29 thousand ac to 31 thousand ac even in the absence of the project. During the period 1984-86, only 10.7 thousand ac were irrigated by the LLPs because of a significant reduction of surface water flow in the project area. This implies that the irrigated area without the project would have hardly increased and there would have been no significant increase in yield in the absence of the project. Thus even if the benchmark data were 20 percent lower than the actual, SAR's future without project estimate would remain valid. Secondly, in the absence of a suitable control area, it is not possible to construct an alternative estimate of future without project.

The RDI project area received a large number of irrigation equipment from other complementary programmes. In 1987, there were 7709 STWs in the project area out of which only 2400 were financed by the project (see table 10). 995 DTWs are operating in the area but none of them were financed by the project. Thus the benefits of RDI should be separated from benefits of other projects. This may be done in two ways. First, since irrigation is the main engine of growth in agriculture, RDI's contribution to crop production may be fixed on the basis of the share of RDI supplied irrigation equipments' command area in the total irrigated area. During the period 1984-86, RDI's share in irrigated area varied between 19.2 to 24.9 percent (see table 11). The average RDI equipment irrigated about one fifth of irrigated area in the period 1984-86. Thus RDI's share of incremental paddy production may be fixed at 20 percent. In the alternative the investment cost of RDI may be revised by adding the cost of additional irrigation

TABLE 10

IRRIGATION EQUIPMENT IN USE IN RD 1 PROJECT AREA, 1987

Source	LLP	STW	DTW
Replacement of Pre-RD 1 supply		300	78
From RD 1	612	2356	—
New supply outside RD 1	—	5053	917
Total		7709	995

Source : Upazila Agriculture Offices.

equipment and the ERR may be computed on the basis of total cost of all irrigation equipment rather than that of RDI alone.

For calculating the annual gross benefits it is assumed that the average rice yield for the period 1984-85 represents the full-development potential for the project. It may be mentioned here that the yield has already exceeded the expected yield of the SAR. The command area of irrigation equipment is less than the target. However, because of the commissioning of too many irrigation equipment, the command area of these equipment cannot be increased significantly. The gross benefits of the project on the basis of SAR's benchmark data stands at 161.4 thousand tons of paddy (see table 12)

An analysis of economic costs and benefits suggests that the project is economically viable. (see table 13). The first estimate of ERR was calculated on the following two assumptions : (a) in proportion to its share in the total irrigated area, the gross benefits due to RDI would be one fifth of gross increase in output as calculated in table 12. (b) The financial and economic prices as well as the costs projected in the SAR of RDI were used. The ERR in this case stands at 36.02 which is much higher than the opportunity cost of capital¹ (see table 13).

In estimate 2 it was assumed that the actual benefits were 50% lower than the benefits calculated in estimate 1. Even with this highly restrictive assumption, the project is economically viable and the ERR is calculated at 16.84%. The third and fourth estimates differ from first two estimates in two ways. First, instead of separating the effects of RDI, it is assumed that the gross benefit calculated at table 12 was the result of combined investments in irrigation of RDI and

TABLE 11

RD-1's SHARE IN TOTAL IRRIGATED AREA

Year	Total irrigated Area	Area Irrigated by RD 1 Equipment	RD 1's share in total irrigated area
1982	112.9	35.5	31.4
1983	122.3	38.2	31.2
1984	154.9	38.6	24.9
1985	191.5	36.8	19.2
1986	186.9	36.0	19.2

Source : Upazila Agriculture Office

TABLE 12

TOTAL YIELD : SAR PROJECTION AND ACTUAL (in 000 tons Paddy)

Type of crop	SAR's before the project estimate.	SAR's future without the project estimate	SAR's future with the project estimate	Average Agriculture Dept. estimate for 1984-86
Local Aus	82.6	71.9	48.1	64.5
HYV Aus	17.3	73.8	107.2	108.8
Local Aman	15.4	15.4	15.4	32.5
L.T. Aman	183.6	163.7	155.7	166.4
HYV Aman	42.8	150.1	192.9	196.6
L. Boro	12.5	16.0	19.2	10.9
HYV Boro	23.9	53.3	120.1	240.3
Total	378.1	544.3	658.6	820.0

Source : SAR and Data collected for this study

TABLE 13

ECONOMIC ANALYSIS OF RD 1 PROJECT UNDER VARIOUS ASSUMPTIONS

Sl. No.	Investment cost	Share of RD-1 in gross benefits.	Economic and financial prices	Any other assumption	ERR	B. C. Ratio
Estimate No. 1	Investment cost of RD1	20%	Same as in the SAR of RD-1	—	36.02	2.183
Estimate No. 2	Investment cost of RD1	20%	Same as in the SAR of RD-1	50% of gross benefits assumed to be real	16.84	1.09
Estimate No. 3	Investment cost of RD1 + costs of addl. DTWs & STWs in use	100%	Same as in the National Water plan (1983 prices)	—	99.49	3.6
Estimate No. 4	Investment cost of RD1 + cost of addl. DTW, STWs & LLPs in use	100%	Same as in the National Water Plan (1983 prices)	50% gross benefits assumed to be real.	32.33	1.4

Source : (i) Source of gross benefits - Table 12

non-RDI programmes. Secondly, the cost, economic and financial prices of National Water Plan were used. The third estimate in table 13 shows that the ERR of the combined investment in irrigation (including non-RDI investment) in the RDI project area is 99.49%. The fourth estimate shows that even if the gross benefits of the project as calculated in table 12 are reduced by 50%, the ERR would be 32.32 percent. The inescapable conclusion from this exercise is

that the RDI was an economically viable project. As the benefits of non rice crops and other components have not been included, the estimates in table 13 are likely to be underestimates.

These results are not, however, surprising. The ERR of minor irrigation project in Bangladesh is very high. As table 14 indicates the average command area of RDI irrigation equipment is much higher than the minimum economic command area. According to the calculations of National Water Plan in Bangladesh, the minimum economic command area of a STW is 3.2 ac whereas the average command area of STW in RD I is 11.1 ac.

TABLE 14
**COMMAND AREAS OF MINOR IRRIGATION
EQUIPMENT AND ECONOMIC RETURN**

Equipment	Minimum economic command area (in ac)	Average command area in RD-I (in ac)	Potential command area (in ac)	IRR	B/c ratio
LLP	7.4	15.8	27.2	*	5.4
STW	3.2	11.1	12.3	617	3.8

* No negative cash flow : Therefore, IRR can not be calculated.

Source : (1) Column 2 and 4- Table-3.22, *National Water Plan* Vol. 1

(2) Columns 5 and 6, Table 3-25, *National Water Plan*, Vol. 1

(3) Columns - 3, Table 5

The estimates of National Water Plan show that the ERR of a STW is as high as 617 percent. Since minor irrigation component constituted about 60 percent of total investment in RDI, it is very difficult to accept Rene Dumon's assertion that RDI had no influence on agricultural productivity.

Several lessons may be learnt from the ex-post assessment of the ERR in table 13. First- the economic efficiency of the project would have substantially increased if the DTWs and additional irrigation equipment were provided by the project. The ERR would have increased from 36% to 99.49%. The project design could have been considerably improve by a comprehensive assessment of the irrigation potential in the project area. Secondly, the irrigation equip-

ments were fielded haphazardly as they were not planned under a single project. The economic efficiency of equipments would have been increased if all the equipments were coordinated through one project. Finally, there was considerable wastage of financial resources as more than 50% of 1400 LLPs imported under the project could not at all be used. This was not, however, reflected in the economic analysis as the LLPs were provided as replacement of existing LLPs and replacement costs are not included in economic analyses. Despite these shortcomings, the irrigation component of the project has proved to be a success.

The raising of agricultural productivity is a means and not the end of a rural development project. Thus the success of this project can not be judged on grounds of economic efficiency alone. It is also necessary to ascertain whether the rural poor have benefited from the project.

VI. Evaluation of Institutional Development .

The rural societies in developing countries are very often characterized by the "isolation paradox".³⁹ In such societies, "individuals in isolation act to the detriment of each other unless they know that their fellows will act in a manner that serves the general well-being and even then individuals may not act in the public interest themselves". It is thus very difficult to build institutions which can overcome the mutual distrust and conflicts in rural societies. However, developing effective institutions is the very essence of rural development for several reasons. First, irrigation is the most potent engine of growth in agricultural sector. In a minifundist agriculture like Bangladesh where the plots of small holdings are scattered, modern irrigation involves the close cooperation of a number of farmers. Such cooperation is critically dependent on the institutions for irrigation. Secondly, it is not sufficient to commission an irrigation equipment. It has to be properly operated and maintained. This can not be done without effective grass-root institutions. Thirdly, rural development projects in the long run should be self-sustaining. They can not count on indefinite flow of resources from outside. Developing suitable institutions for cost recovery is, therefore, an essential precondition for project sustainability.

The keystones of the institutional framework of Rural Development Project I was the two-tier cooperative system which organizes village based farmer's cooperatives (KSS) and federates them into upazila Central Cooperative Association (UCCAs previously styled as TCCA). The following critical functions were assigned to two-tier cooperative :

- expansion of two-tier cooperative membership and enforcement of cooperative discipline among the members. The provision of adequate short term (ST) credit inputs.

- the provision for medium term (MT) credit for procurement of irrigation equipment
- making the two-tier cooperative financially viable.

There has been a significant expansion of KSSs in the project area since the launching of RDI. In 1975 there were 695 KSSs ; in 1986, 2218. The target for KSS in the SAR was 1343 KSS in 1985, whereas the actual achievement in 1985 was 2140-about 60 percent higher than the target. In 1975, there were 18651 members (see table 15). The target for 1985 in SAR was 150,000. In 1985, there were 110,399, members and the actual performance was about 26.4 percent less than the target. The performance of the cooperatives can not be assessed in terms of its growth alone. It is also necessary to assess the qualitative performance of these organizations.

TABLE 15
GROWTH OF KSS (Projected and Actual)

Year	Actual/projected	No. of KSS	No. of members	Average No. per KSS	% of farm households.
1975	Actual	695	18651	26.8	12
1983	Actual	1898	94943	50.2	29
1985	Projected	1343	150000	112.0	83
1985	Actual	2140	110399	51.5	34.7
1986	Actual	2218	116457	52.5	36.6

Source : UCCAs

There are four major weaknesses of the KSSs. First, the size of the KSS in terms of membership is small. The SAR projected that at full development, there will be 112 members per KSS. In 1986, there were on an average 52.5 members per KSS. It is unlikely that such small KSSs will ever be economically viable.

Secondly, the SAR expected that the TCCA-KSS membership would increase until a 100% coverage of the "prospective households" (about 83 percent of farm households) was reached by 1985. So far only 36.6 percent farm households or about 44 percent prospective households have been covered. As a result, the KSSs can not effectively operate irrigation equipment for two reasons. The non-members have to be mobilized for running irrigation

equipment. Moreover, even if the non-members are induced to join irrigation groups, problems arise in apportioning capital cost of irrigation equipment between members and non-members. Of the 40 STW-KSS groups surveyed for this report, only 5 STWs were run exclusively by the KSS members and non-members were in a majority in 40 percent irrigation groups (see table 16). This clearly suggest that further expansion of KSS membership is necessary in irrigation groups.

Thirdly, the quality of KSSs should be assessed. The cooperatives in Bangladesh are classified on the basis of a composite index of performance (see table 17). Available data suggest that the quality of KSS in RDI project area is fast deteriorating (see table 18). In 1933-84, 48.4 percent KSSs belonged to A and B category respectively and 51.7 percent KSSs which belonged to C class and below were virtually inactive. The share of inactive societies increased to 61.4 percent in 1985-86. Thus the number of inoperative KSSs has

TABLE 16

**PERCENTAGE OF NON-MEMBERS IN KSS OPERATED STW GROUPS
IN BOGRA PROJECT AREA, 1987**

Upazila	Total groups surveyed	No. of Groups				
		with no non-mem bers	with less than 25% non-members	with more than 25% less than 50% non- members	with more than 50% and less than 75% non-members	with more than 75% non-members
Bogra Sadar	10	2	1	4	2	1
Sherpur	10	2	5	3	—	—
Gabtali	10	—	1	2	6	1
Shariakandi	10	1	—	3	3	3
Total	40	5 (12.5%)	7 (17.5%)	12 (30%)	11 (27.5%)	5 (12.5%)

Source : Data Collected for this study

TABLE 17
BANGLADESH
RURAL DEVELOPMENT 11 PROJECT
KSS Classification Criteria

No.	Subject	Condition	Scale (%)	Marks 1/
1.	Loan Repayment	Percent repayment of amount due during the year	100 30	40 0
2.	Capital Formation	Percent of shares and savings target reached <u>2/</u>	75 <25	10 0
3.	Accounting	All annual accounts completed and in order	yes no	10 0
4.	Weekly Meetings of KSS/BSS	All due meetings held	> 50 < 20	10 0
5.	Training at TCCA	Percent of programmed classes attended by manager	> 50 15	10 0
6.	AGM	Meetings held as per cooperative rules	yes no	10 0
7.	Coverage	Percent of eligible village households covered	50 20	10 0
Maximum Total Mark <u>3/</u>				100

1/ Marks for achievement in between the limits indicated in the table should be proportionally reduced.

2/ Each KSS member is targetted to save Tk 25 per year.

3/ For 'A' classification, the minimum requirement would be 60 ; for 'B', 50.

TABLE 18

**CLASSIFICATION OF KSS IN RD-1 PROJECT AREA ON
THE BASIS OF PERFORMANCE, 1983-84 TO 1985-86**

Year	Number			Percentage of		
	A class	B class	C Class	A Class	B Class	C class
1983-84	399	560	1027	20.1	28.2	51.7
1984-85	388	552	1200	18.1	25.7	56.2
1985-86	339	520	1363	15.2	23.7	61.4

Source : UCCAs

increased from 1027 in 1983-84 to 1363 in 1985-86. An analysis of inoperative societies in 1985-86 (table 19) shows that the situation is desperate in some upazilas. 71.1 percent KSSs are inactive in Gaffargaon upazila; in Gabtali, 69.5 percent ; in Trishal, 68.3 percent. The overall performance of the KSSs seem to be much less satisfactory than the national average. According to BRDB's annual report, only 35 percent KSSs in the country as a whole were inactive in 1984-85. The corresponding figure for RDI KSS is 56.2 (see table 18).

Fourthly, the main strength of the Comilla type two-tier cooperative lies in its success in motivating the members to make small but regular thrift deposits. This was also the approach of the Raiffeisen cooperatives which flourished in the 19th century Germany. So far, the UCCAs in RDI have succeeded in mobilizing more than Tk. 12 million from the members in shares and deposits. However, these savings were not voluntary and regular. In most cases, shares and savings were deducted from loans advanced to the members. It is interesting to note that saving per member in RDI area is less than the national average (see table 20). In 1983-84, the average saving per KSS member in Bangladesh was Tk. 139.36 ; per head saving in RDI UCCAs was Tk. 112.5 only. That discipline is lax in RDI cooperative societies is evident from the fact that most of the prescribed registers are not at all maintained by KSSs. For example, 53.2 percent KSSs in RDI project do not even maintain membership registers.⁴⁰ The conclusion seems inescapable that most of RDI KSS are paper organizations. One of the major aims of the project was to reinstate in the seven thanas the proven practices adopted in the Comilla system in the prime years such as weekly meeting, training and thrift deposits. An analysis of RDI cooperative societies shows that they are cooperative

TABLE 19

UPAZILA-WISE CLASSIFICATION OF KSS IN THE PROJECT AREA, 1985-86

Upazila	Number			Percentage		
	A class	B Class	C class & below	A Class	B Class	C Class
Sonatalda	56	31	39	44.5	24.6	30.9
Gab tali	27	31	132	14.2	16.3	69.5
Shariakandi	16	46	81	11.2	32.1	56.7
Bogra Kotwali	59	127	142	17.9	38.8	43.5
Sherpur	35	48	144	15.4	21.1	63
Trishal	40	82	263	10.4	21.3	68.3
Gaffargaon	45	73	290	11.0	17.9	71.1
Muktagacha	61	82	272	14.7	19.7	65.6

Source : UCCAs

TABLE 20

SHARES AND SAVINGS PER COOPERATIVE MEMBER
IN BANGLADESH AND RD 1, 1982-83 AND 1983-84

Year	Bangladesh			RD-1		
	Total member (in 000)	Total Shares and savings (in 000)	Per member shares and savings (in Tk.)	Total member (in 000)	Total shares and savings (in 000 Tk)	Per member shares and savings (in Tk.)
1982-83	2110.5	234891.0	111.29	102.8	10543.0	102.5
1983-84	2312.3	322500.0	139.46	107.2	12060.0	112.5

Source : Annual Report, BRDB, 1983-84 and 1984-85

Data on savings in RD-1 in 1983-84 were collected from the UCCAs.

societies without the spirit of cooperation. Weekly meeting and training classes have virtually been discontinued in RDI area.

One of the main functions of the two-tier cooperative was to ensure the smooth and regular flow of short term agricultural credit to small farmers for purchase of modern inputs in the crop season. There was a significant expansion of short term credit from Tk. 3.6 M in 1975-76 to Tk. 37.46 M in 1983. Despite this impressive performance in disbursing agricultural credit in the project area, credit recovery rate is declining at an alarming rate. As table 21 indicates the rate of recovery as percentage of dues has fallen from 52.6% in FY 1981-82 to 18.1% in FY 1985-86. None of the UCCAs were qualified for disbursement of credit in 1986-87 according to standards prescribed by the bank. Some of the UCCAs have been disqualified for 3 to 5 years. The disbursement of short term credit has virtually come to a standstill. The overdue ST loans now stand at Tk. 22.1 M. About 25.6 percent overdues in January 1987 were over five years old (see table 22). 95 percent of all overdues are outstan-

TABLE 21

RECOVERY OF ST CREDIT IN RD 1 (in Million Tk)

Year	Amount due	Recovery	Recovery as % of due
1981-82	24.9	13.1	52.6
1982-83	29.3	9.6	32.7
1983-84	31.1	7.0	22.5
1984-85	39.1	9.3	23.7
1985-86	50.1	9.1	18.1

Source : UCCAs

ding for more than a year whereas ST credit is advanced for six months with a grace period of 2 months for repayment. The poor recovery rate of short term credit may be attributed to two factors. First, credit is very often overdue with the large farmers who dominate the managing committees of the cooperatives. Moreover, in some cases loans were issued to fictitious persons by unscrupulous UCCA employees. Thus poor supervision is one of the reasons for

poor recovery of credit. Secondly, the farmers can not repay short term credit unless they can produce more. It appears that the recovery performance in Bogra area was better than in Mymensingh area till 1983. Bogra received most of the irrigation equipments. Consequently, it was easier for Bogra upazilas to recover credit. However, two Mymensingh upazilas (Gaffargaon and Trishal) were given large amounts of short term credit without the provision of adequate irrigation facilities. As a result, more than 50% of five years old overdues are concentrated in these two upazilas. It is interesting to note that overdues in Bogra upazilas have increased alarmingly since 1984. This may be attributed to two major floods in the project area in 1984 and 1986 caused by breaches in the Brahmaputra Right Flood Embankment. This suggests that unless adequate irrigation facilities and reasonable protection against flood can be provided, major risks for recovery of ST agricultural credit can not be eliminated.

TABLE 22

OVERDUE ST CREDIT, 1987 (in lac taka)

Upazila	Over 1 year	Over 2 years	Over 3 years	Over 4 years.	Over 5 years.	Total
Bogra	7.6	14.67	4.29	3.52	1.06	31.14
Shariakandi	—	2.4	3.61	5.10	2.78	13.89
Gab tali	—	20.32	7.11	3.29	6.52	37.24
Sherpur	—	18.76	17.96	9.39	8.26	54.37
Muktagacha	3.60	1.48	11.62	4.41	13.80	34.91
Gaffargaon	—	—	—	16.15	15.38	31.56
Trishal	—	—	—	9.80	8.58	18.38
Total	11.2 (5%)	57.63 (26%)	44.59 (20.1%)	51.66 (23.4%)	56.38 (25.4%)	221.46 (100%)

Source : UCCAs

The performance of the two-tier cooperatives in the recovery of MT credit is worse than that of the ST credit. The UCCA reports show that the recovery rate of MT credits has fallen

from 10.3 percent in 1981-82 to 5.4 percent in 1985-86 (see table 23). About 20.9 percent overdues is more than five years old. More than two thirds of overdues are outstanding for more than 3 years (see table 24). In fact, the percentage of 3 year old overdues may be higher because of the UCCAs themselves do not know the exact amount of overdues. The normal procedure for supply of irrigation equipment was bypassed for quick fielding of these equipment. Normally, irrigation equipment is procured by securing MT credit from the Sonali Bank through the UCCA. As the fielding of irrigation equipment was delayed, the BADC under instructions from the project office handed over the irrigation equipment directly to KSSs without completing the formalities of MT credit with Sonali Bank. As a result loan papers for MT credit were not processed. This had three undesirable consequences.

First, no mechanism for the recovery of MT credit for irrigation equipment was clearly specified. As a result, no institution took the responsibility for the realization of this credit and there is no pressure from the above. Secondly, as the performance of the UCCAs in collecting project MT credit is not known to the financing institution, the credit rating of the UCCAs can not be properly assessed. This has contributed to an undesirable expansion of credit. Finally, accounting complications have arisen at various levels. Nobody knows exactly who owes how much to whom. The BADC was provided funds from the project for procurement of irrigation equipment. At the same time, the BADC is demanding the sale price from the UCCAs for irrigation equipment. The accounts between the BADC and the project office and

TABLE 23

RACOVERY OF MT CREDIT IN RD-1

Year	Amount due (in lac taka)	Recovery (in lac taka)	Recovery as % of amount.
1981-82	315.95	32.64	10.3
1982-83	323.99	32.65	10.1
1983-84	472.83	32.50	6.9
1984-85	669.9	48.83	7.2
1985-86	745.8	40.28	5.4

Source : UCCAs

TABLE 24

PERCENTAGE OF OVERDUES YEAR-WISE IN RD-1, 1987

Period	% of total overdues
Overdue for 1 year	15.7
Overdue for 2 years	15.7
Overdue for 3 years	20.8
Overdue for 4 years	26.0
Overdue for 5 years & more	20.9

Source : UCCAs

between the project office and the UCCAs have not been squared up as yet. The confusion has been worse confounded by the winding up of the project office after the official completion of the project.

The inability to recover the MT credit for irrigation equipment will seriously impair the sustainability of the project for two reasons. First, if the MT credit is not realized, the Govt. will have to bear ultimately the cost of irrigation equipment. The Govt. can not subsidize irrigation indefinitely. The economic life of existing LLP usually lasts for seven years whereas the assumed life of STW is only 10 years. The KSSs will require fresh credit for replacing the equipment supplied by RDI project. This may not be possible unless the previous credit is repaid. On the other hand, small farmers find it very difficult to repay long-standing loans. Thus the long run viability of irrigation equipment of RDI is at stake. Secondly, the KSSs ignore the operation and maintenance of equipments which are not owned by them. It is not surprising that the number of inoperative irrigation equipment is increasing fast. The number of inoperative STWs has increased from 3 in 1982 to 202 in 1986 (see table 25). The economic viability of RDI will be threatened if this trend continues.

One of the major objectives of the project was to make the UCCAs self-supporting. With this end in view, the physical facilities like office buildings, fertilizer godowns and general godowns, thana workshops were provided from the project. Additional staff were given to the UCCAs and both MT and ST credits were funnelled through the UCCAs who were authorized

TABLE 25

INOPERATIVE IRRIGATION EQUIPMENT IN RD-1

Year	No. of inoperative LLP	No. of inoperative STW
1982	2	3
1983	5	36
1984	13	91
1985	16	138
1986	16	202

Source: UCCAs

to collect service charges for credits. Despite the sizeable assistance from the project most of the UCCAs have not as yet attained financial independence. As table 26 indicates most of the UCCAs can not even meet the operating costs from their own budget. However, if the bad debts of the UCCAs are taken into account, most of them are not financially viable. There are several reasons for this failure. First, the commercial operations of some of the UCCAs were not properly supervised. There were major cases of misappropriations in Bogra Kotwali and Gaffargaon UCCAs. Secondly, the supervision of KSSs was lax as the KSSs were expanded too rapidly. As a result, overdues accumulated and UCCAs were deprived of service charges.

While the two-tier cooperative had the main responsibility for sustaining irrigated agriculture, the operation and maintenance of the physical infrastructure was entrusted to a number of agencies. The responsibility of maintaining the paved roads lay with the district councils. However, these councils did not have adequate funds for regular maintenance of these roads. Though the roads are negotiable at the moment, they need immediate repairs. The erstwhile thana councils had the responsibility of maintaining Katcha roads, rural markets, drainage channels and TTDC buildings. Since the erstwhile thana councils never had enough funds, the maintenance of these facilities were badly neglected in the past. Of late, there has been considerable improvement in the situation with the introduction of the upazila system which provides regular funds for the O & M. Some of the badly neglected unpaved roads and upazila facilities have already been taken up for repair. Some of the upazila parishads are also contemplating to repair rural markets. However, the drainage channels continue to be neglected.

TABLE 26

OWN INCOME AS % OF TOTAL EXPENDITURE

Upazila	1981-82	Own income as % of total expenditure in			
		1982-83	1983-84	1984-85	1985-86
Gaffargaon	47.8	75.0	90.5	84.5	78.1
Trishal	145.2	179.6	197.2	190.2	116.2
Muktagacha	96.9	79.2	61.9	59.5	—
Gabtali	187.8	92.5	169.0	78.6	116.5
Sherpur	61.8	174.2	204.1	19.9	100.4
Shariakandi	141.2	78.5	64.0	57.5	238.0
Bogra Sadar	62.9	67.04	87.0	251.6	77.2

Source: UCCAs

These channels will have to be reexcavated on the basis of new designs. The upazila parishads do not have the technical capability to do this. Most of the facilities constructed for UCCAs are still being used. However, the UCCAs do not earmark funds for O & M on a regular basis. Most of the ponds excavated by the project have dried up. It was originally stipulated that the pond cooperatives will look after them. This did not materialize because most of these ponds were not handed over to cooperatives and even where ponds have been transferred to cooperatives the yield is so low that the cooperatives do not have enough resources to undertake reexcavation. The motor cycles and bicycles and other equipment were distributed to a number of agencies. Most of these are now out of order.

A number of problems of O&M has cropped up as a result of the winding up of project management unit which was set up for the implementation of the project. First, the documents of ownership of certain facilities were not handed over to line agencies. As a result, no agency can fruitfully utilize them. The residence-cum-office for bloc supervisors of agricultural extension is a case in point. The upazila parishads can not undertake the maintenance of these offices as they were not handed over to upazila parishads. Similar problems arose in the case of pond fisheries. Secondly, a number of posts which were created for the project had been

abolished. No instruction was issued by the project office regarding the equipment and facilities of these offices. Finally, the accounts with all agencies have not been squared up as yet. The tangle over the payment of the price of irrigation equipment continues to muddle the relationship between the BRDB/BADC and concerned UCCAs. A special office should be set up to square up the accounts of RDI and to monitor the collection of MT credit from UCCAs. Necessary instructions should also be issued by the Government regarding the disposal of these funds.

VII. Evaluation of economic equity.

Rural development should not be misconstrued as the conventional "Growth Game". It involves the transition from production-centred growth to people-centred development. A high economic rate of return is a necessary but not a sufficient condition for the success of rural development projects. The ultimate criterion of its success is its ability to improve the social and economic conditions of the rural poor. This can not, however, be achieved by mere injection of resources from outside. An institutional mechanism has to be established for transmitting the benefits of growth to rural poor. The institution-building for the rural poor assumes greater urgency in countries like Bangladesh where the social structure in rural areas is dominated by local elites who "stand as nets between the poorer people and the outside world, in the sense that they catch and trap resources and benefits."

The SAR of RDI expected that "most of the would-be beneficiaries are small farmers with incomes below the subsistence level". An analysis of farm size of 798 users of projectus irrigation facilities in Bogra indicates that the small farmers were not the main beneficiaries of the project. According to Bangladesh Census of Agriculture and Livestock 1983-84 about 73.19 percent holdings in the Bogra project area are small, owning less than 2.5 acres of land. However, small farmers constituted only 54.7 percent users of KSS STWs in the project area (see table 27). 23.63 percent farmers in the project area are classified as medium holdings (owning more than 2.5 acres but less than 7.5 acres). The proportion of the medium farmers among the users of KSS STW is 33.8%. Only, 2.76 percent holdings in the area own more than 7.5 acres of land and are classified as large farmers. The share of large farmers in the KSS irrigation groups is 11.5 percent. Thus it is evident that medium and large farmers had disproportionate access to project facilities. However, in terms of operated land, the share of small farmers in the KSS groups was larger than that in the Bogra project area as a whole (Table 28). This may be explained by the fact that 35 percent KSS irrigation group members own more than one acre but less than 2.5 acre of land whereas only 16.95 percent farmers in the project area belong to this category. The share of very small farmers with less than one acre of

TABLE 27

**A COMPARISON OF THE PERCENTAGE OF HOLDINGS BY SIZE
BOGRA PROJECT AREA, KSS GROUPS AND PRIVATE IRRIGATION GROUPS**

Upazila/ area	% of small holdings in			% of medium holdings in			% of large holdings in		
	All holdings	KSS group	Private group	All holdings	KSS group	Private group	All holdings	KSS group	Private group.
Sherpur	63.90	49.0	46.5	29.28	39	44.1	682	12	9.4
Shariakandi	68.58	54.8	65.3	29.32	35.2	22.1	6.10	10	12.6
Gab tali	78.45	52.0	56.8	19.60	30.8	31.7	1.95	17.2	11.5
Bogra Sadar	76.39	61.0	51.0	20.85	33.0	30.2	3.76	6.0	18.7
Weighted average of Bogra project area	73.19	54.7	54.9	23.63	33.8	32.0	3.18	11.5	13.1

Source: (1) Data on Project area collected from Bangladesh
Census of Agriculture and Livestock, 1983-84

(2) Data for other columns collected by a survey for this report

land was 56.24% in the project area. However, only 19.3 percent users of KSS STWs owned less than one acre of land (see table 29). Thus the majority of very small farmers had no access to project facilities. This obviously implies that the income of the farmers owning more than one acre of land in the project area has risen faster than the income of 56.24% who own less than one acre of land. Thus the failure of the project to attract majority of very small farmers contributed to polarization in the project area. In terms of irrigated area, the main beneficiaries of the project are medium farmers and small farmers owning more than one acre of land. The poorest segment of the rural society who had less than one acre of land hardly benefitted from the project. One of the main reasons for this failure was the inability of the KSSs to enrol the tenants in cooperative societies. Only 5.2 percent users of the KSS STWs in the project area are tenants (table 30) whereas according to the SAR about 20 percent land is cultivated by sharecroppers. The land distribution in the project is already skewed;

TABLE 28

A COMPARISON OF THE PERCENTAGE OF LAND OPERATED BY SIZE OF HOLDING IN BOGRA PROJECT AREA, KSS GROUPS & PRIVATE IRRIGATION GROUP

Upazila area	% of land operated by small farmers in			% of land operated by medium farmers in			% of land operated by large farmers in		
	All holding	KSS group	Private group	All holding	KSS group	Private group	All holding	KSS group	Private group
Sherpur	24.69	40	24.4	45.82	36.4	38.6	29.48	23.6	37
Sariakandi	26.64	32.2	48.3	40.71	45.8	33.6	32.65	21.9	18.1
Gabwali	43.18	32.26	39.4	44.33	35.9	12.29	32.2	24.7	48.3
Bogra Sadar	38.90	47.0	42.6	44.44	45.2	28.6	16.66	7.8	28.8

Source. : Data collected for this Report

TABLE 29

A COMPARISON OF THE SHARE OF FARMERS WITH LESS THAN ONE ACRE OF LAND IN BOGRA PROJECT AREA

Upazila	Share in all holdings	Share in KSS Groups	Share in Private groups.
Sherpur	48.8	14.0	13.9
Sariakandi	50.6	18.0	22.10
Gabwali	60.8	22.1	33.1
Bogra Sadar	59.8	20.3	17.4

Source : Bangladesh Census of Agriculture and Livestock 1983-84 and data collected for this Report.

only 3.18 percent large farmers own 16.66 percent land (see tables 27 and 28). This is likely to be more skewed as middle and large farmers have more access to water than small farmers.

A comparison of the users of private and KSS STWs shows interesting differences between these two groups. The proportion of land irrigated by larger farmers is much higher in private groups than that of the KSS groups (see table 28). However, the share of small farmers with less than one acre is higher in private groups (27.9%) than in KSS irrigation groups (see table 29). The above data suggest that large farmers and small farmers with less than one acre of land were the main beneficiaries of private STWs whereas the medium farmers and small farmers owning more than one but less than 2.5 ac were the main clients of KSS STWs in Bogra project area.

From the efficiency point of view, there is hardly any significant difference between the private and KSS irrigation group. It is usually argued that the command area is optimized in STWs operated by KSS than private groups.⁴² This hypothesis is not supported by evidence in case of Bogra project area (see table 31).

TABLE 30

**TENURIAL STATUS OF THE USERS OF IRRIGATION EQUIPMENT
IN BOGRA PROJECT AREA.**

Upazila	KSS Groups			Private groups		
	% of owner users	% of owner cum tenant users	% of tenant users	% of owner user	% of owner cum tenant users	% of tenant users
Sariakandi	64.3	29.6	6.1	48.5	33.6	17.9
Sherpur	72.0	28.0	0.0	71.4	24.5	4.4
Bogra Sadar	54.1	34.4	11.5	54.6	31.4	14.0
Gabtali	65.4	33.2	1.4	70.2	25.0	4.8
Bogra Project Area	63.1	31.7	5.2	61.2	28.6	10.2

TABLE 31

A COMPARISON OF KSS AND PRIVATE IRRIGATION GROUPS IN BOGRA PROJECT AREA

Upazila	Indicator	KSS Groups	Private Groups
Bogra Sadar	Average user per STW	18.2	17.2
Gabtali	"	21.7	29.6
Sariakandi	"	19.9	19.0
Sherpur	"	10.0	8.6
Bogra Project Area	"	17.45	28.6
Bogra Sadar	Command Area per STW (in bigha)	34.7	44.56
Gabtali	"	39.9	36.04
Sariakandi	"	27.6	23.98
Sherpur	"	30.15	29.96
Bogra Project Area	"	33.08	34.88
Bogra Sadar	Yield per ac (in maunds)	43.8	47.6
Gabtali	"	53.4	47.4
Sariakandi	"	43.8	44.0
Sherpur	"	44.4	41.4

Source : Data Collected for this study

The average number of users per STW is also slightly higher in private groups than in the KSS. On the other hand, the yield per acre is slightly higher in KSS groups than in the private groups. Statistically, these differences were not however, significant. This implies that from the efficiency point of view, KSS irrigation groups are indistinguishable from private irrigation groups. This result is not, however, surprising. Field investigations revealed that the KSS operated STWs are also for all practical purposes privately owned. Though they were procured in the name of KSS, they are actually privately owned. One of the essential characteristics of irrigation equipments operated by the cooperatives is the preparation of a production plan for apportionment of irrigation cost and for procurement of ST loan. However, of the forty KSS STWs visited for this purpose, there were production plans in only two groups. Instances of private sale of KSS STWs in the project area are not rare. In fact, the command area of STW does not coincide with the total area of a village cooperative society. The relationship between the irrigation groups who benefit for the irrigation equipment and the village cooperatives which include these irrigation groups have not been spelled out as yet. The cooperatives has little control over KSS irrigation groups who virtually behave like private irrigation groups. Thus in fact, the cooperatives are not the owners of the STWs ; their signborads were used only for procuring the STWs. Unless the village cooperatives succeed in asserting their ownership over irrigation equipment, the benefits of cooperative irrigation can not be reaped.

The main obstacle to the revival of cooperative spirit is the existing cooperative leadership. Table 32 presents the economic status of members of the managing committees of the KSSs and the UCCAs. About 53 percent of members of KSS managing committees earn more than Taka 25,000 per annum and thus belong to top 30 percent households in terms of income. About 62 percent of UCCA managing committee members also belong to the same income group. Thus the leadership of village cooperative is in the hands of the relatively well-to-do village elites. Contrary to popular beliefs, most of them are not large farmers. An analysis of land distribution pattern of UCCA office-bearers indicates that about 50 percent of them are middle farmers (owning more than 2.5 ac, but less than 7.5 ac). Only 16.3 percent UCCA managing committee members are large farmers. There are two implications of this findings. First, Rene Dumont's assertion that the cooperatives in Bangladesh are closed clubs of Kulaks is not valid. The RDI cooperatives are dominated by middle farmers. Secondly, agriculture is not the only source of income of most of these middle farmers. They have other non-agricultural occupations and in most cases have strong ties with the centres of power in rural areas.

Available evidence also suggests that the existing cooperative leadership is strongly entrenched. The democratic process virtually does not work in the RDI cooperatives. About two-thirds of KSS office bearers have been in power for more than five years (see table 33).

TABLE 32

INCOME GROUPS OF THE MC MEMBERS OF KSS & UCCAs IN RD-1 PROJECT AREA, 1987

Income group on the basis of annual income	Percentage of KSS MC Members	percentage of U CA MC members.
Less than Tk. 10,000 p.a.	1.0	12.0
Between Tk. 10,000 & Tk. 14,999 p.a	.4	8.0
Between Tk. 15,000 & Tk. 24,999 p.a	36.7	18.0
Between Tk. 25,000 & Tk. 49,999 p.a	31.6	30.0
Between Tk. 50,000 & Tk. 99,999 p.a	12.8	16.0
Over Tk. 100,000 p.a	8.5	16.0

Source: a Sample of 118 MC members from 19 KSSs and MC members of 5 UCCAs
(two UCCAs are now run by nominated officials)

TABLE 33

LENGTH OF MEMBERSHIP IN KSS MCs

Length of period	% of M.C. members
Less than 3 years.	13.5
More than 3 years but less than 5 years	20.3
More than 5 years but less than seven years	22.1
More than seven years but less than 10 years	22.8
Over ten years	21.3

Source : a sample of 118 M.C. members from 19 KSS

About one-fifth of KSS managing committee members have been holding office for more than ten years. There are KSSs where there was no change of leadership since their inception.

The existing leaders of the cooperative do not command the confidence of very small farmers who own less than one ac land with income below the subsistence level. The very small farmers, however, constitute more than 56 percent farm households in the project area. They find it easier to work with large landowners rather than the rural elites who are their principal exploiters. This is why, the participation of very small farmers (with less than one ac) is higher in private irrigation groups than in KSSs.

Despite these limitations of KSSs, it may not be in the long run socially just to dispense with the cooperatives. An analysis of income and landownership of private STW owners suggests that STWs have been procured by large farmers (see table 34). The average income of STW owners is Tk. 58.9 thousand per annum. There will be two adverse effects of the increase of privately owned irrigation equipment. First, it is likely to exacerbate the polarization process in the rural areas. This will contribute to the pauperization of small farmers. Secondly, the private ownership of irrigation equipment will encourage "Waterlordism"⁴³. If the private owners of irrigation equipment are given monopolistic advantages, waterlordism will lead to higher water charges and smaller than potential acreage.

TABLE 34.

INCOME AND LAND OWNERSHIP OF STW OWNERS

Upazila	Average land ownership (in ac)	Average income per annum (in 000 tk.)
Bogra Sadar	37.8	54.2
Sariakandi	28.8	63.0
Gabtali	33.2	55.0
Sherpur	28.2	63.6
Bogra Project Area	32.0	58.9

Source : Collected from a survey of 20 irrigation groups.

In fact, the two-tier cooperative in RDI project area has not offered much relief for small farmers specially for very small farmers. The small farmer is now caught between the devil and the deep sea. On the one hand, the middle farmers are manipulating the cooperatives to consolidate their stranglehold over the rural economy. On the other hand, the position of the large farmers has been strengthened by the sale of STWs to private parties. There is at the moment no institution to mobilize and protect very small farmers who constitute the majority of farm households.

While the RDI project failed to solve the problems of small farmers, it largely ignored the problems of landless who constitute about 56 percent households in the project area. The project provided two types of relief for the landless. First, it was visualized that the RWP component of the project would create the employment of about 12,000 man-years of employment for landless people. Secondly, it was stipulated that landless people would be organized into fishery cooperatives to manage about 500 ac of publicly owned reclaimed pond. So far 115 pond cooperatives have been established with 3,721 members. However, most of these pond cooperatives have failed. An evaluation of these cooperatives arrived at the following conclusions.⁴⁴

(a) The productivity of pond fisheries is very low. The average annual income per decimal area of pond is only Tk. 1.62. Private ponds yield about 7 times as much per decimal of pond area while in case of collectively owned pond it is at least thrice as much.

(b) Pond fisheries do not create significant employment for its members. The average income per member is also inconsequential.

During the implementation of the project it was realized that additional efforts for generating employment for landless were necessary. Inspired by the success of Grameen Bank in mobilizing the landless, the RDI project organized "**Bittahen Samabay Society**" (Assetless Cooperative Societies). These societies have so far converted only 7 Percent of landless population in the project area. The project has extended MT credit to the BSS. The credit recovery is very good, ranging from 99% to 100%. However, the activities financed by the project such as beef fattening, petty trading etc. do not generate significant employment. Investment per head was low. Moreover, credit alone is not sufficient to overcome the demand constraint of traditional non-farm activities (such as petty trading, traditional cottage industries and beef fattening which account for 75 percent loans) undertaken by the BSS members. The proliferation of these traditional activities could result in over-supply and diminishing returns for landless rural poor. Moreover, even these landless cooperatives are dominated by village influentials. An evaluation of RDI project indicates that about one third of the managing committee members of landless cooperative societies own more than one acre of land and 16

percent office-bearers of these societies earn more than Tk. 30,000 per annum.⁴⁵ Thus the rural poor programme had minimal impact on its clientele.

VIII. FINDINGS AND LESSONS

As a pilot project, the experience of RDI has been extensively reviewed by the Government as well as the donor agency. On the basis of an evaluation report, the Third Five Year Plan of the Government of Bangladesh concluded that project shows "no discernible impact" and "the management of the project area cooperatives is found to be dominated by relatively well-off rural households"⁴⁶. In another document, the Planning Commission summarized the experience of area development projects in the following manner : "Coordination among the executing agencies has been a major problem for these project for which time overrun has been another bottleneck and the extent of implementation has been below the level indicated in the project design."⁴⁷ The Government took the following decisions in respect of the project design of rural development projects :

- (i) The rural development project will be restricted to three components only. These three components are (a) Irrigated agriculture including minor drainage and flood control works, (b) production and employment programmes for the rural poor having land upto 0.5 ac and (c) development of physical infrastructure including roads, storage and markets. Each individual project may take up the components separately or in a single project.
- (ii) Unlike RDI, the minimum area of a project should be one whole administrative district. The coverage of a project should not be scattered but rather should be contiguous.

The lessons learnt by the donors are similar. The SAR of RDII project listed three major weaknesses of the RDI project. First, "If the principal objective is to create an institution to provide farmers and in particular small farmers with the means to adopt new technology and undertake efficient irrigation development it is counterproductive to package investments which are not directly relevant to the basic programme, in this case establishing viable TCCA-KSS."⁴⁸ This is why, the RDII project was confined to irrigated agriculture, rural poor programme and strengthening of the two-tier cooperatives only. The components like agricultural extension, livestock, fisheries, rural works programme etc. were not included in RDII project. Secondly, the concentration of the project on a relatively few upazilas was considered to be unsatisfactory for two reasons. The simultaneous operation of two programmes-project and non-project

causes confusion to district officials. Moreover, "confining an intensive development programme to a few favoured thanas creates local tension which in turn adversely effect implementation."⁴⁹ This is why, the RDII project covers about 300 upazilas as compared to seven upazilas in RDI.

Finally, it was observed that institutional development cannot take place in the absence of an assured supply of inputs and services to farmers. It was reported that the strong initial farmers response to RDI turned into antagonism as the Government failed to commission irrigation equipment in time. The relative poor performance of Mymensingh upazilas in RDI has been attributed to the delay in procurement of irrigation equipment. This is why, RDII laid down a simplified procedure for the procurement of irrigation equipment.

These evaluations, however, deal with peripheral issues and do not address fully to the main issues—the success or failure RDI in pioneering a replicable pattern” of priority rural development activities. The authors of SAR of RDI recommended the two-tier cooperative with a pinch of salt. As they stated, “The TCCA... is a cooperative system with a healthy concept, well-suited to the social structure of Bangladesh and with a record of success during the Comilla days, but is now at a crossroads of either going downhill to join the traditional cooperatives or being revived to become a truly viable rural institution of Bangladesh.”⁵⁰ The time has come to assess whether the two-tier cooperative system has fulfilled the expectations of the SAR. The inescapable conclusion is that the RDI failed to rekindle the Comilla spirit. A decade of intensive efforts to promote cooperatives in only seven upazilas has produced institutions which are by no means healthy and effective. Both qualitative and quantitative evidence indicate that the RDI cooperatives, far from being show-pieces, are worse than the average cooperatives in Bangladesh. The credit rating of all the seven UCCAs are so low that none of them even qualified for credit in the boro season of 1987. The managing committees of half of these UCCAs were superseded on charges of inefficiency.

The credit recovery of MT credit is abysmally low. Per head capital formation in RDI cooperatives is lower than the national average. The cooperative discipline is hardly enforced, only 5 percent KSSs have production plans for irrigation. In Bogra project area, only 18.2 percent KSSs have membership registers⁵¹.

The share of active (A & B Class) cooperative societies in RDI area is lower than that of the national average. The only achievement of RDI cooperatives is that it enlisted more members per KSS than the average KSSs in the country. This may be explained by the fact that the proportion of old cooperative societies are larger in RDI. The number of members in new societies would be less than the average. The worst thing about RDI cooperatives is that

their performance is continually deteriorating. This happened despite considerable investment for strengthening two-tier cooperatives.

The RDI cooperatives thus present a strange paradox : the higher is the investment on cooperative institutions the poorer is their performance. There may be several explanations for this paradox. First, it may be, argued that the failure of RDI really stems from the inherent maladies of the Comilla model itself. As a critic observed, "The whole exercise constitutes a lesson in futility of cooperation in a situation of inequality".⁵² However, this does not appear to be a satisfactory explanation. Even within the existing social structure some institutions in Bangladesh, like Grameen Bank had shown much better performance.

Secondly, it is hypothesized that the delay in the supply of irrigation facilities adversely affected the growth of cooperative societies in the project. This hypothesis appears to be only partially valid because the performance of the KSSs have not significantly improved after the commissioning of irrigation equipment. Thirdly, it is stated that as the project was entrusted with too many responsibilities, it failed to supervise the cooperatives effectively. This hypothesis also does not appear to be satisfactory. The responsibility of the UCCAs was fairly well-defined and they were not burdened with other responsibilities.

The real explanation of this paradox lies in the fact that the performance of RDI cooperatives deteriorated because of the project. The process of rural development is extremely complex and it cannot be fitted into the strait-jacket of a project's blue-print. The RDI project impaired the effectiveness of cooperative societies in several ways. First, the project by setting targets for the number of societies and KSS members started "a number's game." The KSSs were expanded too fast to meet the targets of the project. It was forgotten that in institutional development quality and not quantity matters most. As a result, the quality of societies deteriorated fast, cooperative discipline was overlooked and the leadership was usurped by village elites. Secondly, short term credit was expanded too fast. The prospective loanees were not screened carefully because of the hurry to meet the project's target. Thirdly, a project is always time-bound. Once a loan agreement is signed, there is continuous pressure from the donor for timely disbursement of credit. The distribution of irrigation equipment to RDI KSS, without completing the formalities of MT credit is a case in point. As the procurement of the irrigation equipment was delayed it was thought that the fielding of irrigation equipment was more important than paper work on credit. Thus the problems of recovery of MT credit were compounded unwittingly. Fourthly, there is no flexibility in the implementation of the project. All the details were spelled out in the SAR despite the uncertainties inherent in a rural development project. Thus the project had to import 1400 LLPs though there was not enough water to field even half of them effectively. The relentless pressure for meeting the targets and deadline

of the project ultimately stifled the cooperative spirit. The project became an imposition from the above effectively ruling out the spontaneous participation of the beneficiaries. Finally, the unusual flow of resource from outside made the cooperatives helplessly dependent on doles and killed the spirit of self-reliance. The problems outlined above are very complex and cannot be solved very easily. Several remedies may, however, be tried. First, the period of a rural development project should be longer than an agricultural development project. Institutions like physical structures cannot be built overnight, the uncertainties and hazards of such ventures are myriad. There must not be any hurry to meet the project deadline. Secondly, there should be scope for flexibility in rural development projects. There should be a shift, from what D.C. Korten describes, as blue print approach to learning process approach⁵³. There should be scope for revising the contents of the project during implementation. Finally, the relevance of the project concept itself to rural development should be reexamined. Non-project credit (such as sectoral credit) may in some cases be more suitable for rural development projects.

An analysis of the experience of RDI cooperatives suggests that more attention should be paid to three key areas :

- the procedure for dealing with bankrupt cooperative societies.
- the measures for eliminating the stranglehold of the rural elites on the cooperatives.
- the procedure for group-ownership of STWs within the purview of KSS.

A number of KSSs have become virtually bankrupt because of bad debt. The RDI project tried to rejuvenate such societies by rescheduling bad debt. But the attempt failed. The other legal alternative is the winding up of such societies under section 90 of the Cooperative Societies Ordinance, 1984 (Ordinance No. 1 of 1985). The process is, however, cumbersome and time-consuming. The power of winding up vests with the Registrar of Cooperative Societies where as the KSSs are supervised by the UCCAs. Some of the problems of liquidating bankrupt societies can be minimized by conferring on the UCCAs the power of registration and winding up of KSSs. The defaulters of loans of cooperative societies are encouraged by easy availability of loans from multiple sources in the upazila. A black list of defaulters of loans from all official sources should be compiled and maintained at the upazila level. A defaulter should not be given credit from any official source. A rural credit committee of all official agencies at the upazila level should be established immediately.

The elimination of the rural elites from the leadership of cooperatives will be a very difficult process because of the symbiotic relationship between the official supervisors and the rural elites. As Robert Chambers rightly describes, "Police, Government officials and the large landowners and traders have common interests and understanding"⁵⁴. However, certain measures can be introduced to reform the existing structure of cooperative societies. First, at

least fifty percent seats in the managing committees may be reserved for very small farmers owning less than one acre of land. Secondly, the criteria for classification of KSSs should be changed. At present, KSSs which cover more than 20 percent eligible village households are given credit. Actually, the criteria should be the percentage of the coverage of eligible small farmers owning less than one ac. Finally, none should be allowed to hold office for more than one term at a time.

There is an unresolved ambivalence with respect of ownership of STWs by the KSS. Legally, the ownership of all STWs acquired through KSSs should vest in the KSSs. Actually, however, a STW cannot cover the plots of all members of a KSS. Consequently, each STW of KSS is monopolized by one or a few members. As a result, there is hardly any difference between the privately owned and KSS operated STWs. At present small irrigation groups within the KSS are not officially recognized. Since, STWs are run by small groups, such groups should be officially formed and the STW should be officially owned by the KSS and it should be rented out to irrigation groups. The procedures regarding the relationship between irrigation groups and KSS should be clearly specified. Moreover, the non-members in KSS STW areas should be encouraged to join KSS.

The existing financial system is the Achilles' heel of the existing cooperatives. Immediate action is overdue in several areas. First, in most cases, the up to date accounts were not maintained in the UCCAs and KSSs. The existing accounting procedures should be simplified and continuous training in accounting should be organized both for cooperative officials and office-bearers. Secondly, a well defined machinery should be established for realizing the MT credit for irrigation equipment in project area. Loan documents for such loans should also be signed. Instructions should also be issued by the Ministry of Finance regarding the disposal of such funds. Finally, the accounts of various agencies connected with RDI should be squared up and audited. RDI's total liability to BADC should be finally determined and repaid. Steps should also be taken for the disposal of unused LLPs of the project.

There is also scope for diversifying and intensifying the activities of cooperative societies. At present, the cooperatives are functioning as credit agencies only. The cooperatives should also be harnessed for maintaining infrastructures—like flood mitigation and drainage projects. Action research on diversifying the activities of cooperatives should be undertaken by rural development academies. Moreover, the training programmes in the cooperatives should be strengthened. At present two inconsistent types of agricultural extension systems (T & V system & model farmer of Comilla system) are in operation⁵⁵. These two systems should be reconciled,

The landless programme in the two-tier cooperative should be streamlined. It is doubtful whether the existing structure of cooperative is suitable for promotion of the activities of landless. The performance of exclusive institutions for rural poor like Grameen Bank is much better than the BRDB. The organizational structure, training and credit activities of rural poor programmes should be periodically reviewed.

Apparently the indicators of sustainability chosen in section 2 of this study do not lend themselves to a definite conclusion. While the project is viable from the economic point of view, it is not sustainable on the basis of institutional and equity indicators. In the final analysis, the economic viability is not a sufficient condition for the sustainability of this project for two reasons. First, the economic benefits of the project are likely to dwindle over time if necessary institutional mechanism for operation and maintenance of irrigation equipment does not develop. Secondly, a rural development project that contributes to polarization is counterproductive for sustained economic development. Viewed in this perspective, the RDI is not at all a sustainable project.

The ultimate sustainability of a rural development project depends on its success in enlisting the participation of the rural poor. Development cannot be imposed from above. It is indigenous to each society and builds primarily on its own resources, mainly land and the majority population who work on the land but own very little of it. Development is not for the few-the elite and the best. It is for the many, the rural majority⁵⁶. Judged from this angle, the RDI is not a sustainable project. The on-going rural development projects in Bangladesh should draw lessons from RDI and concentrate on institution building rather than on other project related activities. As an African statesman rightly emphasized : "Governments by themselves cannot achieve rural development. They can only facilitate it and make it possible. They can organize, help and guide. They cannot do it. For rural development is peoples development of themselves, their lives and environment and the people cannot do it if they have no power⁵⁷.

Footnotes :

1. World Bank, Tenth Annual Review of Project Performance Audit Results, 1984 (mimeo), p. VIII.
2. J. Price Gittinger, *Economic Analysis of Agricultural Projects* (Baltimore ; The Johns Hopkins University Press, 1982), p. 28.
3. Besty Hartmann and James Boyce, *A Quiet Violence* (Delhi : Oxford University Press, 1983).
4. J. Price Gittinger, op.cit., pp 29—35.

5. ILO, *Poverty and Landlessness in Rural Asia* (Geneva : ILO, 1977), p. 147.
6. Geof Wood, "Rural Development in Bangladesh : Whose framework ?" *The Journal of Social Studies*, Vol. 8, p. 19.
7. World Bank, *The Assault on World Poverty*, (Baltimore : The Johns Hopkins University Press, 1975).
8. World Bank, *Bangladesh Appraisal of a Rural Development Project*, 1976 (mimeo), p. 1.
9. *Ibid*, p. 1.
10. Till 1982, there were 4 upazilas in the Bogra Project area. However, a new upazila (Sonatala) has been established by combining portions of Sariakandi and Gabtali.
11. Akhter Hamid Khan, *The Works of Akhter Hamid Khan*, (Comilla, BARD, 1983, Vol.II), p. 127.
12. World Bank, "Sustainability of Project : First Review Experience, 1985" (mimeo), p. 1.
13. *Ibid*, p. 1.
14. *Ibid*, p. ii.
15. *Ibid*, p. 7.
16. Albert O. Hirschman, *Development Projects Observed* (Washington D.C. Brookings Institution, 1967), p. 107.
17. Warren C. Baum and Stokes M. Tolbert, *Investing in Development*, (New York : Oxford University Press, 1985), p. 385.
18. George Honadle and Jerry Vansant, *Implementation for Sustainability : Lessons from Integrated Rural Development* (West Hartford : Kumarian Press, 1985), p. 2.
19. World Bank, *The Assault on World Poverty*, *op. cit.*, p. 3.
20. Uma Lele, *The Design of Rural Development* (Baltimore : The Johns Hopkins University Press, 1975), p. 20.
21. George Honadle and Jerry Vansant, *op. cit.*, p. 2.
22. Centre for Development Studies, Bangladesh Unnayan Parishad, "Rural Development in a Cooperative Framework : An Evaluation of RDI Project in Bangladesh," June, 1985 (mimeo).
23. Albert O. Hirschman, *op. cit.*, p. 35.
24. World Bank, "Project Completion Report, Bangladesh Rural Development 1 Project," May, 1986 (mimeo), p. 7.

25. World Bank, Bangladesh Appraisal of a Rural Development Project (mimeo), p. 63.
26. World Bank, The Project Completion Report, p. 12.
27. *Ibid*, p. 12.
28. *Ibid*, p. 11.
29. World Bank, *Project Performance Audit Memorandum*, May 1986 (mimeo), p. 3.
30. *Ibid*, p. 3.
31. Rene Dumont, "So Many Things To Do", *Development Forum*, Vol. XIII, No. 4, p. 5.
32. Government of the People's Republic of Bangladesh. *The Third Five Year Plan, 1985-90* (Dhaka : Planning Commission 1985). There is one error in the Planning Commission's statement. The statement was reportedly based on an evaluation report of the BIDS. However, no such evaluation was undertaken by the BIDS. It was actually done by Centre for Development Research.
33. Centre for Development Research, *op. cit.*, p. 3.24.
34. Master Plan Organization, National Water Plan Project, Third Interim Report, Annex—A (mimeo).
35. Trade and Industrial Policy Reform Programme, Overview of Industrial Project Appraisal (mimeo), May 1986.
36. Centre for Development Research, *op. cit.*, pp. 3.25—3.33.
37. *Ibid.*, p. 3.25.
38. *Ibid.*, p. 317—320.
39. World Bank, *World Development Report, 1984* (New York : Oxford University Press, 1984), p. 55.
40. Centre for Development Research, *op. cit.*, pp. 2.10—2.12.
41. R.D. Chambers, *Rural Development : Putting the Last First* (London : Longman, 1983), p. 131.
42. Government of the People's Republic of Bangladesh, *Bangladesh Integrated Rural Development Programme : A Joint Review By Government and World Bank* (Dhaka : Ministry of Local Government and Rural Development, 1981), p. V.
43. *Ibid*, p. 53.
44. Centre for Development Research, *op. cit.*, pp. 4.37—4.42.
45. *Ibid*, p. 63.

46. Government of the Peoples' Republic of Bangladesh, *The Third Five Year Plan, 1985-90*, p. 210.
47. Government of the Peoples' Republic of Bangladesh, *Strategy for Rural Development Project* (Dhaka : Bangladesh Planning Commission), p. 26.
48. World Bank, Staff Appraisal Report, Bangladesh Rural Development II Project, May 1983 (mimeo), pp. 22-23.
49. *Ibid.*, p. 22.
50. World Bank, Bangladesh Appraisal of a Rural Development Project 1976 (mimeo), Annex 7., p. 5.
51. Centre for Development Research, *op. cit.*, p. 2.11a.
52. Azizur Rahman Khan, "The Comilla Model and the Integrated Rural Development Programme of Bangladesh : An Experiment in Co-operative Capitalism." *Agrarian System and Rural Development*, ed. Dharam Ghai et. al. (London : The Macmillan Press) 1979, p. 120.
53. D.C. Korten, "Rural Development Programming : The Learning Process Approach", *People Centred Development*, ed. David C. Korten and Rudi Klaus (West Hartford : Kumarian Press, 1984), p. 181.
54. R.D. Chambers, *op. cit.*, p.
55. Geof Wood, *op. cit.*, p. 18.
56. A.Z.M. Obaidullah Khan, *Rural Development in South Asia* (Dhaka Centre for Development Research, 1983), pp. 1-2.
57. Julius Nyrere in his speech at the World Conference on Agrarian Reoform and Rural Development (Rome : FAO, 1969).

CASE STUDY ON PROJECT SUSTAINABILITY

RDI Project

Questionnaire for UCCAs

1. Name of the UCCA :
2. Year of Registration :
3. Total number of KSS in the UCCA :

1981—82 1982—83 1983—84 1984—85 1985—86

Class A

Class B

Class C

Class D

Class E

4. Classification of the UCCA

5. Total number of members

in KSS

6. UCCA's own Capital
(in thousand)

1981—82 1982—83 1983—84 1984—85 1985—86

(a) Share Deposit

(b) Savings Deposit

(c) Other Deposit

(d) Savings withdrawal

(e) Share withdrawal

Total

(A + b + c + d + e) - (d + c)

7. Medium Term Loan

(a) Credit Outstanding

(in thousand Tk)

	1981—82	1982—83	1983—84	1984—85	1985—86
DTW					
STW					
LLP					
Hand TW					

(b) New Credit

(in thousand Tk)

	1981—82	1982—83	1983—84	1984—85	1985—86
DTW					
STW					
LLP					
Hand TW					

(c) Total Recovery

(in thousand Tk)

	1981—82	1982—83	1983—84	1984—85	1985—86
DTW					
STW					
LLP					
Hand TW					

8. Short Term Credit

(in thousand Tk)

	1981—82	1982—83	1983—84	1984—85	1985—86
Outstanding					
New Credit					
Cumulative amount (with interest)					
Total Recovery					

	1981—82		1982—83		1983—84		1984—85		1985—86	
9. Did the UCCA qualify for ST Loan	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No

10. Over due Loan (as on 1.1.87)	For 1 year	For 2 years	For 3 years	For 4 years	For 5 years
M.T. Loan (in thousand Tk)					
S.T. Loan (in thousand Tk)					

11. Fertilizer Loan to UCCA

	1981—82	1982—83	1983—84	1984—85	1985—86
amount received by the UCCA (in thousand Tk)					
amount repaid (in thousand Tk)					
Outstanding (in thousand Tk)					

(Please narrate the causes of non-payment of the fertilizer loan, if any).

12. Financial viability of the UCCA

	1981—82	1982—83	1983—84	1984—85	1985—86
(a) Govt. Grant received (in thousand Tk)					
(b) Interest on credit (in thousand Tk)					
(c) Other Commercial operation (in thousand Tk)					
(d) Misc. income (in thousand Tk)					
Total					

	1981—82	1982—83	1983—84	1984—85	1985—86
13. Total expenditure of the UCCA (in thousand Tk)					

14. UCCA Employee 1981—82 1982—83 1983—84 1984—85 1985—86

No. of sanctioned post					
No. of existing posts					
No. of vacancies					
No. of disciplinary cases against the staff					

(Please state in brief : name, nature and consequences of the disciplinary cases)

15. Sources of Loan 1981—82 1982—83 1983—84 1984—85 1985—86

Sonali Bank					
UCCAs' own Fund					
Recovery of loans from own fund					
Total					

16. No. of training classes held

1981—82 1982—83 1983—84 1984—85 1985—86

Manager					
Model Farmer					
Chairman					
Total					

17. Annual General meeting (AGM) of the KSSs

1981—82 1982—83 1983—84 1984—85 1985—86

AGM held					
AGM due					

18. Audit of KSS

1981—82 1982—83 1983—84 1984—85 1985—86

No. of Audit done					
No. of Audits pending					

19. UCCA Audit Reports

1981—82 1982—83 1983—84 1984—85 1985—86

Audit done!

--	--	--	--	--

(Please consult the audit reports for the last two years and narrate in brief the main features...major anomalies and their consequences)

20. Irrigation equipments

- (a) No. of irrigation equipments received from RDI.

1981—82 1982—83 1983—84 1984—85 1985—86

DTW

STW

LLP

Hand TW

- (b) Total No. of equipments

in operation 1981—82 1982—83 1983—84 1984—85 1985—86

DTW

STW

LLP

Hand TW

- (c) Total No. of equipments

out of ordre/use

1981—82 1982—83 1983—84 1984—85 1985—86

DTW

STW

LLP

Hand TW

21. Average acreage covered
by equipments :

	1931—82	1932—83	1933—84	1934—85	1935—86
DTW					
STW					
LLP					
HTW					

22. No. of KSS covered by IMP :

23. IMP Societies :

- (a) No. of IMP Societies ;
(b) Average acreage covered
(for IMP Societies)

	1931—82	1932—83	1933—84	1934—86	1935—86
DTW					
STW					
LLP Per causec.					

(c) Credit Recovery of

IMP Societies. 1931—82 1932—83 1933—84 1934—1935 1935—86

(i) Total loan
given

(ii) Total recovery

1931—82 1932—83 1933—84 1934—85 1935—86

(d) No. of farmers involved
in IMP Societies.

--	--	--	--	--

1931—82 1932—83 1933—84 1934—85 1935—86

24. BSS (a) No. of BSS
in the UCCA

(b) No. of mem-
bers in the BSS

25. Credit Profile of the BSS

	1981—82	1982—83	1983—84	1984—85	1985—86
(a) Total Outstanding credit					
(b) Purpose of credit :					
Beef fattening					
Petty trading					
Poultry					
Pottery					
Others					
Total					
(c) Total recovery					

26. AGM of BSS

	1981—82	1982—83	1983—84	1984—85	1985—86
AGM held					
AGM due					

27. Audit of BSS

	1981—82	1982—83	1983—84	1984—85	1985—86
No. of audits done					
No. of audits pending.					

28. No. of BSS superseded and run by adhoc committees.

	1981—82	1982—83	1983—84	1984—85	1985—86

29. MSS

	1981—82	1982—83	1983—84	1984—85	1985—86
No. of the MSS in the UCCA					
Total No. of members in the MSS					

30. Credit Profile of MSSs

	1981—82	1982—83	1983—84	1984—85	1985—86
(a) Total outstanding credit.					
(b) Purpose of credit					
Beef fattening					
Petty trading					
Poultry					
Pottery					
Others					
(c) Total Recovery					

31. AGM of MSS

	1981—82	1982—83	1983—84	1984—85	1985—86
AGM held					
AGM due					

32. Audit of MSS

	1981—82	1982—83	1983—84	1984—85	1985—86
No. of audits done					
No. of audits due					

33. No. of MSS superseded and run by Adhoc committee.

	1981—82	1982—83	1983—84	1984—85	1985—86

34. Present composition of the UCCA and their socio-economic position.

	Approximate monthly income (in thousand Tk)	Area of land owned.	Percentage of income from Agriculture
Chairman			
Members :			

(1)		
(2)		
(3)		
(4)		
(5)		
(6)		
(7-12)		

35. Was the MC of the UCCA superseded during the last 5 years? If so, when how long and why?

36. AGM of the UCCA 1981—82 1982—83 1983—84 1984—85 1985—86

Held					
Not held					

Data to be collected from the UNO Office.

- Please narrate in brief the present provision for maintenance of physical facilities built under RDI Project.
- Please attach a list of the roads (pucca and Katcha) Ponds, fisheries, Rural markets built under RDI Project.

Data to be collected from the Upazila Agriculture Office.

1. Name of the upazila

2. 1981—82 1982—83 1983—84 1984—85 1985—86

- Intensity of crop
- Net area
- Total area cropped
- Total area irrigated

(e) Yield of the major crops

Yield Area Yield Area Yield Area Yield Area Yield Area
1981—82 1982—83 1983—84 1984—85 1985—86

Aman Local transplanted variety

Aman HYV

Aus HYV

Aus Local

Boro Local

Boro HYV

3. Fertilizer Consumption

	1982	1983	1984	1985	1986
Urea					
Potassium					
Phosphate					
Others					

Statement of KSS

1. Name of the KSS _____
2. Village _____ 3. Union _____ 4. Upazila _____
5. Year of registration _____ 6. No. of irrigation equipment owned by the KSS
LLP _____ STW _____ DTW _____
7. No. of equipments operated : LLP _____ STW _____ DTW _____ by the KSS in 1987
8. Total term loan received _____
for irrigation equipment _____
9. Total term loan repaid for irrigation equipments _____
10. Overdue loan of irrigation equipment (in thousand Tk) _____
Less than 1 year Tk _____ Between 1 & 2 years Tk _____
Between 2 & 3 years Tk _____ Between 3 & 4 years Tk _____
Between 4 & 5 years Tk _____ Over 5 years Tk _____
11. (a) Last A. G. M. held in _____ (b) Last audit held in _____
12. Is there any production plan of the KSS _____

B. Background of the MC Members.

Name	Land owned	Approximate income per year	% of income from agriculture	Continuous tenure in the MC for (how many years)
------	------------	-----------------------------------	---------------------------------	--

Statement of STW

1. Name of the KSS
2. Name of the Manager/private owner----- 3. Village----- 4. Union-----
5. Upazila----- 6. Year of procurement of the STW-----
7. Was it totally out of commission in any particular year----- ?
8. Problems of maintenance----- 9. Crops grown by using irrigation water-----
10. Yield of crops (1) Rice----- (2) Wheat----- (3) Other crops-----
11. (a) Source of loan----- (b) Over due term loan. Over 1 year-----
12. Terms of collecting rent (a) In case of members----- (b) Incase of non-members.-----
12. Data on Users.

Sl. No.	Name	Total land irrigated	Total Land owned	Member/ non-member	Type of cultivation owner/owner-cum tenant/tenant/Khai Khalashi

LIBRARY

Bangladesh public Administration
Training Centre
Savar, Dhaka.

73943

Total

13. Miscellaneous issues if any :