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Report No. 9750

PROJECT PERFORMANCE AUDIT REPORT

MALAWI

KARONGA RURAL DEVELOPMENT PROJECT, PHASE II
NATIONAL RURAL DEVELOPMENT PROGRAM (NRDP) PHASE I PROJECT
NATIONAL RURAL DEVELOPMENT PROGRAM (NRDP) PHASE III PROJECT
NATIONAL RURAL DEVELOPMENT PROGRAM (NRDP) PHASE IV PROJECT
(LOAN 1286-T-MAI AND CREDITS 857-MAI, 1183-MAI AND 1343-MAI)

JUNE 28, 1991

Operations Evaluation Department

CURRENCY EQUIVALENTS

Malawi Kwacha/US dollar - averages

1966-71	0.833
1972-75	0.841
1976-79	0.869
1980	0.812
1981	0.895
1982	1.056
1983	1.175
1984	1.413
1985	1.719
1986	1.861
1987	2.209
1988	2.561
1989	2.822

ACRONYMS

ADD	Agricultural Development Division
ADMARC	Agricultural Development and Marketing Corporation
CIDA	Canadian International Development Agency
DA	Development Area
DH	Dedza Hills
EDF	European Development Fund
EPA	Extension Planning Area
IDA	International Development Association
IFAD	International Fund for Agricultural Development
IRDP	Integrated Rural Development Program
KADD	Karonga Agricultural Development Division
KRDP	Karonga Rural Development Project
LADD	Lilongwe Agricultural Development Division
LLDP	Lilongwe Land Development Program
LNE	Lilongwe North-East
M&E	Monitoring and Evaluation
MOA	Ministry of Agriculture
MOF	Ministry of Finance
MOW	Ministry of Works and Supplies
MU	Management Unit
NARP	National Agricultural Research Project
NRDP	National Rural Development Program
OED	Operations Evaluation Department
PCR	Project Completion Report
PPAR	Project Performance Audit Report
RDP	Rural Development Project
SAL	Structural Adjustment Lending
TA	Technical Assistant
TO	Technical Officer
USAID	United States Agency for International Development

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THE WORLD BANK
Washington, D.C. 20433
U.S.A.

Office of Director-General
Operations Evaluation

June 28, 1991

MEMORANDUM TO THE EXECUTIVE DIRECTORS AND THE PRESIDENT

SUBJECT: Project Performance Audit Report on Malawi Karonga Rural Development Project, Phase II; National Rural Development Program (NRDP) Phase I Project; National Rural Development Program (NRDP) Phase III Project; National Rural Development Program (NRDP) Phase IV Project
(Loan 1286-T-MAI and Credits 857-MAI, 1183-MAI and 1343-MAI)

Attached, for information, is a copy of a report entitled "Project Performance Audit Report on Malawi Karonga Rural Development Project, Phase II; National Rural Development Program (NRDP) Phase I Project; National Rural Development Program (NRDP) Phase III Project; National Rural Development Program (NRDP) Phase IV Project (Loan 1286-T-MAI and Credits 857-MAI, 1183-MAI and 1343-MAI)" prepared by the Operations Evaluation Department.

Attachment

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PROJECT PERFORMANCE AUDIT REPORT

MALAWI

KARONGA RURAL DEVELOPMENT PROJECT, PHASE II
NATIONAL RURAL DEVELOPMENT PROGRAM (NRDP) PHASE I PROJECT
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NATIONAL RURAL DEVELOPMENT PROGRAM (NRDP) PHASE IV PROJECT
(LOAN 1286-T-MAI and CREDITS 857-MAI, 1183-MAI and 1343-MAI)

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(LOAN 1286-T-MAI and CREDITS 857-MAI, 1183-MAI and 1343-MAI)

PREFACE

This is the project Performance Audit Report (PPAR) of the Karonga Rural Development Project, Phase II, National Rural Development Program (NRDP) Phase I Project, National Rural Development Program (NRDP) Phase III Project, and National Rural Development Program (NRDP) Phase IV Project in Malawi. They involved respectively a Third Window loan of US$9.2 million, and IDA credits of US$22 million, SDR 6.5 million (US$7.3 million) and SDR 9.8 million (US$10.6 million). The loan/credits were approved on June 30, 1976, November 28, 1978, October 13, 1981 and April 5, 1983 respectively. The full amount of the Karonga II loan was disbursed; cancellations on NRDP Phase I and III credits were respectively US$2.89 million and US$2.05 million. The Closing Dates were: Karonga II project December 31, 1981, National Rural Development I project June 30 1986, National Rural Development III project September 30, 1988 and National Rural Development IV project September 30 1990. Final disbursements were: Karonga II project February 17, 1982, National Rural Development I project October 22, 1986, National Rural Development III project May 31, 1989 and National Rural Development IV project March 22, 1991.

The PPAR is based on the Project Completion Reports (PCRs)1/ of the first three projects, the Staff Appraisal and President's Reports, the loan/credit documents and on a study of project files and discussions with Bank staff in Washington and Lilongwe. An OED mission visited Malawi in September/October 1990 and discussed the projects with Ministry of Agriculture officials and with staff of the Lilongwe and Karonga Agricultural Development Divisions. The mission met with farmers and field staff personnel in the

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1/ Project Completion Reports: (i) Malawi: Second Karonga Rural Development Project Phase II (Loan 1286-T-MAI), Report No. 5340, November 28, 1984; (ii) Malawi: National Rural Development Program Phase I (Credit 857-MAI), Report No. 6797, June 2, 1987 and (iii) Malawi: National Rural Development Program (NRDP) - Phase III Project (Credit 1183-MAI), May 22, 1990. The Karonga II PCR was prepared by the Ministry of Agriculture and the Bank's Regional Mission in East Africa; the PCR for National Rural Development I was prepared by the Bank's Regional projects staff; the PCR for National Rural Development III was prepared partly by the Ministry of Agriculture and partly by the FAO/World Bank Cooperative Program.

respective project areas. The kind cooperation and valuable assistance by all concerned in the preparation of this report is gratefully acknowledged.

The PCRs provide a full account and assessment of the projects experiences, including the performance of the Bank and the project executing agencies. The PPAR elaborates on particular aspects such as project design, modificatioons during implementation, impact and sustainability.

The draft PPAR was sent to the Borrower for comments but none were received.

PROJECT PERFORMANCE AUDIT REPORT

MALAWI

SECOND KARONGA RURAL DEVELOPMENT PROJECT
(LOAN 1286-T-MAI)

BASIC DATA SHEET

KEY PROJECT DATA

	Appraisal Estimate	Actual or Estimated Actual	Actual as % of Appraisal Estimate
Total Project Costs (US$ million)	12.09	12.44	103
Loan Amount (US$ million)	9.2	9.2	100
Date Physical Components Completed	09/80	03/82	
Houses			100
Roads			30
Boreholes			90
Markets			20
Health			100
Training Centers			100
Economic Rate of Return - NRDP	14%	14%	
- Lake Transport	18%	10%	
Institutional Performance		Poor/a	
Performance		Variable/b	
Financial Performance		Poor/c	
Number of Direct Beneficiaries		11,000 farmers/d	

CUMULATIVE ESTIMATED AND ACTUAL DISBURSEMENTS

	FY77	FY78	FY79	FY80	FY81	FY82
Appraisal Estimate (US$ M)	0.8	4.0	7.4	8.6	9.2	-
Actual (US$ M)	0.5	3.5	6.9	8.0	8.9	9.2
Actual as % of Appraisal (%)	62.5	87.5	93.2	93.0	96.7	100

Date of Final Disbursement: February 1982

PROJECT DATES

	Original Plan	Revisions	Actual
Board Approval			06/15/76
Date of Loan Signing			06/24/76
Date of Effectiveness			08/18/76
Closing Date	03/81		12/31/82

STAFF INPUTS (STAFF WEEKS)

FY	72	73	74	75	76	77	78	79	80	81	82	83	84	85	Total
Preappraisal	5.1	.6	-	7.7	4.7	-	-	-	-	-	-	-	-	-	18.2
Appraisal	23.9	21.2	-	-	83.7	-	-	-	-	-	-	-	-	-	128.8
Negotiation	.1	2.2	-	-	4.0	-	-	-	-	-	-	-	-	-	6.4
Supervision	.8	.3	-	-	.1	13.5	21.2	6.7	8.4	3.7	-	1.8	5.8	.3	62.6
Other	-	-	.1	.4	6.8	-	-	-	-	-	-	-	-	-	7.3
Total	30.0	24.2	.1	8.1	99.4	13.5	21.2	6.7	8.4	3.7	-	1.8	5.8	.3	223.2

MISSION DATA

Mission		Date (mo/yr)	No. of Persons	Staff-weeks in field	Speciali-zations Represented	Per-formance Rating /e	Trend /f	Types of Problems /g
Preparation		10/28/74	2					
Preparation		01/22/75	1					
Appraisal		10/04/75	5		Econ.			
Supervision	1	01/30/77	3	6	Econ/Pub.H.	2	-	TO
Supervision	2	01/10/78	1	2	Econ.	2	2	TO
Supervision	3	09/03/78	2	4	Econ./Agron.	2	2	PTO
Supervision	4	09/20/78	2	6	Engin./Econ.	2	2	TO
Supervision	5	08/01/79	1	2	Agronomy	2	1	T
Supervision	6	05/09/80	2	2	Agr.Econ./Agro.	2	2	FT
Supervision	7	01/21/81	1	1	Agronomy	1	2	FT

OTHER PROJECT DATA

Borrower:	Government of Malawi	
Executing Agencies:	Ministry of Agriculture, Malawi Railways	
Fiscal Year of Borrower:	April 1 - March 31	
Name of Currency:	Malawi Kwacha (MK)	
Currency Exchange Rate		
Appraisal Year Average	(1975)	US$1.00 = 0.90 MK
Intervening Year Average	(1976-1981)	US$1.00 = 0.84 MK
Completion Year Average	(1981)	US$1.00 = 0.90 MK

Follow-on Project:	
Name:	National Rural Development Program (NRDP) Phase III
Credit Number:	1183-MAI
Credit Amount (US$ million):	7.3
Date of Board Approval:	10/31/81

/a Poor management and budget control in early project year for Karonga Rural Development Project.

/b Variable due to variability of rainfall and of crop prices. Farmer profits unsatisfactory for cash crops, cotton and groundnuts. Farmers reacted favorably to crop price increase for maize and rice in particular. Insufficient development of extension messages.

/c Excessive expenditures for operating costs in the first project years. The Ministry of Finance appropriated MK 1.5 million from the Credit Fund. Budget allocations generally satisfactory.

/d Some 11,000 farmers representing 28% of the farming community were participating in the group credit schemes.

/e 1 = Problem-free or minor problems; 2 = moderate problems; 3 = major problems.

/f 1 = improving; 2 = stationary, 3 = deteriorating.

/g F = Financial; T = Technical; P = Political; O = Other.

PROJECT PERFORMANCE AUDIT REPORT

MALAWI

NATIONAL RURAL DEVELOPMENT PROGRAM - PHASE I (CREDIT 857-MAI)

BASIC DATA SHEET

KEY PROJECT DATA

	Appraisal Estimate	Actual or Estimated Actual	Actual as % of Appraisal Estimate
Total Project Costs (US$ million)	66.0	n.a.	-
IDA/CIDA Financing (US$ million)	24.6	20.3	83
Credit Amount (US$ million)	22.0	19.1	87
Cancelled (US$ million)	-	2.9	
Date Physical Components Completed	03/31/82	03/31/85	
Proportion Completed by above Date (%)			
Civil works		95	
Roads		78	
Bridges		100	
Economic Rate of Return	43	marginal	
Number of Direct Beneficiaries (farm families)	104,000	295,000	

CUMULATIVE ESTIMATED AND ACTUAL DISBURSEMENTS

	FY79	FY80	FY81	FY82	FY83	FY84	FY85	FY86
Appraisal Estimate (US$ M)	1.7	4.3	8.7	13.1	17.5	22.0	-	-
Actual (US$ M)	-	3.9	6.7	12.3	15.8	17.1	18.2	19.1
Actual as % of Appraisal (%)	-	91	77	94	90	77	83	87

Date of Final Disbursement: October 22, 1986

PROJECT DATES

	Original Plan	Actual
First Mention in Files		1973
Government's Application		09/77
Negotiations		09/78
Board Approval		11/18/78
Date of Loan Signing		12/21/78
Date of Effectiveness		04/05/79
Closing Date	09/30/83	06/30/86

STAFF INPUTS (Staff Weeks)

(by fiscal year)

	73	74	75	76	77	78	79	80	81	82	83	84	85	TOTAL
Pre-appraisal	14.3	12.5	2.0	37.0	14.6									80.4
Appraisal	0.1				122.7	6.9								129.7
Negotiations						9.0								9.0
Supervision						4.8	15.6	15.3	24.4	22.8	9.0	21.0	30.9	143.8
Other				0.2	1.0	0.2			0.3					1.7
Total	[illegible]	12.5	2.0	37.2	138.3	20.9	15.6	15.3	24.7	22.8	9.0	21.0	30.0	364.6

MISSION DATA

Mission	Date (mo/yr)	No. of Persons	Staff-weeks in field	Speciali-zations Represented	Per-formance Rating /a
Preparation	07/15/77	1	1.5	Agriculturist	
Appraisal	11/12/77	6	3.5	Multi-discip.	
Post appraisal	04/07/78	1	0.5	Agriculturist	
Post appraisal	03/19/79	1	1.5	Agriculturist	
Supervision 1	07/20/79	1	0.5	Economist	2
Supervision 2	09/08/80	2	0.5	Econ. Agron.	2
Supervision 3	01/12/81	2	1.5	Agron;Fin.An.	2
Supervision 4	10/05/81	2	3.0	Agron;Fin.An.	2
Mid-term review	10/05/81	8	2.0	Multi-discip.	
Supervision 5	04/26/82	2	3.3	Liv.Spe;Agron.	2
Supervision 6	10/20/82	2	2.0	Agron;Fin.An.	2
Supervision 7	06/13/83	3	1.5	Fin.An.;Agron. Agriculturist	2
Supervision 8	03/13/85	1	1.0	Agric.;Fin.An.	2
	05/10/85	2	2.0		

OTHER PROJECT DATA

Borrower:	Government of Malawi	
Executing Agency:	Ministry of Agriculture	
Fiscal Year of Borrower:	April 1 - March 31	
Name of Currency:	Malawi Kwacha (MK)	
Currency Exchange Rate		
Appraisal Year Average	(1977)	US$1.00 = MK 0.910
Intervening Year Average	(1978-1984)	US$1.00 = MK 1.001
Completion Year Average	(1985)	US$1.00 = MK 1.750

Follow-on Project:

Name: National Rural Development Program (NRDP) Phases II-V

Credit Numbers: 992, 1183, 1343, 1626-MAI

/a 1 = Problem-free or minor problems; 2 = moderate problems; 3 = major problems.

PROJECT PERFORMANCE AUDIT REPORT

MALAWI

NATIONAL RURAL DEVELOPMENT PROGRAM - PHASE III (CREDIT 1183-MAI)

BASIC DATA SHEET

KEY PROJECT DATA

	Appraisal Estimate	Actual or Estimated Actual	Actual as % of Appraisal Estimate
Total Project Costs (US$ million)	8.6	5.9	69
Total Project Costs (MK million)	6.89	7.44	108
Credit Amount (SDR/US$ million)			
Original		6.50/7.30	
Disbursed		4.67/5.25	72
Cancelled		1.83/2.05	28
Date Physical Components Completed	09/85	09/88	
Institutional Performance		Satisfactory	
Number of Direct Beneficiaries	3,200	10,800	337

CUMULATIVE ESTIMATED AND ACTUAL DISBURSEMENTS (US$ million)

	FY82	FY83	FY84	FY85	FY86	FY87	FY88	FY89
Appraisal Estimate (US$ M)	0.4	2.0	3.9	5.3	6.3	6.5	6.5	6.5
Actual (US$ M)	0.0	0.7	2.2	3.2	3.8	4.1	4.5	4.7
Actual as % of Appraisal (%)	-	35	55	60	61	64	69	72

Date of Final Disbursement: May 31, 1989

PROJECT DATES

	Original Plan	Revisions	Actual
First Mention in Files			08/79
Appraisal			09-11/80
Board Approval			10/81
Date of Loan Signing			03/82
Date of Effectiveness	05/82		05/82
Closing Date	09/86		09/88

STAFF INPUTS (Staff Weeks)

FY	79	80	81	82	83	84	85	86	87	88	TOTAL
Preappraisal	1.2	4.9	8.3	-	-	-	-	-	-	-	14.3
Appraisal	-	.2	62.5	6.6	-	-	-	-	-	-	69.3
Negotiation	-	-	-	8.2	-	-	-	-	-	-	8.2
Supervision	-	-	-	9.6	7.9	4.6	15.9	9.3	12.2	5.1	64.5
Other	-	-	4.0	3.8	2.2	-	-	-	-	-	10.1
Total	1.2	5.1	74.8	28.2	10.1	4.6	15.9	9.3	12.2	5.1	166.4

MISSION DATA

Mission	Date (mo/yr)	No. of Persons	Staff-days in field	Speciali-zations Represented /a	Per-formance Rating /b	Trend /c	Types of Problems /d
Preparation	08/79	n.a.	n.a.	n.a.			
Appraisal	09-11/80	6	n.a.	n.a.			
Supervision 1	02/82	1	7	A	1	1	M
Supervision 2	06/82	3	7	A, E, L	1	1	M
Supervision 3	01/83	1	5	A	1	1	O
Supervision 4	03/83	1	19	M	n.a.	n.a.	n.a.
Supervision 5	06/83	1	16	L	2	1	F,O
Supervision 6	02/84	1	18	L	3	2	F,O
Supervision 7	09/84	2	11	A	2	1	F,M,O
Supervision 8	06/85	3	7	E, S	2	1	T,F
Supervision 9	04/86	1	5	E	2	-	-
Supervision 10	03/87	1	5	E	2	-	-
Supervision 11	12/87	1	8	A	2	-	-
Supervision 12	06/88	1	5	A	2	-	-

OTHER PROJECT DATA

Borrower:	Government of Malawi
Executing Agency:	Ministry of Agriculture
Fiscal Year of Borrower:	April 1 - March 31
Name of Currency:	Malawi Kwacha (MK)
Currency Exchange Rate	
Appraisal Year Average	(1980) US$1 = MK0.812
Completion Year Average	(1988) US$1 = MK2.561
Follow-on Project:	
Name:	National Rural Development Program - Phase IV
Credit Number:	1343-MAI
Credit Amount (US$ million):	10.6
Date of Board Approval:	May, 1983

/a A = Agriculturist; E = Economist; L = Livestock specialist; M = Monitoring and Evaluation Specialist; S = Sociologist; F = Financial Analyst.
/b 1 = Problem free or minor problems; 2 = Moderate problems; 3 = Major problems.
/c 1 = Improving; 2 = Stationary.
/d M = Management; F = Financial; T = Technical; O = Others.

N.B. In 1985 onwards, IDA's Supervisory Summary Report format was changed with the result that cooperative indicators for the project cannot be extracted in respect of /c and /d after June 1985.

PROJECT PERFORMANCE AUDIT REPORT

MALAWI

NATIONAL RURAL DEVELOPMENT PROGRAM - PHASE IV (CREDIT 1343-MAI)

BASIC DATA SHEET /a

KEY PROJECT DATA

	Appraisal Estimate	Actual or Estimated Actual
Total Project Costs (US$ million)	12.5	n.a.
Total Project Costs (MK million)	13.4	n.a.
Credit Amount (SDR/US$ million)		
Original	9.8/10.6	9.8/12.3 /b
Disbursed		SDR 9.8/12.3
Cancelled		-
Date Physical Components Completed	06/88	09/90
Institutional Performance		Satisfactory
Number of Direct Beneficiaries	10,500	

CUMULATIVE ESTIMATED AND ACTUAL DISBURSEMENTS
(US$ million)

	FY83	FY84	FY85	FY86	FY87	FY88	FY89	FY90
Appraisal Estimate (US$ M)	0.2	2.1	4.8	7.0	8.8	10.1	10.6	10.6

Date of Final Disbursement: March 22, 1991

PROJECT DATES

	Original Plan	Revisions	Actual
First Mention in Files			06/81
Appraisal			04-05/82
Board Approval			04/83
Date of Loan Signing			05/83
Date of Effectiveness	08/83		08/83
Closing Date	09/88		04/91

STAFF INPUTS (Staff Weeks)

FY	81	82	83	84	85	86	87	88	89	90	91	TOTAL
Preappraisal	.2	14.9										15.2
Appraisal		41.1	16.0									57.1
Negotiation			4.0									4.0
Supervision			.5	9.4	10.3	13.8	11.5	8.2	4.1	6.5	1.9	66.1
Other		1.7	4.4	.1	.1		.7					7.0
Total	.2	57.7	25.0	9.5	10.4	13.8	12.2	8.2	4.1	6.5	1.9	149.5

OTHER PROJECT DATA

Borrower:	Government of Malawi
Executing Agency:	Ministry of Agriculture
Fiscal Year of Borrower:	April 1 - March 31
Name of Currency:	Malawi Kwacha (MK)
Currency Exchange Rate	
Appraisal Year Average	(1983) US$1 = MK 1.175
Completion Year Average	(1990) US$1 = MK 2.96
Follow-on Project:	None

/a A more complete Basic Data Sheet will be provided with the PCR which is currently under preparation by the Region.

/b The US$ depreciated against the SDR during this period.

PROJECT PERFORMANCE AUDIT

MALAWI

KARONGA RURAL DEVELOPMENT PROJECT, PHASE II
NATIONAL RURAL DEVELOPMENT PROGRAM (NRDP) PHASE I PROJECT
NATIONAL RURAL DEVELOPMENT PROGRAM (NRDP) PHASE III PROJECT
NATIONAL RURAL DEVELOPMENT PROGRAM (NRDP) PHASE IV PROJECT
(LOAN 1286-T-MAI and CREDITS 857-MAI, 1183-MAI and 1343-MAI)

EVALUATION SUMMARY

Introduction

1. The Bank has been involved in rural development in Malawi for over twenty years. It has had a central role in shaping Malawi's agricultural and rural development strategies. This audit covers four rural development projects approved between 1976 and 1983 and finally completed in 1990. They were preceded by the Bank's support of the integrated rural development project approach in the Lilongwe Land Development Project, which started in 1968 and was replicated in the Karonga Region.

2. The overall objective of the Malawi Government and the Bank during this period has been to raise food production and rural living standards nationally and avoid creating regional income disparities. The primary strategy of the projects was to reduce the areas under food crops (i.e. local maize) by introducing higher yielding packages and therefore releasing foodcrop land for cash crops. While this strategy remained unchanged over the years, the project approach was modified from the multi-component intensive character of the early IRDPs (agricultural services plus feeder roads, market facilities, domestic water supply, soil conservations, land use planning) to the less costly, extensive approach of the NRDP with fewer components. Subsequently, the Bank has shifted to sectoral programs in support of NRDP activities such as for research, inputs services and policy change.

3. Malawi was the country where the Bank first used the integrated rural development project approach. This was in 1968 in Lilongwe. The approach was as much the result of convenience as of philosophy. The philosophy was that of the synergistic relationship between investment in rural and social infrastructure (particularly in a country almost lacking in rural infrastructure) and in agricultural production-promoting activities. It was convenient to place all project activities under a single authority because the rural administration was incapable of handling a substantial investment program.

4. The Lilongwe Program extended over three separate projects. It became the Bank's show-piece for successful integrated rural development and the model for numerous other projects in Malawi and elsewhere. It was replicated in three other areas in Malawi, two of which were financed by the Bank. One of these areas was in the Karonga Region in Northern Malawi. Two of the projects audited here financed the last two phases of the Karonga Program. Another of them financed the fourth or consolidation phase of

Lilongwe. These projects provide an opportunity to evaluate the success of the integrated approach.

5. These four area programs in Malawi covered only about one-fifth of the rural population by the early 1970s. It became obvious around then that this type of project was too expensive to extend to the other four-fifths of the rural population on the same lines. A new and less intensive approach was thus proposed. Under this Malawi was divided into forty Rural Development Project area. It was planned that each area would go through a four-phased 15-18 year development period, with investment in each phase adjusted to the available resources. This became known as the Rural Development Program. The projects under audit straddle the final years of the integrated project approach, the period of the introduction of the new Program and the first 12 years of its implementation.

Implementation

6. The physical execution of construction works in all four projects was for the most part commendable. There were inevitably delays and some cost overruns and some components, notably roads, were reduced in scope. The majority of project works, however, were competently completed and usually within cost.

7. The main exception to this satisfactory performance was the construction of new markets and input supply depots in the first three projects. This was the responsibility of the Agricultural Development and Marketing Corporation, a commercial trading enterprise with only loose links with the Ministry of Agriculture. In the first three projects these facilities were built only late or not at all, mainly it would seem because the Corporation's views of the need for them differed from the Bank's views and it was not prepared to commit its own funds to what appeared to it as low priority investments.

8. Project costs tended to be below costs estimated at appraisal in dollar terms because of the depreciation of the local currency during implementation. This, together with the very tight budgetary situation, meant that disbursements lagged well behind appraisal expectations. Despite extensions of Closing Dates by 21-33 months substantial parts of three of the credits were canceled.

9. Maintenance of project facilities after completion has been a major problem. Many of the facilities built under the original integrated projects by project construction units have fallen into disuse for lack of funds to maintain them or because of disagreements over specifications. Attempts to overcome this problem in later projects, by building them to specifications agreed with the Ministry that would later be responsible for maintaining them, have also failed because the receiving Ministry could not afford to maintain them. However, subsequently the parent Ministries concerned have developed institutions that took over construction and maintenance of the facilities.

10. All the projects have been beset by major staffing problems. The early projects relied heavily on expatriate management because there were few trained senior Malawian managers. Malawian management gradually took over but the demand for senior local staff always exceeded the supply; senior staff turnover was high and posts remained

vacant for long periods. The projects made heavy provision for senior staff training but the staff were rarely trained in time to be available to help the project. Once trained they were also available for rotation within the civil service structure as a whole.

11. Staff shortages at lower levels were less acute because it was easier to upgrade staff. Thus, although a higher proportion of junior than of senior posts were filled, they were not filled by adequately trained staff. Also, while the number of junior staff required was assessed on the basis of experience elsewhere, the ratio of farm families to extension workers could easily be varied.

12. The extension systems set up under the projects followed the lines established under the earlier integrated projects. Extension workers were primarily concerned with promoting the increased use of improved inputs, particularly hybrid maize and fertilizers. This was done through creating Farmer Clubs and providing the clubs with the inputs on credit. These Farmer Clubs are one of the more successful formal smallholder agricultural credit systems among developing countries and one of the success stories of the projects under audit. Membership of these clubs, however, was almost exclusively confined to farmers with large enough holdings to produce a surplus above their subsistence needs. This group represented only about 30 per cent of all farm families. Extension workers rarely contacted farmers outside the clubs and only about 20 per cent of farm families were members of clubs. While the proportion of farm families in clubs continues to rise it would seem as if around 80 per cent of farm families remain untouched by the activities of the extension system.

13. A number of attempts to modify the extension system were made during implementation. The objective of the modifications was to broaden the extension system's contact with farmers. At least until the last year or so these attempts have not been successful, primarily because the extension system has had nothing useful to tell the small subsistence farmer, most of whom are also not credit-worthy. The research and extension efforts could perhaps be criticized for persisting too long with the existing maize technology package. However, the Region contends that the efforts may yet be justified as the long-awaited expansion of improved maize technology seems to have commenced in the last year or two after the closure of the project.

14. The extension system's main function was to promote the increased use of hybrid maize seed and fertilizer, and in Karonga to increase rice production. From the very beginning of the first Lilongwe project the cornerstone of the agricultural production package was to convert farmers from growing local maize without fertilizers to growing fertilized hybrid maize. About 10 per cent of farmers adopted this package quite quickly. Attempts to spread it further failed until recently. The Region contends that hybrid seed sales during the past season have been high enough to cover almost 25% of the total maize area. The efforts to increase rice yields in Karonga appear to have met with initial success while crop prices were relatively high but yields have been static for the last ten years.

15. Although farmers were unwilling to grow much hybrid maize they have

been much more ready to use fertilizers. Fertilizer demand under the projects has risen as fast as supplies would allow. Government has not been able to meet the demand in full. How far NRDP can take credit for this increase is difficult to say. Fertilizer demand among smallholders has risen at least as fast in areas not covered by the Bank projects, although it is largely confined to those with access to credit. How far the increase in demand reflects an increase in consumption is impossible to say; a considerable proportion of the fertilizer is sold by smallholders to the estate sector where the price is higher because it is not subsidized and a further part is used for the illegal production of burley tobacco.

16. The projects made no attempt to change the existing <u>marketing system</u> through the Agricultural Development and Marketing Corporation despite the fact that the Bank regarded its monopsony position as a major shortcoming. The projects merely tried to increase the number of markets through which farmers could sell.

17. All the projects had small <u>research</u> components. These had hardly any impact despite the fact that in the latter two NRDP projects adaptive research was introduced, designed to address local problems. Most of the earlier research carried out was as part of the national trials program.

18. The consolidation phase of Lilongwe included the completion of an ambitious program of <u>land registration</u>. This involved the conversion of the existing customary land tenure system to private ownership in the name of males, thus undermining the traditional matrilineal system of inheritance. It was a pilot program in Malawi that was believed to be of critical importance to increasing land productivity. It was never completed, however, and no adequate evaluation of its effects has yet been made. In view of the significance originally attached to it this seems to be a major lacuna. No attempt has been made to implement it elsewhere.

19. Another problem that was originally considered of critical importance to preventing land productivity from declining was <u>soil conservation</u>. It was a major component in the original LLDP although this is one of the flattest areas in Malawi. In all subsequent projects the soil conservation component has been small in relation to the size of the problem and received little backing from project management. A major achievement of the soil conservation service has been the promotion of ridge and furrow system on the contour which has been widely adopted by farmers.

20. <u>Monitoring and Evaluation</u> of project activities was another key component in all the projects that was allocated much financial and staff support. The results have been mixed. Large amounts of data were collected but lack of analytical capacity prevented much of them from being processed. Many useful studies were carried out but in the end the accuracy of the data base is still inadequate to allow a satisfactory analysis of the impact of the projects to be made.

<u>Impact</u>

21. Attempts to calculate ex post <u>economic rates of return</u> on all the rural development projects have shown widely varying results. They all also suffer from methodological flaws

and are therefore unreliable indicators of project impact.

22. Most project benefits were expected to result from increased maize yields as a result of the replacement of local maize varieties by hybrid maize and the use of fertilizer. Data on the use of hybrid maize seed and fertilizers are fairly reliable and provide an alternative measure of impact. They indicate that the expected rate of adoption of hybrid maize never materialized and that the use of fertilizer was also below anticipated levels (see also para.14 for recent developments regarding hybrid seed sales). Actual benefits must therefore have been below those anticipated.

23. Long-term yield trends for maize and groundnuts in Lilongwe and Karonga show that, rather than the expected yield increase as a result of the projects, yields declined during project implementation. Because of large year to year variations in yields these declines are not statistically significant but there is no evidence of any project impact on maize or groundnut yields. The yield of rice in Karonga does appear to have increased during the early years of project implementation but has been static for the last ten years.

24. The <u>distribution of benefits</u> from increased production, such as they were, was highly skewed. The majority of project benefits accrued to members of Farmer Clubs. These were the larger credit-worthy farmers who had enough land to produce a surplus above their subsistence needs. The 70 per cent of farm families without enough land to produce more than their own requirements hardly benefitted, except indirectly from some of the infrastructural and social components. The projects thus did not contribute to the Government's policy of redistributing incomes in favor of the rural poor. Since more than 50 per cent of project benefits did not accrue to farmers in the Bank's target group the projects did not meet the Bank's criterion of Rural Development.

25. The projects have had substantial <u>non-quantifiable benefits</u>. They have enabled Malawi to establish, train and staff a structure of agricultural administration which is capable of reaching virtually every farmer in the country and which, if adequate input supplies and productivity-raising packages were available, would be capable of transforming the agricultural situation (again, see para.14 for recent developments). They have set up an effective credit system which has had a significant impact in increasing fertilizer consumption by credit-worthy farmers.

26. The most significant non-quantifiable benefit of the projects was the extent to which they enabled the government to extract a surplus from the smallholders for reinvestment in the estate sector, which was the source of the dynamic growth of agricultural production in Malawi during the seventies. This was never an intended benefit and it resulted in maldistribution of gains away from smallholders.

27. The PCRs claim that the projects have also had important direct and indirect <u>social impacts</u>. They indicate that the interaction of project staff with farmers and the involvement of the community in planning decisions has helped to provide a greater measure of rural stability and lessened the pressure to migrate to urban areas. In

addition the economic impact of the investments in roads, buildings etc. has helped to raise local income levels. There is evidence that increased crop marketings are correlated with increased rural savings.

28. The land consolidation program in Lilongwe was also an important attempt to improve the land tenure system. Its impact has never been properly evaluated but it could have significant implications for other parts of Malawi.

29. The impact of the projects on agricultural production has been small compared with the impact of the policy environment. Changes in crop prices during project implementation have produced far greater changes in the crop mix than anything accomplished by the projects. This makes it particularly difficult to separate the impact of the projects from the impact produced by other external changes. The Bank's attempts to initiate a dialogue with the Government about crop pricing were unsuccessful until the start of the structural adjustment process in 1981.

Sustainability

30. The National Rural Development Program is not sustainable within Malawi's present budgetary resources. It has been set up almost entirely with external resources but external donors are reluctant to continue financing the recurrent costs which are needed to maintain it. Once the investment in an individual Rural Development Project has been completed it is generally left to the Government to meet the recurrent costs. The Government has insufficient internally-generated resources to meet them in full although the Bank through its Agricultural Extension and Planning Support Project has started to support to fund on-going activities. Still, the result is that non-salary operating costs are cut and the effectiveness of what has been established under the project rapidly deteriorates. This is clearly apparent in the projects financed by the Bank Group which are being crippled by lack of operating funds.

31. The Bank Group must bear considerable responsibility for encouraging Malawi to set up a system which it realized very early on was not sustainable. It encouraged the establishment of the National Rural Development Program, with its implied 20-year investment planning period, with individual Rural Development Projects going through four phases just as Lilongwe had done. After some time the Bank realized that these projects were not achieving the anticipated results and that to enable them to do so it was necessary to solve the other obstacles to their effective operation, like inadequate fertilizer supply or the lack of acceptable crop packages. The result was a series of specific national service projects supporting NRDP as a whole. In the meantime other donors continued to support area-based projects. The financial crisis of the late 1970s, which pre-empted much of the available financing for structural adjustment lending, meant that further Bank support for the RDPs themselves had to be reduced.

Issues

32. The transition from the integrated area project approach to the National Rural Development Program approach was made because the former approach was not sustainable in terms of either financial or human resources. Yet the new approach was no more sustainable than the first.

A mid-term review proposed modifications to make it more sustainable but at the same time pointed out that a sizeable resource gap would still remain. The resource gap has increased with time and remains the single most critical problem in the agricultural sector today. How the Bank came to support such a system without adequate analysis of how it was to be sustained is still unclear after the audit unless it be that the Bank saw no other way of financing the agricultural sector.

33. The Bank may have been correct in its analysis that the National Rural Development Program was not having the anticipated impact because of problems that could not be solved within the context of area-based projects, e.g. research and fertilizer supply. Its solution to have a series of separate projects to deal with these problems individually was thus a logical outcome. Nevertheless there were other obstacles which could only be faced within the context of policy-based lending, e.g. the transfer of land to the estate sector, the prohibition on smallholder cultivation of burley tobacco, agricultural price policy. The situation today, with the cessation of area-based lending and the reduction in recurrent cost financing, would seem to have gone too far in the other direction.[1/] There is still a continuing need to finance a high proportion of operating costs in new projects in order to maintain what has already been built up under the National Rural Development Program.

34. A second issue is why the Bank took so long to appreciate how little trickle-down effect the projects were having, how few benefits were accruing to the real poverty group and how this pattern of benefit distribution was the direct result of the extension system's methods of operation. The answer seems to be that it was not until the more searching analytical work associated with structural adjustment lending that the Bank realized that there was a real problem. The apparent success of Malawi in maintaining self-sufficiency in maize production concealed the dualism within the smallholder sector. Even under the first structural adjustment lending the Bank's emphasis was still on increasing export crop production.

35. It also seems surprising that, at a time when the Bank was promoting a system of extension (T & V) in Asia under which the extension system was prohibited from having any regulatory functions, it was tolerating a system in Malawi where the extension system's main function was the regulation of credit. It was this system which sustained the maldistribution of project benefits, assisted by the lack of any messages which were appropriate to most smallholders.

Findings and Lessons

36. Overall, although there have been indirect benefits, the Malawi Government's and Bank's rural development strategy has not achieved the objective envisioned. Most project benefits were expected to result from increased maize yields as a result of the replacement of local maize varieties by hybrid maize and the use of fertilizer. The expected rate of adoption of hybrid maize, however, never materialized and the use of fertilizer was below anticipated levels. There is no evidence of any project impact on maize or groundnut yields in the project areas (see para.14 for recent developments). The yield of rice does appear to have increase during

the early years but has been static for the last ten years.

37. Also the strategy has not fulfilled the Government's objective of redistributing income in favor o. the rural poor and, indeed, has exacerbated the maldistribution of wealth by creating in effect a privileged group of smallholders who have benefitted by having access to project resources and who also obtained the benefits of subsidized fertilizers and seeds.

38. It is doubtful that the projects meet the Bank's criteria for classification as rural development projects, i.e. 50 percent or more of the direct benefits accruing to the rural target group. This target group, in present day terms, would be all households farming less than 1.0 hectare and half of those farming between 1 and 1.5 hectares, precisely the group that is left out of NRDP. For example, in the Lilongwe Program, it was intended to have 80-90 percent of farmers adopting improved cultivation methods and hybrid seeds within five years. Yet the introduction of the credit system tended to increase the proportion of farmers not receiving benefits, since all farmers with less than 0.4 hectares were rated as non-creditworthy. By the late 1970s about half c. the farmers in LLDP were outside the credit program and, by 1990, almost 70 percent.

39. However, the NRDP, as a national program, likely had a substantial impact on the agricultural sector generally which had a very high growth rate during the 70s. The government was able to pursue a rapid expansion of the estates by extracting the financial surpluses of the smallholder sector. The financial surpluses were made possible because of the availability of the Bank's and other donor's support of the smallholder program.

40. Among the non-quantifiable benefits from the projects, the most significant has been the establishment, training and staffing of the agriculture administration which is now capable of reaching virtually every farmer in the country. Also an effective credit system has been set up which has had a significant impact in increasing fertilizer consumption by credit-worthy farmers. The social impact of the projects is evident in a greater measure of rural stability and lessened migration to urban areas. The investments in roads, buildings, etc. has helped to raise local income levels. The NRDP, however, is not sustainable within Malawi's present budgetary resources. The critical shortage of operating funds is crippling project activity as Bank support for these costs has ended with the termination of the NRDP projects.

41. Some important lessons include:

i) Subsistence farmers, who by definition consume all they produce, need to be provided with additional income sources if they are to benefit from a production package that involves purchased inputs. The provision of credit will not benefit those without a cash surplus. During the implementation of these projects no new sources of on- or off-farm income were made available except for some employment generation; and the production of a possible high-value crop like burley tobacco was prohibited. The project beneficiaries were thus confined to the larger farmers who could produce a marketable surplus.

ii) The lack of any clear-cut objective for the Lilongwe land registration program and the lack of any strong local motivation for its implementation meant that it has so far had no apparent impact. Attempts to impose external concepts of appropriate land tenure systems need to be based on a thorough understanding of the existing system.

iii) Soil conservation requires the active involvement of the farming population in solving problems which they perceive as critical to their livelihood. The lack of maintenance of the soil conservation works that were constructed in Lilongwe indicates that they were not so perceived; it has also meant they have had no long-term impact. The lack of impact of the soil conservation components in subsequent projects is also attributable in part to lack of local participation.

iv) The ex post economic rate of return was a poor guide to the measurement of project impact. Over-optimistic assessments of their value persuaded the Bank for far too long that the rural development approach was having a worthwhile impact.

v) The establishment of a pricing review mechanism using an agreed methodology did not solve the long-standing problem of crop pricing policies adversely affecting project outcomes. For one thing, changes in relative crop prices did not have any measurable aggregate production response, they merely altered the crop mix. However, the Region reports that after project closing, maize production increases may be due to recent price increases. For another, the crop mix which the Bank believed to be in Malawi's best interests, one favoring export crop production, was not the mix which the Government believed appropriate, which favored food self-sufficiency. In addition, 70 per cent of farmers were at or below the self-sufficiency level so that what was an incentive price for a surplus producer became an increase in the cost of living for the rest.

vi) The Bank's experience with the Agricultural Development and Marketing Corporation indicates the difficulty of obtaining the willing cooperation of an agency which is both outside the project organization and not in sympathy with the project objectives. The Corporation's objective during project implementation was to make a surplus from crop marketing which it could invest in the estate sector, while the Bank was trying to make it invest in the smallholder sector.[2] The Bank largely failed in getting the Corporation to build the market and input facilities the Bank considered necessary.

1/ The Region contends that Malawi is fully covered by NRDPs. Furthermore, the Bank has started to support recurrent cost financing for NRDP operating expenses.

2/ The Region suggests that the implementation difficulties arose from the Corporation's lack of cash rather than its lack of sympathy with the project objectives.

PROJECT PERFORMANCE AUDIT

MALAWI

KARONGA RURAL DEVELOPMENT PROJECT, PHASE II
NATIONAL RURAL DEVELOPMENT PROGRAM (NRDP) PHASE I PROJECT
NATIONAL RURAL DEVELOPMENT PROGRAM (NRDP) PHASE III PROJECT
NATIONAL RURAL DEVELOPMENT PROGRAM (NRDP) PHASE IV PROJECT
(LOAN 1286-T-MAI and CREDITS 857-MAI, 1183-MAI and 1343-MAI)

I. INTRODUCTION

1.1 This is a combined or 'cluster' audit of Phase II of the Karonga Rural Development Project (Loan 1286-T-MAI), and Phases I, III and IV of the National Rural Development Program (NRDP) (Credits 857-MAI, 1183-MAI and 1343-MAI).1/ The approval dates of these four projects range from June 1976 to April 1983, with the last project (NRDP IV) closing in September 1990.

1.2 These four projects are the continuation of a series of World Bank integrated area/rural development projects in Malawi which began in February 1968 with the first phases of the Lilongwe Land Development Program (Cr 113-MAI) in central Malawi and the Shire Valley Development Project (Cr 114-MAI) in southern Malawi. These were the first IDA-funded agricultural projects in the country. Each of these had two subsequent phases financed by individual IDA credits.2/ The fourth phase of the Lilongwe Land Development Program was financed by NRDP I, one of the projects being audited here. A third set of area development projects was in the Karonga Region in northern Malawi. Phase I (Cr 282-MAI) was approved in early 1971. Phase II is one of the projects being audited here. Phase III, under the project description of NRDP III, is also being audited here.

1.3 These integrated area development projects subsequently gave way to a more extensive type of rural development strategy which came to be known as the National Rural Development Program (NRDP). The strategy was initially proposed by a Bank agricultural sector mission in 1973. The first IDA financing for NRDP was included in Phase III of the Lilongwe Land Development Program (LLDP) approved in early 1975. Further financing for start-up operations was included in Phase II of the Karonga Rural Development Project (KRDP) of June 1976; indeed it had been originally proposed to call this project NRDP I. The main IDA financing of NRDP began with the first NRDP project of November 1978 and was continued in NRDP III and IV. The projects under audit here thus straddle the transition between the original area-based integrated development strategy and the subsequent rural development strategy of NRDP.

1/ The National Rural Development Phase II Project was a wood energy project and is thus not included in this audit.

2/ Cr. 244 of 05/71 and Cr. 550 of 03/75 for Lilongwe and Cr. 363 of 03/73 and Cr. 823 of 06/78 for the Shire Valley.

1.4 This is the ninth audit/evaluation by OED of area/rural development financing in Malawi, and the first to cover the period after the adoption of the NRDP strategy.3/ In addition the whole of the Bank's agricultural lending to Malawi was evaluated by OED in an Agricultural Sector Operations Review, (Report No. 5387 of December 1984). This review was, however, more concerned with comparing the Bank's experiences in Malawi with those in Burkina Faso than with evaluating the NRDP as such. Because the present audit is a cluster audit covering four projects with experience of area/rural development implementation spread over fourteen years it provides an excellent opportunity to evaluate the evolution and impact of Bank-assisted rural development lending in a single country, more particularly since parts of the projects being audited are continuations of earlier projects. The total period covered stretches from early 1968 to late 1990. In making this evaluation of past projects the audit will inevitably also have to take into account the continued evolution of Malawi's rural development strategy, and the Bank's involvement in it during the implementation of NRDP IV. Of particular interest is the sustainability of the whole concept and strategy of rural development in Malawi as it has emerged over time and become integrated into the fabric of the Government's management of the economy. The audit will also be of interest in the context of OED's 1988 Operations Evaluation Study Rural Development, World Bank Experience 1965-86. While a brief 'profile' of the Malawian experience of rural development was included in that study this audit will provide the chance to examine some of the specific issues raised in more detail in the context of Malawi.

II. PROJECT FORMULATION, OBJECTIVES AND DESIGN

2.1 The Lilongwe Land Development Program (LLDP) was one of a number of pioneering projects being developed in the late 1960s by the World Bank in its search for more effective ways to counter both food shortages and maldistribution of income in developing countries. There was little experience to guide project formulation. A pilot scheme in one village area, Tobango, within the project area, was under implementation at the time of appraisal and provided a partial basis for the design of the larger program, including information on unit costs, etc. In addition, the Bank staff involved in preparation and appraisal had long experience in other parts of Africa, particularly Kenya and brought with them the concept of planning for integrated activity long before this became fashionable within the Bank; LLDP thus became the first of the Bank's IRDPs. The situation at the time is well described by Lele. Writing about Ethiopia and Malawi she describes how Bank staff at that time recognized that both countries, although

3/ Three audits covered the first three phases of LLDP: Report No. 751 of May 1975, No. 1597 of May 1977 and No. 3414 of April 1981; three audits covered the three phases of Shire Valley: Report Nos. 895 of 1975, No. 2593 of June 1979 and No. 6171 of 1986; in addition the three phases were the subject of an Impact Evaluation Study, Report No. 4580 of December 1983; and Phase I of KRDP was audited in Report No. 2576 of June 1979.

having low levels of income, also had regions with obviously high development potential.

> "These appeared to offer a good opportunity to make a substantial impact on the levels of living of the low-income rural populations in selected regions. However, even by contemporary African standards, the two countries were endowed with relatively little physical or institutional infrastructure or trained manpower. Therefore, to make a noticeable impact in a short period and to deal with the complementaries in production and to some extent in consumption, substantial simultaneous investment was deemed necessary in a number of activities, including agricultural extension, credit, marketing, roads, soil conservation, training, cooperative development, and water supply. Because the rural administrations in Ethiopia and Malawi have had very limited capacity to absorb and utilize finances at the district and divisional levels ...., both countries were ill-equipped to take on large-scale development functions.....The inadequacy of the existing institutions to administer complex multi-sectoral programs and the absence of well-articulated national commitments to bring about substantial political and administrative improvements led expatriate planners to view the establishment of autonomous project authorities as a logical way of making a noticeable impact and, thus, of exercising a demonstration effect on policy makers, administrators, and, of course, on the rural people."4/

2.2 It has also been pointed out that the IRDPs were direct descendants of the colonial policies of the 1950s, which viewed land use and tenure as major obstacles to development, in the belief that sustained increases in productivity would only occur through fundamental changes in husbandry practices, the physical layout of land holdings and in land tenure.5/ Although the projects which

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4/ The Design of Rural Development: Lessons from Africa. Johns Hopkins University Press for the World Bank, 1975. pp. 127-8

5/ See Kydd J.C. and Spooner N.J., "The World Bank's Analysis of Malawian Agriculture: Changing Perspectives 1966 to 1985", a working paper prepared for Managing Agricultural Development in Africa, World Bank, 1987. In "The World Bank Since Bretton Woods" (Brookings Institution 1973) Mason and Asher single out Lilongwe for its "considerable innovation" as the first example of the Bank's response to the cry for an integrated approach to rural development. They single out the extensive help provided by the Bank's Agricultural Development Service (ADS) in preparation and comment that "the cumulative experience of the ADS staff, many of whom had been in the (British) colonial service and were familiar with past British successes and failures, is considered to be an important factor in the success of the Lilongwe Project." The appraisal mission leader for the Lilongwe and Shire Valley Projects has commented that both these projects relied heavily on on-going pilot projects for design and formulation; on the ODA project in Lilongwe in the one case and on a German-financed cotton project on the Salima Lakeshore in the other. Also the design of tried to implement this philosophy had not been very successful, LLDP incorporated many of these concerns. The design of these original IRDPs was thus more the result of the time and place of their origin than one that was inherently necessary to raising rural living standards. In particular the combination within a single project of infrastructure and social components together with directly production raising components was seen as necessary both because of their complementarity and because there was no existing rural administration which could implement the infrastructure and social components separately; and the autonomous project organization staffed by expatriates came about because of the shortage of trained local staff and because the need to make a noticeable impact rapidly did not allow time to build local competence. The way in which these characteristics came to be changed and the reasons behind the changes are examined later.

2.3 Lilongwe was selected as the location of the first IRDP in Malawi because it was recognized as an area of high agricultural potential that was threatened by rapidly accelerating soil erosion and increasing population pressure that could lead to land fragmentation and a purely subsistence agriculture. The objective of the program was to raise agricultural production (maize, tobacco and groundnuts) by increasing yields and expanding the cultivated area so as to move agriculture towards a market economy, particularly to alleviate the perceived threat of localized food shortages. This was to be achieved by changing farmers' attitudes, converting them from a subsistence orientation towards production for the market. The program's intermediate objectives included infrastructure development (feeder roads, market facilities, domestic water supply, soil conservation works and buildings) and provision of services to farmers (extension, marketing, credit, input supply, land use planning and land registration). The second phase project modified the exclusive crop orientation of the first phase by the inclusion of livestock activities; in the third phase health facilities were included. Originally conceived as a 13-year program covering just over 200,000 ha the area was later expanded to 486,000 ha with 109,000 farm families, representing about 10 per cent of the country's rural population. The program was financed by three IDA credits totalling US$ 21.75 million, implemented between 1968 and 1978 and completed in a fourth phase as part of the National Rural Development Project under audit. The 13-year time frame was thus more or less adhered to.

2.4 The LLDP was not originally intended as a model of a particular approach to rural development. Within a few years, however, it came to be seen as, in the words of the OED audit of Phase I, "a showpiece for package-style integrated development". Its design was widely followed in many future Bank projects, both within Malawi for the Shire Valley and Karonga RDPs, and elsewhere, particularly in the agricultural development projects in Nigeria. The Press Release for Karonga I (January 1972) goes as far as to say that this integrated approach "has come to be regarded by the World Bank as a crucial strategy in attacking the problems of rural poverty that abound in many parts of

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the first phase of Karonga drew heavily for its rice-growing components on on-going rice schemes in the Northern Region financed by ODA and Taiwan.

Africa." This success in implementation was attributed to strong and flexible management and an ability to adapt to changing circumstances. It was a success, nevertheless, that was circumscribed. In terms of physical construction most of the appraisal estimates were met on, and frequently ahead, of time and within and often below cost. It was also seen as a model in terms of its involvement of the local population. In terms of meeting food production objectives, however, LLDP must be considered with hindsight a failure, although for most of the implementation period it was considered moderately successful in this respect, even if perhaps not as successful as predicted at appraisal. This is considered later. In terms of institution building and training of local staff to take over management responsibilities the Program was also criticized. The OED audit of Phase III (Highlights) summarizes these points.

> "The physical implementation of the program was a success. Government gave qualified and motivated expatriate staff support and the needed flexibility to direct an efficient and timely construction of project works. Within the constraints imposed by the policy framework and the country's overall conditions, project management also succeeded in providing farmers with reasonably efficient extension, credit and marketing services. The major shortfall of this program is that despite the progress made, it did not go far enough in lessening Malawi's dependence on outside technical assistance and in contributing to the creation in Malawi of an internally generated, self-sustained development process."

2.5 By the early 1970s IRDPs following virtually identical designs to LLDP were in operation in three other parts of Malawi; in the Shire Valley in the south and Karonga District in the north, both financed by IDA; and in Salima on the Malawi lakeshore funded initially by the Federal Republic of Germany and later by the European Development Fund. These four projects together covered about one-fifth of the rural population.

2.6 The problem facing the Government was that it had to find a way to provide similar facilities to the other four-fifths of the population in order to raise food production and rural living standards nationally and avoid creating regional income disparities. The solution was sought through planned phasing of development. The country would be divided up into 40 Development Areas. Each area would go through a 15-18 year development sequence so that over a 20-year period the whole country would be covered. The sequence was seen as divided into four phases. Phase one would be a 2-3 year <u>preparatory</u> phase when, following detailed planning, the essential infrastructure would be put in place and additional extension staff recruited. A five year <u>extensive</u> phase would come next, concentrating on directly production-related investment. Phase 3, also of 5 years, would be an <u>intensive</u> phase with more emphasis on research, land improvement, animal husbandry, new roads. The final or <u>consolidation</u> phase, while continuing with the intensive developments, would involve further improvements to social infrastructure, especially education and health. This was to be incorporated into a National Rural Development Program (NRDP) in which the various phases would be inter-related so that the number on-going at any one time would be within Malawi's financial and human resource limits. The level of investment in any one area at any one moment would thus be less than under the IRDP system but in the end, spread out over a longer period of time, would meet the same development goals. The basic philosophy of the complementarity of simultaneous investment in many sectors was maintained and NRDP would continue to finance multi-component, cross-ministerial activities. According to the appraisal report of NRDP (para 2.02) the level of infrastructure would be 'necessarily' less intensive than under existing projects. The fact that previous IRDPs had not been successful in raising agricultural production as intended had not become apparent at the time NRDP was conceived and so their basic project design and strategy was not questioned, the component mix was merely adjusted slightly.

2.7 The intensity of extension coverage would also be evened up under NRDP. Under the IRDPs the farmer:extension worker ratio had been as low as 10:1 (Shire Valley) compared to the 1,500-2,000:1 in non-project areas. In LLDP the ratio was planned to be 200:1 in the initial phase, rising eventually to 500:1. In Karonga the ratios were 30:1 initially, rising to 350:1. Under NRDP the desired national ratio was 500:1 but it was recognized that insufficient staff would be available within the 20-year period to reach that level and that 750:1 was a more realistic target.

2.8 Such a major program also required reorganizing and strengthening the Ministry of Agriculture (MOA, at that time called the Ministry of Agriculture and Natural Resources) so as to be able to manage such a large diverse program and integrate it into the Government structure. The existing IRDPs were all discrete entities as far as Government was concerned, with their project management and staff forming distinct units within the Ministry, separate from the organization of the rest of its activities. They would be grouped, along with all the other demarcated Development Areas, into eight Agricultural Development Divisions (ADD), each of which would be run by a Management Unit (MU). These MUs would absorb the IRDP management structure. A newly created Chief Agricultural Development Officer would be responsible for overall implementation at the MOA level.

2.9 It took about five years from the time the NRDP concept was originally proposed until the first NRDP project was approved at the end of 1978. During this time the Bank continued to finance the old style IRDPs; Phase III of Lilongwe (Cr 550 of 3/75), Phase II of Karonga (Loan 1286-T of 6/76) and Phase III of Shire Valley (Cr. 823 of 7/78). Both the Lilongwe Phase III and the Karonga Phase II projects contained financing for the preparatory phases of NRDP but in all other respects their design seems to have been largely uninfluenced by the new thinking that was going on. The core components of Karonga II, under audit here, were for instance (i) the continued provision of agricultural and livestock services and infrastructure in Karonga District, begun under the first phase IRDP, and its expansion on a similar design to the adjoining Chitipa District, a sparsely populated and remote area; and (ii) the completion of the Lake Transport component, again started under the first phase to improve communications between Karonga and the rest of Malawi since road communications were virtually non-existent. The NRDP component was only added at appraisal.

2.10 The first NRDP project was designed to assist the Government to implement the first five-year phase of the program. It contained four components: completion of the LLDP; financing the 'extensive' phase in eight new Development Areas (Das); strengthening four Management Units in the newly created ADDs; and strengthening the Ministry's central services management capacity. The Development Areas were selected on a number of criteria; areas having high but largely undeveloped potential; areas where farmers seemed particularly innovative; areas of food deficit; areas having ready accessibility or areas needed to provide an even regional balance. The project was co-financed with four other donors, The Canadian International Development Agency (CIDA), the European Development Fund (EDF), the United Kingdom and the Federal Republic of Germany. The CIDA funding was made directly to IDA. The combined CIDA-IDA funding was used to finance the completion of LLDP (which now became a Development Area in Lilongwe ADD), three of the eight new Development Areas (Thiwi-Lifidzi and Ntcheu in Lilongwe ADD and Mzimba in Mzuzu ADD), one of the Management Units (Lilongwe) and the Ministry strengthening, with EDF providing the equipment for the Ministry's construction unit. The other five Development Areas and three Mus were financed by the other donors. The Government hoped, by bringing all external financing under one umbrella project, to simplify its coordination of donors.

2.11 The Bank's second NRDP project was designed to assist the Government in the development of the country's forestry resources so as to provide a sustainable energy supply while conserving the natural forests and the environment. It does not fit in with the theme of this audit, the evolution of IRDPs into the NRDP, and is thus not covered here.

2.12 The third NRDP project, approved in March 1982, financed the third phase of the Karonga IRDP. Although included under the overall NRDP umbrella, the project design appears to owe nothing to the new concepts that had been developed, nor to the findings of an NRDP Review Mission which the Bank had mounted in 1981. The farmer:extension worker ratio was to remain at the 350:1 level reached in Phase II. The range of multi-sector components increased with the inclusion of new forestry, soil conservation and livestock activities and the introduction of a health component, although the road construction component was dropped. There is no indication of any attempt being made to concentrate resources on the more immediately productive aspects of agricultural investment, as might have been expected. However, the increased emphasis on soil conservation, watershed management and afforestation was in line with the NRDP policies.

2.13 An NRDP Review Mission was mounted by the Bank in 1981 to carry out a mid-term review of NRDP. It recommended that the complexity of the rural development projects should be reduced and efforts focussed mainly on production-related agricultural activities and that investments in other sectors - rural roads, health, forestry etc. - should be included wherever practicable in on-going or forthcoming national investment programs other than NRDP. This would improve the future maintenance and staffing of these investments and allow agricultural staff to concentrate on their own tasks. It proposed some changes in the organization and structure at the field level, including a higher ratio of farmers to extension staff. It suggested ways in which to reduce capital costs, particularly in staff housing. In addition, it recommended ways to rationalize the use and improve the effectiveness of resources directly related to agricultural production. These included, among others, developing a national livestock program that would set priorities for disease control and marketing as well as ways to reorient the extension and research services towards existing farming systems and constraints faced by farmers. As a result of these recommendations the design of the fourth Bank NRDP project was much more in line with the original NRDP concepts than had been the earlier NRDP projects. It was located in the two Development Areas of Lilongwe ADD that had not so far benefitted from external financing (Lilongwe North East and Dedza Hills). Its components were more directly production-oriented. The originally proposed roads and health components were dropped. It placed more emphasis on adaptive research trials. The ratio of farmers to extension workers was a more sustainable 800:1. Nevertheless the project objective still remained the same as that which the Bank had been pushing for fourteen years, ever since Lilongwe I had started, and which had consistently failed, 'to reduce the areas under food crops (i.e. local maize) by introducing higher yielding packages and therefore releasing foodcrop land for cash crops'. (NRDP IV, Project Brief of March 11, 1982 para 29).

2.14 The Karonga Phase II and the NRDP I, III and IV are the projects audited here. They were also the last area-based NRDP projects that the Bank has financed in Malawi. Subsequent projects concentrated on tackling specific sector bottlenecks at the national level although the Agricultural Extension and Planning Support Project (Cr. 1626-MAI) did have an area component for Mzuzu. Other donors have subsequently financed all the other RDPs except one. Part of this change in the method of support to the agriculture sector can be attributed to the change in Malawi's macro-economic prospects which occurred after about 1980. Part of it, however, stemmed from the growing realization that area-based financing was failing to tackle some of the fundamental sector problems which were preventing the area-based programs from attaining their objectives.

III. IMPLEMENTATION

3.1 Project Completion Reports have been prepared for Karonga II, NRDP I and NRDP III.6/ The fourth NRDP project did not yet have a PCR at the time of the audit. The audit found that the descriptions of the implementation of the projects contained in the three PCRs are fair summaries of the course of events as found in the project files. It is thus not proposed to review them in detail in this audit. The audit will concentrate instead on a number of selected issues which are either of importance in themselves or which still remain contentious.

6/ Respectively Report No. 5340 of November 28, 1984, Report No. 6797 of June 2, 1987 and Report No. 8638 of May 22, 1990.

Project Costs

3.2 Appraisal estimates vs actual project cost comparisons and credit approvals and final cancellations for the four projects are shown in the following table:

PROJECT COST AND LOAN/CREDIT AMOUNT /a

	Appraisal Estimate		Actual		Credit/Loan Amount	Credit/Loan Cancellation
	(US$m)	(MKm)	(US$m)	(Mkm)	(US$m)	(US$m)
Karonga II	12.1	10.9	12.4	10.5	9.2	-
NRDP I	66.0	54.8	n.a.	n.a.	22.0	2.9
NRDP II	8.9	6.9	5.9	7.4	7.3	2.05
NRDP IV	12.5	13.4	n.a.	n.a.	10.6	
Total	99.2	86.0			49.1	

/a All costs and credit/loan amounts are in current values.

The major problem in all four projects was keeping expenditure up to estimates. The cost estimates themselves were for the most part reasonably accurate and cost overruns were never a problem. The speed of implementation, however, was much slower than appraisal forecasts. Only the Karonga II loan was fully utilized, although a 21 month extension in the Closing Date was needed to accomplish this. The slight cost overrun in dollar terms was a cost underrun in MK terms because the kwacha appreciated against the dollar during implementation, with the result that the Government contribution had to be considerably increased. In the case of the other three projects the kwacha depreciated during implementation (from Mk 0.83 = US$1.0 at the appraisal of NRDP I to MK 2.82 = US$1.0 during 1989). With only about half of project costs being incurred in foreign currency, and with a very tight budgetary situation internally, there was a continual difficulty in maintaining project expenditures at the planned level in dollar terms. Even to accomplish this level of disbursement the Closing Dates had to be extended, by 33 months in the case of NRDP I and by 24 months each in the cases of NRDP III and IV.

Physical Construction and Maintenance

3.3 Considering the widely dispersed nature of the physical infrastructure that was constructed under these four projects, the difficulties of communications and transport, and frequently the shortages of construction materials and budgetary resources, the physical execution of the projects was commendable. This is not to say that there were not many difficulties, and many things were done later than planned, but delays and shortfalls in construction were almost invariably the result of design inadequacies, under-estimation of costs or shortages of funds. In Karonga II, for instance, only about one-third of the planned roads were constructed because appraisal cost estimates were too low and overspending on operating costs prevented the reallocation of funds from other components. The construction of dipping tanks had to be abandoned for similar reasons. Only about 70 per cent of the roads envisaged under NRDP I were constructed at a cost about two and a half times higher than appraisal estimates. This was reportedly due to increased fuel costs, changes in original road plans and lack of final design before appraisal.

3.4 There is one exception to this satisfactory performance; the construction of new markets and input supply depots. In Karonga II none of the 9 market complexes and 8 input sheds envisaged were built. In NRDP I none of the 5 permanent markets and 7 input stores that should have been constructed were built. In NRDP III the markets and stores were constructed but only after long delays. In NDRP IV the appraisal target was exceeded and five market sheds were built against the expected four.

3.5 The agency responsible for this component, in all the projects, was the Agricultural Development and Marketing Corporation (ADMARC). This is a statutory company, and although under the general supervision of MOA, it is autonomous in its day to day operations and has the full financial and administrative independence needed for it to exercise its functions as a commercial trading enterprise. It was established to purchase all smallholder crops, to sell food crops and to maintain the national food reserve, and also to sell and deliver crop production inputs (seeds, fertilizers, chemicals etc.). ADMARC operates a nationwide network of marketing sheds and storage facilities for these purposes.

3.6 Under the projects it was planned to intensify this network in the project areas to cater to the increased demand for inputs and the increased production coming to market. ADMARC thus played a key role in the project design. However, because it was not under the direct control of MOA, it was not part of NRDP. Neither was it a party to the Loan/Credit agreements for any of the projects although in the first two projects it was supposed to build the markets/input sheds out of its own resources. This had been the arrangement in the Lilongwe projects and it had worked satisfactorily because at that time ADMARC was making substantial surpluses on its crop trading. This was still the situation when Karonga II and NRDP I were approved; by the time the markets were due for construction, however, ADMARC's financial position was deteriorating rapidly and it was not prepared to use its resources for these markets. As a result, by the time of NRDP III, the financing of market construction by ADMARC was made the subject of a specific covenant in the Credit Agreement. In NRDP IV the Government financed ADMARC's construction unit to build the facilities and then leased them back to ADMARC to operate. This arrangement appears to have overcome ADMARC's reluctance to participate. This experience indicates the difficulty of not having all project activities under a single management structure. It might have been better if IDA had financed this component and/or if ADMARC had been a party to the Loan/Credit Agreements. It must also be said that ADMARC's construction program was based on its own view of the need for markets on a national basis and it only constructed new markets where the likely throughput justified it. The fact that these IDA projects were not generating the surpluses predicted at appraisal may well have been a factor in ADMARC's decision not to construct more markets in project areas. ADMARC's role in the provision of inputs and marketing is discussed later.

3.7 While the experience with ADMARC strengthened those who argued in favor of putting all project construction under the control of project management, the experience with other components showed that the short-term gains of such a procedure might well be outweighed by the problems of long-term maintenance that it created. Satisfactory completion of physical infrastructure has tended to be seen in the Bank as an index of project success. Unfortunately this is only a partial measure. If there is inadequate provision for maintenance it would be better not to have built the infrastructure in the first place. This has been particularly true in respect of road construction. In the LLDP, for instance, the project's own construction unit built all the roads. By the end of Phase III, however, 1,800 kilometres of the 2,600 km built had not been accepted by the Regional Engineer of the Ministry of Works and Supplies (MOW) as they were below departmental construction standards (Phase III PCR para 7.2.1.3). Once the project was completed maintenance of the roads built under the project virtually ceased as the local councils were not equipped, nor could they afford, to maintain them. A similar situation prevailed in Karonga. As early as 1981 the NRDP Review Mission found that many of these roads had returned to bush. The audit mission found similar evidence of neglect in both Lilongwe and Karonga. In Chitipa District, for instance, roads built under the project were virtually unused so that, while the amount of maintenance required was not great, most of the bridges and culverts had collapsed; they could be circumvented in dry weather, but in the rainy season the roads were reportedly impassable. Despite this experience, under NRDP I the road construction unit in MOA (set up during the pre-investment phase of NRDP that was financed under Karonga II) was greatly strengthened to allow the Ministry to continue constructing roads in NRDP areas. It was assumed that by building roads to MOW standards the problem of future maintenance would be overcome. However this did not come about. Under NRDP I although all the roads were built to MOW standards (with a consequent 265 per cent cost overrun) only 40 per cent of them were accepted by MOW at the end of the project for future maintenance because MOW had insufficient funds to maintain more (PCR para 3.06). The NRDP Review Mission believed that there was no great long-term need for the Ministry to have its own construction unit, particularly as the unit was but little involved with maintenance, because the IDA-financed District Roads Improvement and Maintenance Program (DRIMP) could take over this role (para 2.05). Neither NRDP III or IV had a roads component, most of the projects' needs for roads being met by DRIMP.

3.8 Lack of maintenance is also severely reducing the effectiveness of the massive soil conservation works built under the three phases of LLDP (about 7,700 km of diversion ditches and 900 km of waterways). At the time the program's achievements were hailed as a model of successful development, but now the audit questions what was really achieved by these civil works. In a brief field visit the audit mission found that in the area inspected the soil conservation works were no longer being maintained and in some cases were hardly even visible. That lack of maintenance of soil conservation works in Lilongwe is widespread is borne out in a recent paper prepared for a World Bank mission to Malawi on the environment.

> "Physical soil conservation structures in the Lilongwe Development Project are in poor state based on physical evaluation, farmers' observations and feedback from extension personnel. All these sources indicate that the structures have a decreased carrying capacity. Apart from field soil conservation structures....farm ponds spillways are badly eroded, some of them have been seriously gullied, and the access roads have only received minimal maintenance using a hand hoe since the project was terminated....most of the roads in the project area are only passable in isolated lengths, making than totally unusable....most of the farm ponds are idle."7/

3.9 In addition to the lack of maintenance calling into question some of the civil works built under the integrated projects, the relationship between the agricultural and the non-agricultural components also gives rise to problems when the implications of the non-agricultural components are not taken fully into account. The audit mission found, for instance, that some of the boreholes installed under the Karonga project had not been maintained. In southern Karonga District a water supply project financed by the Danish IDA is currently rehabilitating existing wells and drilling new ones. The audit found that at least 40 per cent of the wells requiring rehabilitation had been installed under the IDA projects. A similar situation was also found in Chitipa where over half the boreholes dug under the project are no longer functioning. In the case of dip tanks also, the majority of these are used at best irregularly, at worst not at all, due to lack of acaricides, of water and of pumps. This is not a new situation. The NRDP Review also made similar remarks (para 2.01):

> "The philosophy of complementarity of investments has remained, in some cases, more an ideal than a reality. Health facilities were built but, in some cases, particularly for health posts, not staffed or used; even if they had been used, they often involved child care, whose benefits for agriculture would only be realized many years later and even then, not necessarily in the same area. Water supply was provided, but boreholes were not maintained so that the impact of a clean water supply on villagers' health and use of their time was uncertain."

3.10 This problem of maintenance, particularly the cost of maintaining staff and providing adequate funds for running expenses, is examined later in more detail in Section V.

7/ 'Soil Conservation Technology Review in Selected Areas of Lilongwe Land Development Program', Z. M. Kasomekera, Bunda College of Agriculture, mid-1990.

Project Staffing and Organization

3.11 When Malawi gained independence in 1964 the number of Malawians in the higher levels of the civil service was negligible. There was also relatively little emphasis on the Africanization of administration, so that the early IRDPs tended to be planned, and staffed at management levels, by expatriates. At lower levels finding enough staff was always a problem and the projects contained major provisions for staff training (including management training) to try to fill the gap by upgrading less qualified persons. Despite this, neither of the extension cadres in LLDP or KRDP were ever fully staffed. Even finding expatriate staff was not easy as these were employed on government rates with none of the topping-up benefits that expatriates expect today. For instance the effectiveness of Karonga I was delayed for three months while a project manager was sought and other posts remained vacant for long periods. The difficulty of finding Malawian staff was exacerbated by the fact that staff positions were not in the system of civil service 'established' posts. This meant that when the project ended the employees had no guarantee of tenure or employment rights.

3.12 The staffing implications of expanding the rural development program countrywide were a major concern of the Bank once the concept of NRDP was accepted. As the President's Report for Karonga II recognized, the availability of qualified staff would be the limiting factor for the expansion of agricultural development activities (para 27). In the Karonga II Loan Agreement was a covenant that, "in order to determine a feasible rate of future expansion of the Borrower' s agricultural development activities, the Borrower shall: (i) cause MANR to review MANR's manpower situation for the following ten years; and (ii) discuss with the Bank the results of such a review" (Section 3.10). This report became the basis for the staffing proposals in NRDP I.

3.13 Karonga II itself was beset by staffing problems. At senior levels there was a high rate of turnover, to the extent that overall implementation suffered, and certain posts, such as the Senior Administrative Officer and Senior Engineer, were never filled. At the junior level about 50 per cent of positions were vacant for long periods and even by the end of the project over one-third of the Technical Assistant and Development Assistant posts (i.e. those in direct contact with farmers) were vacant.

3.14 The review of the manpower situation carried out under Karonga II led to the staffing implications of NRDP I being carefully considered. For higher level p [illegible]ions the appraisal report said: "Every effort has been made to design the project within the limitations of the output of newly trained Malawian and existing expatriate staff levels within the Government". Nevertheless some additional expatriates were to be recruited. The rapid development of the estate sector was absorbing many of the newly trained Malawians who had been expected to be available to replace expatriates. At the lower levels the situation was recognized as critical and there was heavy reliance on upgrading and retraining. The Government also gave an assurance that further expansion of the NRDP and other agricultural development projects would be phased in such a manner that existing project commitments would be met before starting new ones (paras 4.11 and 4.12).

3.15 In the event senior level staffing remained a constraint throughout project implementation. A number of factors were blamed for this: (i) lengthy delays in creating and establishing new posts; (ii) delays in positioning new staff; (iii) frequent shifting of staff, either on reassignment or for training, usually at short notice and without provision for replacement and (iv) a critical scarcity of suitable staff. The result was disruption in project implementation due to lack of continuity and deployment of staff to positions for which they had no experience or qualifications. (See Supervision report for April-May 1985 Annex 5 para 5). At the lower level there was never any serious problem in filling positions.

3.16 During the implementation of NRDP I the NRDP Review Mission again considered the likely availability of staff for any future extension of the program. At the senior level the Review saw the main problem as one of the stability of management. Most senior officials were part of a system of "common services" by which they were liable to inter-departmental transfer. The result was a rapid turnover of senior management. There were few "professional" (technical) positions in higher grades in MOA so that competent people sought to move into "common services" positions and thus become eligible for transfer out of MOA. The increasing number of management positions created by NRDP were not being filled by persons with management background but by technicians who were expected to acquire management experience over time. Despite these problems the Review did not believe that shortage of professional staff was a constraint to future NRDP phases. It came to a similar conclusion about the number of field extension workers. The number of persons capable of filling the intermediate or supervisory level (TO) was seen as a constraint but one which could be overcome by upgrading selected junior staff and shifting TOs from more heavily staffed areas.8/

3.17 Despite the relative optimism of this review, NRDP III was dogged by senior staff shortages throughout implementation. This was principally attributed to the excessive demand for qualified staff generated by the aggregate rural development efforts/projects being undertaken by the Government. These problems were a combination of excessive delays in establishing new posts, failure to fill key section head posts at all (e.g. Senior Planning Officer) and frequent changes in top management. For instance there were five different Program Managers (the senior project position) during the project life, of which four were in an acting capacity. The situation had not changed at the time of the audit mission's visit.

8/ There are three levels of junior staff. At the bottom is the Development Assistant (DA), a non-established post. No special agricultural training is required. Experience is gained on the job. Next is the Technical Assistance (TA). This is an established post for which two years of post-junior certificate training is required. The top is the Technical Officer (TO) for which a three year diploma course at the agricultural college is required.

3.18 As regards junior staff, at appraisal no new extension staff had been envisaged as the farmer:extension staff ratio, at about 350:1 was considered satisfactory. The NRDP Review Mission's proposal that a ratio of 750:1 was more sustainable led to pressure by IDA on the Government to reduce the number of established posts in Karonga, but at the same time to upgrade the quality of the staff, the majority of whom were local, untrained DAs. Some of the required training took place but the number of established posts was not reduced, indeed the PCR states that, because transport problems were preventing TAs and DAs from visiting farmers, more TAs and DAs were hired, reducing the farmer:TA ratio still further to 250:1. At the time of the audit mission, despite the shortage of revenue budget, the number of TA posts had not been reduced and only about 10 per cent of them were vacant. It seems clear that junior level staffing was excessive during and after implementation of NRDP III.

3.19 Contrariwise there have been few staffing problems with NRDP IV, although it was implemented over roughly the same time period as NRDP III, with the exception of the rapid rate of senior staff turnover. The farmer:TA ratio has been around 750-800:1 for most of the project life.

3.20 Whatever the reasons, the Bank clearly was overoptimistic about the ability of the Ministry to staff the rapidly expanding NRDP and as a result project implementation of the whole Program suffered. By way of mitigation, however, the Bank did try hard to prevent the Government from proceeding too fast with the Program and had some success. For instance, the early planning of NRDP III envisaged a project with eight separate sub-projects. Six of these were later financed by IDA and the International Fund for Agricultural Development (IFAD) in four separate projects spread over three years, one by bilateral financing and one has still not yet been financed.

Agricultural Extension, Credit and Farmer Coverage

3.21 Under the original IRDPs, extension followed what was then called a "unit" or "scheme" approach. In Karonga, for instance, a "scheme" was a specially demarcated area in which the project reorganized and consolidated land holdings with a view to implementing soil conservation works. Within each scheme area the extension worker formed groups of farmers and encouraged them to use modern inputs such as hybrid maize and fertilizers and provided these on credit on an individual basis. Farmers outside the scheme areas were rarely visited by the extension workers and to begin with did not receive inputs on credit. During the implementation of Karonga II the scheme approach was phased out and instead, to promote the use of modern inputs, farmer credit groups (later called Farmer Clubs) were formed across the whole project area, on the lines originally pioneered in LLDP. Extension workers were almost exclusively concerned with forming these groups, arranging input supplies and recovering credit. These activities left little time for extension of new ideas, apart from those associated with the credit packages. The development of these Farmer Clubs was one of the major success stories of the LLDP and the subsequent NRDPs. They represent one of the more successful formal smallholder agricultural (seasonal) credit systems among developing countries. Their repayment record has been outstanding, largely because if any member fails to repay all the members will be denied access to credit in the following year.

3.22 The extension system was later modified by the adoption of what was called the "Block Approach". This was a modification of the Training and Visit (T and V) system which the Bank had been supporting in a number of countries, most notably in India, as a means of providing all farmers with regular and systematic access to extension advice. Its adoption in Malawi was an attempt to get away from the exclusive focus on credit groups. It was introduced soon after the start of NRDP I and rapidly spread to all project areas. Under the Malawi version of this system each project area was sub-divided into a number of Extension Planning Areas (EPA), which were then further sub-divided into sections, one to each TA. These were split up into 7-8 blocks of 60-120 farm families. A demonstration plot was established in each block and the TA was supposed to meet all the farmers in the block at the demonstration plot on a two-weekly schedule. The key to the success of the system was the regularity of the visiting and the ease with which it could be supervised (given adequate mobility). The system adopted in Malawi differed from that adopted in India in that it used the community to activate farmer interest rather than contact farmers, and in that it had formal demonstrations. It also differed significantly in failing to insist that the sole function of the extension worker was to provide advice and not to become involved with credit, input supply or other regulatory activities.

3.23 Although the new system was initially adopted enthusiastically by farmers and extension staff it did not overcome the basic problems. The technical packages which the extension service had available focused on fertilized hybrid maize monocropping or cash crops. These were largely unattractive to smallholders whose first priority was to maximize food production.9/ Very little attention was paid to subsistence crops (i.e. local maize, pulses, sorghum, millet, cassava) in adaptive trials on farmers' fields. As a result, therefore the extension message was primarily of interest only to the larger farmers with enough land both to meet their subsistence needs and grow some crops for sale. These were also the same farmers who made up the bulk of the Farmer Clubs which had previously been the main beneficiaries of the extension service under the old system. It was soon found that attendance at the block meetings was very low and mainly made up of the larger, credit-worthy farmers. Even for these farmers, however, the impact of the extension system was hampered by the interactive effects of insufficient price incentives, limited credit, erratic input supplies and the low level of applied technology.

9/ Hybrid maize is regarded as a cash crop not a food crop by the majority of smallholders because the varieties now on offer have a comparatively soft endosperm and are thus difficult to pound (in Malawi maize is traditionally pounded before grinding in order to remove the outer, fibrous layer of the seed, which requires a hard endosperm). In addition they do not keep well under farmer level storage conditions.

3.24 In an attempt to overcome these problems (and also because of emerging budgetary constraints) the next area-based project, that would have been NRDP V, was modified during preparation to concentrate on strengthening the national extension system, particularly by supporting innovative approaches to extension and information transfer. This became the Agricultural Extension and Planning Support Project (part of what the MOA still calls NRDP V). This was approved in September 1985, a little over two years after NRDP IV had commenced. The main impact of the new project on NRDP IV was that the new approaches being tried were also introduced into the project area. The objectives of this new system were to move the focus of extension from the demonstration plots at the block level onto farmers' fields, to strengthen the linkage with research and to improve quality and relevance of in-service training of the TAs - essentially to try to get closer to the T and V system. This was introduced from the 1988-89 season with the expectation once again that it would broaden the contact with non-borrowing farmers. It is too early to say whether this will be achieved but early experience indicates that the fields to which demonstrations were being moved mostly belonged to the same Farmer Club members as before.10/

3.25 The overall experience with extension under these projects has therefore been disappointing, despite (it may even be fair to say, because of) the creation of a highly successful credit system. The number of farmers who have had access to the extension services has been largely limited to those who are members of Farmer Clubs. The range of advice which has been on offer has also been of limited value. Although evaluation studies show clearly that the yields obtained by adopters (i.e. the larger farmers) are higher than those obtained by the non-adopters, the limited number of adopters has meant that the overall impact of the extension system has been limited. In some cases, e.g. livestock, the number of beneficiaries of the system has been extremely small. The Farmer Clubs have inhibited the extension system from giving advice to the three-quarters of the farm households that do not borrow. This appears to have been a conscious decision. While in LLDP the original intention had been that the coverage of the extension system would be universal, in Karonga I only about 50 per cent of the farmers in scheme areas were expected to be borrowers, while by Karonga II the figure had fallen to 35 per cent; only about a 27 per cent coverage was actually achieved. No further increase in membership was achieved in the next phase, although the amount of credit distributed annually increased substantially. In NRDP IV the target of Farmer Club membership was 18 per cent.

10/ The Region comments that the new system, in attempting to move the focus of extension from the block level to on-farm demonstrations, is supplementing the block level demonstration work, which tries to cover the entire range of crop-related extension advice, not replacing it. The on-farm demonstrations cover perhaps only one or two aspects of recommendations for one crop. It was discovered that in fact in many areas there were no block demonstrations and the on-farm ones were the first demonstrations that extension staff had been able to organize for some time. As a result, it is not surprising that extension workers should choose farmers with whom they already had contact to participate.

By the end of the project the actual membership was about 19 per cent of farm households.

3.26 To raise the proportion of farm families having access to credit, IDA financed a Smallholder Agricultural Credit Project in late 1987. The objective of this project was to amalgamate Malawi's project-based credit systems into a national system that would be better-managed, more efficient, low-cost and financially viable. It was planned to increase the proportion of farm families receiving credit from the national average of 16 per cent in 1985/86 to 22 per cent in 1993/94. Thus even this project did not anticipate being able to reach many of the smaller farmers.

Input Availability and Use

3.27 In all the four projects the economic justification for project investments was increased agricultural production, mostly maize, and mostly due to increased yields resulting from the adoption of higher yielding varieties and increased use of fertilizer. The extension service was to create the demand for seed and fertilizer and ADMARC was to supply them.

3.28 The general experience of all the projects has been that the demand for seed of improved varieties never reached expected levels, while the supply of fertilizer was almost invariably unable to meet the demand.

3.29 The low rate of uptake of hybrid maize was noticed by Bank staff as early as 1976 but for many years after that there was a general tendency to blame the low rate of uptake on shortage of seed, late delivery of seed, and shortage of fertilizer.11/ The question of its acceptability by farmers was slow to arise. There was a period of real shortage in the mid-1970s, when the supply from what was then Southern Rhodesia was cut off. But this imported seed was replaced by local varieties in a few years. By the time of the NRDP I appraisal most of the seed needs of the project were expected to be met by seed produced in Malawi (para 5.05). By 1986/87 ADMARC production of hybrid maize exceeded local demand, and in 1987/88 Malawi exported substantial quantities of hybrid maize (apparently due to bureaucratic delays not lack of demand because a crash import program was required later the same year). Thus shortage of supply was not the reason for low rates of uptake. There were years in Karonga when supplies were below demand because of transportation problems, but over the seven years ending 1988/89, when supplies were never short, hybrid maize still only averaged just under 10% of the total maize area. In the original Lilongwe area,

11/ The following quote from the PCR of Lilongwe III is typical (para 5.5): "Due to the lower than anticipated uptake of improved maize seed and a change in relative farm-gate prices of smallholder crops, incremental maize production was lower than projected at appraisal. However, had the marketing system provided fertilizers and improved seeds in the quantities projected and ordered by management, it is likely that maize production....would have considerably exceeded appraisal targets."

which had the longest history of extension in Malawi, the proportion of hybrid maize in 1988/89 was also still only 10 per cent, and in the two sub-project areas of NRDP IV it was 10 per cent in Lilongwe North East and 5 per cent in Dedza Hills. (Nationally the area under hybrid maize was fluctuating around 3-5 per cent of the total maize area.)

3.30 The 1988 Technical Issues Review of the NRDP 12/ also looked at other possible reasons for low uptake of hybrid maize. It found that there was no evident correlation between the use of hybrid seed and the availability of credit as an explanation of the low rate of uptake. Government figures for 1986/87 showed that the number of bags of hybrid maize seed taken on credit was only 27 per cent of the number of borrowers and that, given the number who took more than one bag, the proportion of borrowers using hybrid maize was probably less than 25 percent. The figures for Karonga ADD showed that only 10 per cent of borrowers were using hybrid maize seed, and in Lilongwe ADD 18 per cent. Other evidence also indicated that it was not lack of fertilizer that discouraged hybrid seed use. Just over half the fertilizer used in the smallholder sector was going on local maize and only 28 per cent on hybrid maize. The Review concluded that the commonly held view, that it was the keeping and pounding qualities of hybrid maize that kept farmers from using it, was almost certainly correct. Thus the problem of low adoption rates found in the projects under audit was not a project related one. It required dealing with at the national level. This is referred to again in paragraphs below on research.

3.31 The growth in the consumption of fertilizer was, as with hybrid maize seed, much below appraisal expectations. This was not, however, the result of lack of demand but of fertilizer shortages. These shortages should have been anticipated at the time of appraisal; perhaps not in the first two projects but by the time of the appraisal of NRDP III they were readily apparent. Growth of fertilizer demand nationally was growing faster than the country could afford to import and the Bank projects were not protected from the national shortages.

3.32 The disappointing rate of fertilizer uptake in all the NRDP projects, however, was not due to lack of demand. It seems highly likely that one of the major success stories of the extension services was in promoting increased demand for fertilizer, ironically perhaps not on the main crop intended, hybrid maize, and not always by those with whom the extension service was in direct contact. Nationally, the growth in fertilizer demand over the past 12 years or so has been

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12/ World Bank Report No. 7539-MAI of February 15 1989, Malawi, National Rural Development Program, Technical Issues Review.

remarkable.13/ At least part of the reason for this growth is the 'leakage', i.e. cash sales, of subsidized smallholder fertilizer to the estate sector where it is not subsidized, and the widespread illegal cultivation of burley tobacco, with its heavy requirement of fertilizer, by smallholders. The size of the leakage is estimated at anything up to one-third of smallholder purchases (see also OED's recent Audit of the Smallholder Fertilizer project). The extent of the diversion to illegal burley tobacco cultivation can be judged by the situation in Kasungu RDP where credit repayments (for fertilizer) plummeted, after late rains in 1988 virtually destroyed the burley tobacco crop, from its customary level of over 90 per cent to 48 per cent in 1988/89. This was not because the maize crop failed but because their receipts from burley, on which the farmers had put the fertilizer, were too small to repay the loans. The demand for hybrid seed and fertilizer was also highly correlated with the fertilizer:maize price ratio, ADMARC's maize buying performance and the relative returns from maize and groundnuts. Between 1985/86 and 1986/87 the relative price moved in favor of groundnuts and ADMARC was unable to purchase hybrid maize, meaning that many farmers had to take hybrid maize home and then had storage problems. Consequently many farmers switched to groundnuts as a cash crop with dramatic consequences for hybrid maize production, and the demand for maize seed.

3.33 In the PCRs of the early projects ADMARC was blamed for late delivery of fertilizer without looking behind the reasons for this. The PPAR on Lilongwe III, written in late 1980, concluded this was unfair on ADMARC: "Although ADMARC could substantially improve its present practices, a major share of its ineffectiveness in serving the program could be attributed to factors outside the ADMARC management. Such factors include delays at foreign ports of entry for imported goods, supply controls imposed nationally, disturbances in the local transport system due to political events in neighboring countries, and inefficient planning by program management" (para 20). The PPAR blamed the Bank for not foreseeing these problems and incorporating flexibility into project design. Certainly the design of Karonga II (approved 6/76) takes no account of possible constraints in fertilizer supply despite problems encountered in the first phase, merely mentioning that incremental fertilizer consumption would only be 1,225 tons. Late delivery nevertheless remained a problem throughout implementation and in several years was blamed for poor crop production. Neither did the appraisal report of NRDP I (dated 11/78) anticipate fertilizer supply problems although by then ADMARC's financial problems should have been apparent. And even the appraisal report of NRDP III still did not mention the fertilizer supply problem although it was written in September 1981, well after the emerging fertilizer crisis should have become apparent and despite the Government's financial problems having given rise to the first SAL. Yet two months later the

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13/ Smallholder fertilizer consumption grew from 10,500 nutrient tons in 1977/78 to 36,000 nutrient tons in 1988/89, equivalent to an annual growth rate of 12 per cent. See also, OED's recent PPAR of Malawi Smallholder Fertilizer Project.

supervision report of NRDP I found that only one quarter of the season's fertilizer supplies had arrived.

3.34 The fertilizer supply problems were the combined result of Malawi's deteriorating external transport links, foreign exchange constraints and ADMARC's own financial problems. They could not be solved within the context of any area-based project. The Government, IDA and IFAD therefore prepared a Smallholder Fertilizer Project (Cr. 1352-MAI, approved 04/83 and IFAD Loan 120-MW and Grant 109-MW) to deal directly with the fertilizer supply problems, in particular to provide finance for fertilizer purchase, to improve ADMARC's procedures for procuring and distributing fertilizers and to strengthen MOA's and ADMARC's institutional capacity. It also involved a number of other policy related measures, in particular those related to fertilizer pricing, which are addressed in the recent audit of the Smallholder Fertilizer Project. The Smallholder Fertilizer Project was successful in supplying the amounts of fertilizer estimated to be needed at the time of appraisal.14/ However the project failed to solve ADMARC's internal distribution problems, in terms of meeting individual area's needs in a timely manner. Thus the projects under audit through this period, NRDPs I, III and IV, all continued to suffer from fertilizer shortages from time to time; for instance, in NRDP III only 30 per cent of estimated fertilizer needs were met in time in 1982/83 and in NRDP IV fertilizer consumption fell two years running, in 1985/86 and 1986/87 due to supply problems and the demand reduction outlined in paras. 3-5-3.6 above. Project impact has been constrained as a result. The shortages in NRDP III were particularly acute because of the inadequacy of the transportation links to Karonga.

Output Marketing

3.35 All the projects also relied on ADMARC for output marketing. ADMARC had the statutory power to purchase all smallholder export crops and also all crops grown on customary land, principally maize. For maize ADMARC was the residual buyer, purchasing only such amounts as farmers chose to sell to it. Significant amounts of smallholder produce were sold to private traders or bartered among farmers themselves. There also appears to have been a thriving cross-border trade using traditional marketing ties with neighboring Zambia, Tanzania and Mozambique. This is reported to have stopped in the early 1980s

14/ All the available evidence indicates that the smallholder fertilizer market nationally has not been saturated during the 1980s and that more would have been used if it had been available, especially given the subsidized price at which it was sold. See PCR Smallholder Fertilizer Project, Report No. 8534 of April 1990, para 30; NRDP Technical Issues Review (op. cit.); Sahn, David E. and Arulpragasam, Jehan "The Stagnation of Smallholder Agriculture in Malawi: A Decade of Structural Adjustment", Cornell University Food and Nutrition Policy Program, (mimeo) August 1990, pages 8-14.

when relative prices moved in favor of Malawi. No attempt was made to support this parallel market, a fact which the PCR on Karonga II regretted, believing that this would have had much greater impact than "the ineffectual attempts to improve ADMARC's performance". Although all the PCRs criticize ADMARC's performance in purchasing project output, this criticism is muted because the incremental production achieved was always less than anticipated - a common finding in audits of many Bank rural development projects.

3.36 As far as internal marketing was concerned, therefore, ADMARC was an effective monopsony. It was not until the SAL process opened up the possibility of introducing policy change on a wider sectoral basis that the Bank was able to get the Government to end this monopsony. Under SAL II the private sector was encouraged to enter into marketing at its discretion, with ADMARC's role being to provide a price support system as buyer of last resort at prices announced before planting. Too short a time has elapsed to judge if this had any impact on NRDP IV, but preliminary indications are that it is minimal and credit for private sector marketing has, so far, attracted little demand.

3.37 On the other hand, another of the marketing changes introduced under SAL II had an immediate and deleterious impact on NRDP IV - this was the closing of a number of ADMARC's seasonal buying points and input distribution centers in order to reduce costs. This had the effect of increasing the distance over which farmers had to carry purchased inputs, in turn greatly increasing the amount of fertilizer bought on credit, because ADMARC took responsibility for delivering fertilizer bought on credit, while farmers who bought for cash had to arrange their own delivery.

3.38 Output marketing is thus another area where the Bank was unable to introduce changes which it thought desirable through area-based project financing, but had to wait until a more appropriate mechanism was available.

Research

3.39 Research was still another component of the IRDPs and NRDP which proved in the end to be more suitably tackled under a national project than under a series of area-based projects. This is not unique to Malawi. Bank experience in other countries has been similar.15/ Typically, the early IRDP projects in Malawi had a Research and Trials component under which crop trials in farmers' gardens to demonstrate recommended improved techniques were to be conducted. In practice these components tended to be understaffed and to lack project specific direction for the trials, so that what research they did do was usually designed only to fit within the national varietal trials program. This situation continued right through the implementation of NRDP I. Even as late as June 1985 a supervision mission of that project was commenting that: "trials program has had hardly any impact in improving extension messages, mainly because the trial

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15/ See, for instance, OED's PPAR on five T and V and a National Research project in India. OED Report No. 8808, June 29, 1990.

program was not oriented towards coming up with practical solutions for problems identified by field extension staff." There are similar comments on NRDP IV at the same period.

3.40 Part of the inadequacy of the whole approach to research was the basic assumption that a suitable technical package was available to permit smallholders to increase their maize and groundnut yields; it was not until the early 1980s that this assumption began to be fundamentally questioned.16/ At the same time it was recognized that the research system did need strengthening. As a result, under NRDP I, one of the bilateral co-financiers, USAID, funded a project to strengthen the research department. Following this, the Bank's NRDP Review Mission recommended in 1982 that the International Service for National Agricultural Research (ISNAR) should review how to restructure the research department in order to focus more effort on verification trials and smallholders' particular constraints. This led to a free-standing, IDA-financed National Agricultural Research Project (NARP, Cr. 1549-MAI of 02/85), paralleled by another USAID-financed Malawi Agricultural Research and Extension Project (these two projects, together with the Agricultural Extension and Planning Support Project are known in Malawi as NARP V). Besides strengthening the national research system in various ways, these projects aimed to create better linkages between research and extension with the aim of making research responsive to farmers' needs. In particular adaptive research teams were established in each ADD under NARP. They were to combine research and extension staff in a program of farming systems research and problem-solving on-farm trials and demonstrations. The objective was to produce locally-specific production recommendations. The results have so far been disappointing but as many of the staff have only recently returned from overseas fellowships, it is too soon to judge. This seems the most hopeful approach and needs to be persevered with.

3.41 As a result of these changes the research approach of the NRDP projects was modified. An adaptive research team began work in Karonga in late 1986, the last year of project implementation. No recommendations were available before the project closed. The work has continued since. The research component in NRDP IV was similarly modified to become part of the national adaptive research program.

16/ The Region comments "that there are many, including some staff of the International Food Policy Research Institute, who are convinced that available maize technology is very suitable for Malawi, but that there are gaps that need attention maybe in the area of storage or processing. That is exactly what the Malawi Research and Extension Services were feeling and that is why they persisted trying to hard to make a breakthrough with that technology. The evidence is not all in yet and maybe the present approach may not be more profitable than earlier efforts. We feel that trying to meet consumers' requirements for the maize crop (or any other crop) is worth trying, just as those before us thought that existing varieties were adequate. There are still quite strong views that it is wrong to perpetuate the wasteful habit of 'maize pounding and seed skin removal' - and that the HYV flint development program is a mistake."

Land Registration

3.42 One of the main reasons for including the 'consolidation' phase of Lilongwe in NRDP I was to allow the land registration component, begun in LLDP Phase I in 1968, to be completed. This component had originally been included because it was believed that the traditional form of 'customary' land tenure, whereby tenants were allocated land by the village chief, was preventing farmers from improving the land they cultivated and was leading to erosion, as population pressure was forcing farmers to cultivate marginal lands. It was also proposed to reduce land fragmentation by consolidating holdings. A similar program in Kenya had been highly successful as it allowed smallholders to have big enough plots to grow coffee. Unfortunately there was no such crop in Lilongwe to provide a similar stimulus.

3.43 Under the registration program lands had to be surveyed, and customary use established before the title to the land was registered in the family name. This had proved to be a much more time consuming process than originally envisaged. Due to lack of transport and staff shortages it was not even finished under NRDP I and the program was handed over to the Department of Lands and Valuation in 1984 for completion.

3.44 The registration program was the first of its kind in Malawi and has not been replicated in any of the other NRDP areas. The Evaluation Section of LADD conducted a survey in 1983 to assess the effectiveness of the program and whether it should be continued and introduced into other ADDs. The study was inconclusive in this respect since it did not investigate the comparative productivity or investment levels on registered and unregistered farms. It found that farmers with registered land had a sense of possession and better control of land use. Registration was said to have influenced the way land disputes were settled. The study implied that the potential impact of registration required a number of further complementary institutional measures before it would be realized (such as long-term credit facilities where land could be used as collateral and the development of a market in land). A further study by the Bank17/ concluded that, as a result of population pressures, the customary authorities were losing their ability to control land use, and the security of possession formerly found in tenure under customary law was being undermined. It recommended that the customary tenure systems which govern smallholders should be re-examined in order to see if they could provide adequate security of tenure and encourage land conservation or whether they should be modified to provide greater security of tenure and promote productivity. The Lilongwe experiment in registering family title to land would be the place to study for this purpose. Nothing has come of this as yet. The audit mission discussed with a number of farmers what impact registration had on their agricultural practices. There seemed to be none. A market in land has not developed and when the registered owner dies the heirs arrange among themselves how it will be sub-divided. The register itself is not amended. Another problem seems to be that the land

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17/ Malawi: Land Policy Study, April 24, 1987 (Report No.?).

registration was in the name of males while in this matrilineal society inheritance is through the female heir.

3.45 It seems unfortunate that a program with so much potential impact, that was implemented with such a major effort, (it even required a change of legislation), should have been allowed to lose momentum without even any thorough assessment of what it has or has not accomplished.

Soil Conservation

3.46 Official concern with soil conservation has a long history going well back before Independence. This concern has grown since as rapidly increasing population pressure forced farmers to cultivate ever steeper slopes and more easily erodible poorer soils. Soil conservation, along with watershed management and afforestation, was highlighted for special attention under NRDP.

3.47 This concern was also shared by the Bank. The major soil conservation program of LLDP has already been discussed. All subsequent area development projects have also included soil conservation components, though none on the scale of Lilongwe. The general experience of these has been disappointing. They were unambitious in objectives, certainly compared with the scale of the problem, and tended to be given a low priority in implementation with one notable exception. The government spent its erosion control efforts in popularizing the ridge and furrow cultivation technique remarkably successfully. The almost universal adoption of ridge and furrow cultivation is a unique feature of Malawi's agriculture. There are few other countries where it is so widely adopted. There are some flaws in the system, particularly that ridges and furrows are not properly on the contour and on the steeper slopes, now being encroached on, it is not fully adequate. Nevertheless the system's wide adoption is a credit to the conservation service.

3.48 In Karonga II soil conservation consisted of continuing the work begun under the first phase project - assisting farmers with the layout or realignment of water control bunds in the rainfed rice areas and the construction of minor conservation works; in addition the layout of farms based on catchments was to be started. In the first phase the actual conservation works that had been planned were never constructed because of staff involvement on other aspects of greater concern. Nor were any constructed in the second phase because of lack of funds and transport. Only one-quarter of the conservation layout planned on catchments was achieved. This part of the project thus achieved little.

3.49 During implementation it was decided to carry out land resource surveys in order to assist future planning. While these were carried out they were not used by project staff as the staff who had carried out the surveys were transferred and the new staff never became familiar with the results (Supervision report 02/03/81, annex 6). The surveys were used, however, to plan Phase III. In this phase funds were provided to establish seven forest reserves, covering nearly one per cent of the project area, where the land and vegetation were being, or would soon be, threatened by overuse or misuse. This program ran into difficulties because of slow implementation, the result of lack of interest by project management which gave low priority to forestry development (Supervision report of 10/26/84 annex 2 para 13). The slow implementation meant that by the time the project closed less than half the intended area had been surveyed and mapped and much of the rest had been taken over by farmers for cultivation. The audit mission was informed that in the areas that had been protected the results were encouraging.

3.50 The need for soil conservation in NRDP IV was greater because the project area contained a large proportion of steeply sloping land that was not suitable for cultivation but, because of population pressure, was being farmed. It was recognized that it would be irresponsible to initiate a project with the objective of intensifying crop production without a comprehensive land husbandry input (Appraisal Aide-Memoire). The project therefore included specialist land husbandry staff at the EPA level for the first time. The emphasis of their work was to be on biological rather than physical conservation measures, such as establishing perennial crops on steep slopes and introducing restorative cropping breaks of legumes and grasses. This proved difficult in an area where most of the farms were not even big enough to provide the farmers with subsistence. During implementation the program was short-staffed and the results were too small to have any significant impact on the erosion problem. Despite these shortcomings NRDP has established quite a strong cadre of 'land husbandry' workers and land husbandry training facilities. It has yet to be determined how best to use them to carry out large scale soil conservation.

Burley Tobacco

3.51 Burley tobacco is a high value cash crop which is grown on estates under a tenant system. Smallholders have till recently been forbidden by law to grow it in order to maintain quality and restrict the quantity grown because of a limited market. It has long been proposed that this restriction should be raised in order to allow smallholders access to a high value cash crop. Thus in NRDP III a pilot burley tobacco scheme was included. An area of just over 200 ha was to be developed and allotted to 50 farmers who were to grow between 0.4 and 0.8 hectare of tobacco on a four year rotation. They would be provided with credit for inputs and raw materials and technical advice.

3.52 This was perhaps the most successful of all NRDP III's components. By project completion yields were averaging 2200 kg/ha against the appraisal estimate of 800 kg and the average income from tobacco for the 50 farmers was MK 4390 from 0.6 hectare of tobacco against the appraisal estimate of MK 464 (MK 1200 in 1988 prices) from 1.0 hectare of tobacco. The highest individual income of the 50 farmers was MK 8924. With the average per capita being only about MK 350 at that time it was clear that burley tobacco was a highly profitable crop and one that could provide smallholders with a useful income supplement.

3.53 The usefulness of this component, however, is questionable since it is not replicable. For one thing, the selected farmers were hardly typical of the average smallholder. At the end of the 1990 season 44 of them 'graduated' and started their own estates. For another it only provided training to a very limited number of farmers; most of the 44 graduates had been on the scheme for four or five years. The area they cultivated (on average 0.6 hectare) was also much in excess of what a smallholder would be allowed (nearer 0.1 hectare). Nevertheless there has been a change of national policy and in 1990/91 smallholders are being licensed in Chitipa (and other parts of Malawi) for the first time to grow burley tobacco. The District has been given a license for 26 tons, to be divided between 1,300 smallholder growers. To the extent this project component can take any of the credit for this change in policy it was a worthwhile undertaking.

Monitoring and Evaluation

3.54 All four projects had provision for strong Monitoring and Evaluation (M & E) units. These suffered badly from staff shortages, particularly at the senior level. A very considerable body of data was collected. Its value, however, has often been limited due to lack of analytical capability. Some use was made of it at the time it was collected for monitoring purposes but all the PCRs comment that unreliability of data has prevented adequate analysis of project impact. A considerable number of surveys were carried out that provided project and Bank staff with better insights into farmers' attitudes and project problems. Recent monitoring studies of NRDP IV have been of noticeably high quality.

3.55 Support was provided under NRDP III to the National Statistical Office to extend the coverage of annual agricultural surveys carried out in RDP areas to non-RDP areas, and to clear up data collected under previous surveys in project areas. This was successfully completed. As a result Malawi has one of the best data bases in sub-Saharan Africa.

IV. PROJECT IMPACT

4.1 This section examines four different aspects of the projects' impact. The first aspect is the impact on Malawi in economic terms. The second impact examined is that on the direct beneficiaries, particularly the distribution of benefits, to see how far the projects met the Bank's criteria of rural development and how far they met the Government's policy of improving income distribution. The third aspect examined is the non-quantifiable benefits, particularly the projects' impact on human resources and institutions. The fourth aspect is a reverse impact, the effect on the projects of the external events that were occurring as they were being implemented, particularly the effect of national price policies on production.

Macro-economic Impact

4.2 The customary method used in the Bank of assessing the economic impact of a project is to calculate its Economic Rate of Return (ERR). This has been done exhaustively for the projects under review ex ante in the appraisal reports and ex post in Project Completion Reports (PCRs) and Project Performance

Audit Reviews (PPARs). The evidence of all these reports is presented at some length in Annex I. The Annex shows that, while the anticipated ex ante ERRs are all, as one would have expected, reasonably optimistic about the likely projects' impact, the ex post ERRs provide a wide and contradictory range of estimated outcomes even for the same project, from those showing high economic rates of return to those indicating the investments had a negative rate of return.

4.3 This audit concludes from the evidence presented in Annex I that the ex post evaluations of the rural development projects in Malawi do not provide any conclusive evidence either way that the projects' investments were worthwhile, in an economic sense. The reasons for this conclusion are as follows: (i) primarily, the accuracy of the data base is subject to such a wide margin of error, statistical and otherwise, that widely differing ERRs can be obtained depending on which set of data is selected; (ii) the production increases anticipated under the projects are often so low that even with an accurate data base the anticipated increases would be within the sampling error of the observations. For instance in NRDP IV the production increases anticipated in Lilongwe North-East in the appraisal were 8 per cent for maize, 3 per cent for groundnuts and 50 per cent for tobacco. While a 50 per cent increase in tobacco should be easily evident, the increases in the other two crops are too small to measure. It is perfectly legitimate to show ex ante that such small increases would provide an adequate economic justification for the proposed investment but unreasonable to assess ex post whether they have been met (unless there is obviously a very substantial increase); (iv) problems of deciding ex post what is the appropriate baseline production from which to calculate incremental production under the project are much in evidence; apart from data base problems, even if one had accurate figures, there are all the problems of deciding how to cope with exogenous distorting factors in pre-project production such as weather, changes in crop prices and past trends; (v) policy changes during project implementation are frequently found to have a much more profound affect on production during (and after) project implementation than the project interventions themselves. It thus becomes impossible to decide on how to attribute changes to which cause; numerous examples can be cited in the projects under audit of producer crop price changes which markedly altered the crop mix and increased the production of crops which featured in the ERR calculations but decreased the production of those that were outside the calculations and vice versa, for instance maize and cassava in Karonga; (vi) weather induced changes in production are also substantial and can greatly affect an ex post ERR depending on when they occur during a project's life; (vii) the ERRs only attempt to measure the economic impact of the crop production components and do not take into account any of the other productive components because of lack of data; still less do they take account of the other components with non-quantifiable benefits (e.g. health). The result is the need to make some arbitrary assumptions about how to allocate costs between those that are crop-related and those to exclude from the calculations. For all these reasons this audit has not attempted to calculate any more ERRs and ignores those that have been calculated elsewhere.

4.4 An alternative to the ERR as a measure of project impact, which is feasible in the case of the Malawi RDPs, though it would not be for many projects elsewhere, is to analyze the extent to which the means to attaining the anticipated project impact have been achieved. In the case of the projects being analyses here the means to attaining greater crop production were the increased use of hybrid maize and fertilizer; this increased use was to be brought about by the creation of an extension service to teach farmers why and how to use hybrid maize and fertilizer, the provision of credit to enable farmers to buy them, and the provision of an input supply system to make them available on time in the quantities demanded. The establishment of the extension system and the input supply system were discussed in Section II. How successful were they in achieving their objectives of increasing the use of hybrid maize and fertilizer?

4.5 In the Phase I of the Lilongwe Program it had been assumed that five years exposure to extension campaigns would induce 90 per cent of farmers to use improved seed and 80 per cent to improve their cultivation methods. The expansion of fertilizer use was expected to grow more slowly and only 45 per cent of the maize crop was expected to receive fertilizer by the twelfth year after the project started. Once implementation started it quickly became apparent that these estimates were over-optimistic. A study carried out in 1970/71 and 1971/72 showed only 21 per cent of farmers using improved maize varieties in 1970/71 and 27 per cent in 1971/72. The respective figures for fertilizer use on maize were 16 per cent and 26 per cent.18/ This study showed there was strong evidence of a positive impact on crop yields of extension service visits through increasing the use of improved seeds and fertilizer via credit. It also showed that extension staff were concentrating their efforts on the relatively larger holdings and on holdings where the farmer was a credit recipient. Farmers with less than 0.4 hectare were not eligible for credit and were rarely visited by the extension service and consequently did not use hybrid maize seed or fertilizer.

4.6 During Phases II and III, as the size of the project area grew, the proportion of farmers using improved seed declined, falling to an average of 8 per cent in 1977/78 and 1978/79 (by which time the whole area had been covered by the Program). The proportion using fertilizers on maize fluctuated with fertilizer availability but was between 25 and 30 per cent in these same two years. The uptake of hybrid maize in Phase III was only 30 per cent of that anticipated, while the uptake of fertilizer was over 90 per cent of the original anticipation. It was suspected at the time that this discrepancy between the growth in the use of hybrid seed and of fertilizer was the result of smallholders selling the subsidized fertilizer to larger farmers at a profit. This may have been and may still be true but from later evidence the use of fertilizer on local

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18/ Broadening the Evaluation of Rural Development Projects: Final Report on the Lilongwe Land Development Program Follow-up Study, B.H. Kinsey, Overseas Development Group Ltd., University of East Anglia, Norwich, England. June 1975.

maize also seems to have been growing although this idea received little credence at the time.19/

4.7 During the consolidation phase the proportion of the maize area sown to hybrids was expected at appraisal to increase from 8 per cent at the end of Phase III to around 18 per cent. Instead it fluctuated from year to year, as it has done since, but only around the 5-10 per cent level (8 per cent in 1989/90). There has as yet been no sign of a breakthrough to the higher proportions anticipated, and on which the project benefits were based. Similarly with fertilizer; the appraisal report expected an increase of 50 per cent in fertilizer consumption, to be used on the additional area of hybrid maize, the actual increase was only about half this.20/

4.8 This evidence about the use of hybrid maize seed and fertilizer indicates that, assuming the response rates to hybrid seed and fertilizer are more or less correct, the production increases anticipated at appraisal for all phases of LLDP cannot have been achieved as the result of interventions by the projects and that most of such increases as were achieved must have been the result of non-project causes. The available data on crop production and yields are presented and analyzed in Annex II. These show that, while there have been considerable increases in <u>maize</u> production in the LLDP area during project implementation, there was no significant increase in maize yields over the 16-year period ending 1984/85. Data for the last four years indicate that maize yields may at last be increasing. The data for <u>groundnuts</u> for the 20 years ending 1988/89 show a 2.6 per cent per annum decrease in yields. There are no comparable figures for <u>tobacco</u>. In terms of increasing agricultural productivity therefore LLDP must be rated a failure.21/

19/ Even as late as 1981 the Bank's review of the PCR of LLDP III remarks that "it is unlikely that farmers applied fertilizer to their local maize".

20/ The fertilizer figures for this phase from different sources are contradictory. Consumption in year 1 (1978/79) is given as 10,223 tons in the PCR of Phase III (p.115) and 3,467 tons in the PCR of NRDP I (page 21; this does not seem to be nutrient tons as the 'expected' tonnage looks to be gross). The final supervision report says fertilizer consumption for the whole project increased by 4,293 tons 'which was lower than appraisal estimates'. See also, OED's recent audit of Malawi Smallholder Fertilizer Project.

21/ There is nothing new in this finding. In discussing the same issue OED's 1984 Report No. 5387, <u>Agricultural Sector Operations Review: Burkina and Malawi</u> quotes evidence from Kydd's <u>Measuring Peasant Differentiation for Policy Purposes: A Report on...the Lilongwe Land Development Program</u>..., Zomba, Government Printer 1982,to the effect that between 1969/70 and 1978/79 in the oldest areas of LLDP there was (i) no growth in mean real cash income per adult, and so no change in per capita purchasing power; (ii) no change in per capita food production, and so unchanged nutritional

4.9 An analysis of the Karonga Program on these lines shows a similar pattern. In the Phase I project, when the major crop was rice, the main indicator of increased input use was the uptake of credit, which the PCR described as "included in the Project to encourage and facilitate use of inputs". As the growth of credit fell below appraisal estimates it was assumed in the PCR that the growth of fertilizer use would also have fallen below estimates although, because some farmers purchased inputs for cash, (ADMARC's records were inadequate to show how much) it was impossible to assess the extent of the shortfall.

4.10 In the Phase II project the uptake of improved rice seed was double the appraisal estimate but this was more a reflection of the fact that farmers sold most of their crop each year and had to buy new seed, which they could get on credit, than of any upgrading of quality. The uptake of hybrid maize was only about 55 per cent of estimate. The uptake of improved groundnut seed was only 15 per cent of estimate. Incremental fertilizer consumption also fell short of estimate, only 46 per cent of the expected amount being obtained on credit, with about another 10 per cent being bought for cash. This shortfall was the result of supply constraints.

4.11 The actual input use in Phase III was much closer to the estimate than in earlier phases because the targets of incremental area had been scaled back; only 10 per cent of the maize area, for instance was expected to be under hybrids and/or composites. As a result rice seed consumption was only 20 per cent below estimate, maize seed consumption was 13 per cent above; groundnut seed consumption, however, was only one-quarter of estimate. On the other hand, fertilizer targets, as appraised, were actually exceeded during the four years of the original project life. During the two-year extension in 1985/86 and 1986/87 fertilizer consumption fell sharply as a result of supply difficulties. Project demand for fertilizer even exceeded appraisal estimates in some years but ADMARC's supplies fell short of this demand.

4.12 The resultant total production figures for the whole Karonga Program are presented in Annex II. These show that there was a steady increase in <u>rice</u> production from the start of Phase I implementation until the end of Phase II after which it levelled out. This was only partly the result of area increase. Rice yields increased at an average annual rate of 2.8 per cent over the fifteen years ending 1988/89. The increase in yields was concentrated in the early project years. During the ten years ending 1988/89 yields have not increased. How much of this increase was due to the project and how much to a favorable price level is unclear. The picture for <u>maize</u> is different. There is no apparent increase in maize production and maize yields declined, by 1.3 per cent

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welfare levels; (iii) no change in the amount of labor given to improved varieties of maize, the central element of the agricultural package; and (iv) a smaller share of own holding agricultural income in total income, representing a movement especially of males off their own farms into urban or estate agricultural wage labor. (para 3.30) per annum in Karonga District and 3.0 per cent in Chitipa District, although annual yield variations were so large that the trend was not significantly different from zero. Yield trends for groundnut were similarly not significantly different from zero. Thus the Karonga Program can be rated a failure from the point of view of increasing agricultural productivity, except in the case of rice.

4.13 Although it does not come out from these evaluation figures there was a marked increase in maize marketing in Chitipa District during the implementation of the projects. ADMARC had only been buying maize in Chitipa in limited quantities before the project started there, a few hundred tons annually, since it was a remote area and transport costs to a consumption area were very costly. By the end of Phase II ADMARC was buying over 4000 tons annually and by the end of Phase III this had topped 6000 tons in a good year. These figures throw considerable doubts on the accuracy of the production estimates, which also include some 8000 tons annually from Karonga District during Phase III since they would imply a reduction in consumption in Chitipa. On the other hand the increased marketing within Malawi could equally well reflect a reduction in the cross-border trade.

4.14 A very similar result is also found in NRDP IV with its two sub-project areas, Lilongwe North-East (LNE) and Dedza Hills (DH). To attain the crop production targets it was estimated at appraisal that an additional 65 tons of maize seed would be needed in LNE and 100 tons in DH. By project completion the tonnage being used in both LNE and DH was actually less than before the project started. In addition 370 nutrient tons of additional fertilizer was estimated to be needed to meet production targets in LNE and 510 ton in DH. This target was met in LNE in the second project year. For the next two years fertilizer consumption declined, returning in the last two project years to about the 1984/85 level again. Given adequate supplies fertilizer consumption would have been much higher. In DH fertilizer consumption never increased as planned.

4.15 In both sub-project areas maize was the main crop, accounting for 63 per cent of expected benefits at full development in LNE and 90 per cent in DH. In LNE tobacco was the other important crop, accounting for just over 30 per cent of expected benefits. Groundnuts, which had not been an important crop before the project, grew rapidly in both sub-project areas in response to favorable prices during implementation.

4.16 The data on production and yields are presented in Annex II. These show a considerable increase in maize production in Lilongwe North-East though without much increase in yields, while in Dedza Hills, after a rapid increase in production in the early project years, it fell back to around pre-project levels later; maize yields decreased. There was a large and unexpected increase in groundnut production in both areas up to 1987/88, when a drought hit the 1988/89 crop very badly with a knock-on effect in 1989/90 due to lack of seed. This increase was largely the result of favorable prices. Nevertheless the project, by providing seeds and fertilizer on credit, undoubtedly enabled farmers to take better advantage of the favorable prices than they could have done without it. Groundnut yields also appear to have increased significantly until hit by drought. The production of tobacco increased fast in the early project years but then came up against quota problems that prevented further increases. Lack of data prevents analysis of minor crops. Overall the production impact of NRDP IV fell short of expectations, largely as a result of factors outside the control of the project.

4.17 This examination of the extent to which the means to bring about production increases in the various projects were actually adopted indicates that, for the most part, farmers did not adopt hybrid maize cultivation as anticipated, but that fertilizer demand was stimulated by the extension services to a much greater extent than could be supplied. Although there have been production increases in the projects, these have been much less than forecast at appraisal.

4.18 An analysis of the Annual Survey of Agriculture data carried out under NRDP III, comparing project and non-project areas, also came to a similar conclusion about the impact of these area development projects, to the effect that the statistical evidence was unable to prove that their production impact was significantly different from zero.

Distributional Impact

4.19 As was explained earlier, it was quickly realized that the original intention of the Lilongwe Program, to have 80-90 per cent of farmers adopting improved cultivation methods and hybrid seeds within five years, was too optimistic. Even with the heavily staffed extension service only about 70 per cent of farmers were being reached (compared with perhaps 20 per cent outside the project area). (Kinsey op.cit. para 57)22/ The introduction of the credit system in LLDP tended to increase the proportion of farmers not receiving benefits (including extension visits) from the project, since all farmers with less than 0.4 hectare were rated as non-creditworthy. The number of extension visits and the use of seasonal credit were strongly correlated with the adoption of improved practices and these in turn with higher crop yields. The number of visits was also significantly correlated with farm size; extension workers visited the larger holdings more often. Thus the pattern of a limited proportion of farmers being project beneficiaries was established early on, not by intention but as a result of the pattern of farm size distribution. About half the farmers in LLDP were outside the credit program by the late 1970s. A survey in 1990 found that this figure had risen to almost 70 per cent.

4.20 A particularly favored group of farmers were those who participated in the livestock activities of LLDP. Less than one per cent of the area's

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22/ Later assumptions were more conservative. By the time of the appraisal of Karonga II it was expected that only one-third of farm families would adopt the improved packages. The PCR on Karonga II believed that all these had already been reached under the first phase.

farmers participated in the stall-feeding, dairying and poultry activities and these tended to be the larger farmers; the criterion for being allowed to have dairy cattle, for example, was to have two hectares of fodder. A somewhat greater number benefitted from the more general livestock development activities such as artificial insemination and dip tanks, but only about 10 per cent of farmers owned livestock. This small number received the full attention of the specialized livestock staff.

4.21 The adoption of the block extension system in 1982 was, among other objectives, intended to widen the contact of the extension staff with farmers, particularly the non-credit receiving farmers. However, this objective was not achieved and the extension service continued to concentrate on the creditworthy group. This situation has persisted, with later projects not even expecting to affect more than a small proportion of farmers; only 18 per cent of farmers in NRDP IV were expected to be members of credit groups.

4.22 The farmers who have benefitted from the NRDP are the larger farmers. The Farmer Clubs, with their mutual responsibility for debt repayment, tend by their nature to be groups of larger farmers. All the credit goes through Farmer Clubs. Most of the efforts of the extension system are devoted to Farmer Club members. Most of the fertilizer is sold on credit (indeed the system implicitly discourages cash sales of fertilizer); and most of the credit (80 per cent) is used for fertilizer. Figures are not available to show the distribution of seasonal credit by farm size but surveys show that 80 per cent of it goes to landholders with more than one hectare. Figures for fertilizer consumption (and fertilizers are the main source of benefits under NRDP), show that only 5 percent of fertilizers is used on farms of under one hectare, compared with 50 percent on farms of more than 2.5 hectares; each size group accounts for about one quarter of the cropped area.23/ Figures provided to the mission in Lilongwe North-East indicated that only 6 percent of fertilizers were provided to non-members of Farmers Clubs.

4.23 The result, in the words of the Bank's Technical Issues Review of NRDP (op. cit. para 34), is that:

> "interventions made under past rural development programs have had considerable impact on those farming households with above average land holdings who have gained access to credit, purchased input supplies, received extension advice and sold surplus produce. In any society there are groups who are not touched by such services and who become almost "invisible" because they have little or no contact with extension staff, are not eligible for credit, cannot afford inputs and have no surplus produce to sell. The disturbing feature about the Malawian situation is that, because of the pressure on land and the small size of holdings, this group constitutes about 70 per cent of the rural population."

23/ See Sahn and Arulpragasam, op. cit. Table 3.

4.24 It is thus clear that these projects did not fulfil the Government's stated objective of redistributing income in favor of the rural poor, indeed they have exacerbated the mal-distribution of wealth by creating in effect a privileged group of smallholders who have benefitted by having access to the projects resources, and who also obtain the benefits of subsidized fertilizers and seeds. It is also doubtful if the projects meet the Bank's criteria for classification as rural development projects, that of 50 per cent or more of the direct benefits accruing to the rural target group. This target group, in present day terms, would be all households farming less than 1.0 hectares and half of those farming between 1 and 1.5 hectares, precisely the group that is left out of NRDP.24/

Non-Quantifiable Impact

4.25 The main achievement of NRDP, to which the projects under audit have been major contributors, has been to enable Malawi to establish, train and staff a structure of agricultural administration and management which is capable of reaching virtually every farmer in the country and which, if adequate input supplies and productivity-raising research packages were available, would be capable of transforming the agricultural situation. It has set up the basic structure necessary for agricultural growth; unfortunately this structure alone is not sufficient to ensure growth. It has set up an effective credit system which has had a significant impact on increasing fertilizer consumption by those farmers who had the resources to be credit-worthy. The follow-on projects for research, extension and credit would not have been possible without the firm foundation laid in the NRDP projects. Its success in helping ADMARC to establish an effective input supply and output marketing system has been limited as has been the attempts to improve the transportation system.

4.26 The projects have also had important direct and indirect social impact. The PCR for Phase III mentions in particular the enormous benefits of LLDP in providing an essential stability and giving the rural community some pride in their agricultural pursuits at a time when the attractions of the rapidly growing urban developments in the new capital city might have been expected to stimulate movement to the urban area, thus making possible a more controlled urban growth. The projects have also stimulated the growth of secondary employment activities at the village level with shopkeepers beginning to provide a wide range of goods and services that were not previously available, although the proximity to the capital city can also take credit for part of this.

4.27 There have also been important health benefits particularly in Karonga, despite all the staffing difficulties and drug shortages that were experienced. The PCR on Karonga II found that increased sales of farm output to ADMARC were reflected in increased savings and also in increased expenditure on

24/ See World Bank Report No. 8140-MAI Malawi: Growth through Poverty Reduction, Washington DC, March 22 1990, para. 3.03.

education, the latter being reflected in increases in school attendance and in more school construction on a self-help basis. There are also indications that rural savings increased as the volume of sales to ADMARC increased.

4.28 NRDP was above all a national program and must in the end be judged by its national impact, in particular by the growth of the agricultural sector generally. Although NRDP was only concerned directly with the smallholder agricultural sector, indirectly it must have had a substantial impact on the other part of the sector - the estates. These went through a period of rapid expansion during the seventies financed largely through financial surpluses extracted by ADMARC from the smallholder sector (surpluses considerably larger than those going into the sector through external aid). Indirectly the government was able to pursue this expansion because it had an alternative source of funding for the smallholder sector - NRDP and the predecessor IRDPs. The Bank refused to finance the estates directly through an Agricultural Development Bank project when this was proposed in 1973 by the government but since resources are fungible they were able to pursue their dual policy as long as funds for smallholder development were flowing in. One can thus argue that the very high growth of Malawi's agricultural sector as a whole during the seventies was made possible by the availability of external finance for the smallholder sector, despite its highly adverse impact on income distribution within the sector, and thus conclude that the indirect benefits of NRDP were considerable. On the other hand, one can also argue that the growth of the estate sector was unsustainable and that the agricultural sector as a whole, estates and smallholders together, might be in a stronger position today if the surpluses from the smallholder sector had been reinvested directly and external finance gone into the estates; certainly the smallholders would have been better off. This would not contradict the fact that the indirect benefits were considerable, only highlighting that they might have been even greater had another agricultural policy been followed. At the time, the smallholder strategy of the Bank, which predated the government's support for the estates, seemed the correct approach, given the Bank's poverty orientation. The Bank has been faulted 25/ for not identifying the adverse impact of the new estate development policies on the smallholder sector quickly enough but nevertheless the investment in NRDP itself clearly was a causative factor in the growth of the sector as a whole, a growth that was as high as that of many apparently more prosperous developing countries.

Input and Output Pricing Policies

4.29 It has already been mentioned that the policy environment, especially the impact of changes in crop prices on the mix of crops, over the period under review, has been more significant than any project actions in bringing about crop production changes. This can be seen in the way the pattern of crop area changes within a project area mirrored the pattern of changes in the rest of the country, except where local weather effects distorted the trend. The history of the projects under audit is one of continued Bank efforts to achieve a favorable

25/ See Kydd and Spooner, op. cit.

price environment that would provide farmers with the right signals to the most economic crop mix and use of inputs so as to support the production objectives of the projects.

4.30 As early as 1973 the Bank realized that low producer prices were a factor in the low adoption rates of the LLDP packages for maize and groundnuts. However, though the point was raised with the Government on several occasions over the next few years, it was not pursued. The Government argued that low agricultural prices would enable low wages to continue and thus have a beneficial effect on employment. At the time of the appraisal of Karonga II in late 1975 the issue still did not seem of major importance. Official producer prices for maize, which were set by ADMARC, after lagging behind international prices, had just been increased. ADMARC was making a loss on its rice trading activities; put another way it was subsidizing Karonga rice farmers. In addition the project area's traditional marketing ties in neighboring Zambia, Mozambique and Tanzania led to the expectation that much of the increased production would be marketed outside ADMARC's official channels at much higher prices although the project did not attempt to support the unofficial marketing channels, something that was later regretted.26/

4.31 During implementation little concern was expressed that prices were hindering production. The PCR, however, comments that for rice and maize favorable producer prices were the main factor encouraging farmers to increase crop areas; and that for cotton and groundnuts 'relatively lower gross margins' were the main contributing factor to the failure to meet appraisal targets. (PCR, Report No. 5340, dated November 28, 1984, paras 9.3.0 and 9.3.1). These are almost exactly the same comments that the PPAR of Karonga I had made: "If farmers had been paid prices around the economic value, at least on average, for cotton and groundnuts, it is likely that the acreages of these crops would have been near to those estimated at appraisal" (Report No. 2576 of June 29, 1979 para. 25).27/

4.32 By late 1977, when NRDP I was appraised, the Bank had become explicitly aware of the extent to which price policy was an important determinant

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26/ The Project Completion Report on Karonga II commented as follows: "Government ignored a flourishing parallel market which was able to absorb additional rice and maize production. In retrospect, it was unfortunate that the efficiency and resourcefulness of this parallel market was not recognized and assistance provided through the project to its development. This could have had a much larger impact than did the attempt to assist ADMARC".

27/ The whole issue of Bank-Malawi relations over agricultural pricing policy is discussed Kydd, J.G. and Spooner, N.J., The World Bank's Analysis of Malawian Agriculture: Changing Perspectives 1966 to 1985, a working paper for Managing Agricultural Development in Africa, World Bank, 1987.

of project success. This awareness was reflected in the SAR's concerns about pricing policy: "There is evidence that for groundnuts and cotton in some areas the returns per manday have been much less than for maize and rice, resulting in farmers giving more attention to the latter at the expense of the former. Production of oriental tobacco is also adversely affected. Present pricing policies do not appear to be in the best interest of expanding production in smallholder areas." (para 6.03) The appraisal report raised the question whether the best way to give greater weight to smallholder pricing and marketing problems would not be to split ADMARC's marketing activities and development responsibilities. Reflecting these concerns, under the Project an official pricing advisory committee was to be set up to consider this issue and to keep prices under review. Assurances were obtained that ADMARC would recruit two economists and other staff to meet the input and marketing needs of NRDP. ADMARC, not a signatory to the Credit Agreement, was unwilling to cooperate and nothing constructive happened for some two years.

4.33 It was not until the First Structural Adjustment Loan (SAL) in June 1981 that the Bank was able to start a dialogue with the Government about crop pricing policy. Once again the SAL appraisal had found that the slow growth in the production of smallholder export crops was due to the failure of ADMARC to pass on to farmers more than a small proportion of the relatively high export prices obtained in the 1970s. Under the SAL a mechanism to review crop prices was put into place and a methodology for deciding on appropriate crop prices was agreed. Despite this, under NRDP IV assurances were again obtained that crop prices for the years of the project would be set at levels acceptable to IDA. Indeed, the Bank would not negotiate the project until an assurance had been received that tobacco prices would be raised.

4.34 The new price-setting system had a major impact on the projects under audit, though not in ways that the Bank had expected. The Bank was concerned to increase foreign exchange earnings through the production of smallholder crops for export; the Government, after a disastrous harvest in 1980, was concerned to increase maize production. As a result, the 1982/83 crop season saw a very large (67 per cent) rise in the price of maize, reflecting the Government's greater concern for food security than for export crops. This led to a 40 per cent increase in the LLDP maize area and an abrupt fall in rice production in Karonga as farmers switched from rice (whose price had not increased) to maize. Rice production remained at around this reduced level in subsequent years as the maize/rice price ratio continued to favor maize. Groundnut prices too were increased sharply (by 53 per cent) in 1982/83 and this led to an unexpected and sustained increase in their production in the whole NRDP IV area and to some extent in Karonga. Tobacco prices, however, were kept substantially below export parity levels, reflecting ADMARC's long-standing policy of using tobacco to generate surpluses, and fell in real terms from 1983 onwards. This had the result that tobacco production in NRDP IV stagnated contrary to expectations. It also fell sharply in the old LLDP area.

4.35 Another change in pricing policy was also introduced during the implementation of NRDP IV, although it is unclear what impact it may have had on the project. The role of ADMARC as the monopoly buyer of maize was relaxed. It became a market stabilization agency buying and selling in defence of a band of producer and consumer prices, trading alongside private traders at the floor and ceiling prices.

4.36 Another exogenous impact on project implementation was the dramatic rise of fertilizer prices after 1981 on top of the already steep increases in the mid to late 1970s. The increase was kept to about fourfold during the 1980s by the Government's policy of subsidizing fertilizers, contrary to the Bank's advice. These fertilizer price increases were only partially offset by crop price increases. The fertilizer nutrient/maize price ratio for sulphate of ammonia, for instance, fell from 5.7 in 1980/81 before the price increases began, to 3.9 after the big maize price increase of 1982/83 (i.e a 30 per cent decrease in the amount of maize needed to buy a unit of fertilizer), then gradually climbed again reaching 7.0 in 1986/87 before falling in the subsequent two years to 5.3 as a result of substantial fresh increases in the price of maize. It is impossible to evaluate the impact of these price changes on the projects' outcomes since fertilizer supplies were never able to meet demand. This phenomenon of increasing consumption in the face of rising prices existed throughout Malawi during this period indicating that fertilizer supply was inadequate to meet the demand throughout the country.

4.37 This brief description of some of the external events that influenced the implementation of the projects under audit highlights a number of points. First, that the Bank was not successful in initiating an effective dialogue on pricing policy in the context of its area-based projects, even with a national rural development project; too many other agencies with divergent interests were also involved. Only with a financial crisis and a SAL did an effective dialogue begin. Second, even when a price-setting mechanism of which it approved was in place, the results did not lead to the results which the Bank had anticipated, because the Bank's and the Government's priorities were different; to improve the balance of payments by encouraging agricultural exports versus food self-sufficiency. In the case of fertilizer pricing policy also the Bank's attempt to get the Government to remove subsidies came up against a different set of Government priorities. Third, farmer response to the new price policy was merely to reallocate land between crops in accordance with price changes. There is no indication of any aggregate production response.28/ The implication of this for the NRDP projects, whose main purpose was to increase productivity, is that a deliberately managed price policy, even one based on export-import price parities, is not a sufficient condition to bring about growth. Unless the other conditions are also right, adequate and timely fertilizer supplies, and proven productivity raising packages above all, the planned growth will not occur. Neither of the latter two conditions were met so the projects' impacts were much below expectations.

28/ Sahn and Arulpragasam (op. cit. pp 23-4) argue that the production of both export crops and maize stagnated in the 1980s because real prices of both sets of crops did not rise so that there were no price incentives.

V. SUSTAINABILITY

5.1 One of the reasons for the introduction of a National Rural Development Program, in place of individual area development projects, was to keep the financial burden of spreading the system over the whole country within the available resources. The individual area projects were too staff-intensive and too expensive to be replicated nationwide. At the time the concept was first proposed neither the Government nor the Bank had any clear idea either of what the eventual burden of the Program would be or what resources Malawi might have in due course to put towards its financing. The type of projects being considered were not revenue-generating. The Bank was nevertheless quick to become concerned about the long-term budgetary implications of the Program on which it was embarking. The appraisal report of Karonga II, for instance, contained calculations that showed that future operating costs would not be covered by any revenue generated by the project, even including any ADMARC profits from incrementable marketable production. It went on to say: "in view of the Government's narrow revenue base, it is not clear whether the additional recurrent costs could be absorbed without some changes in policies, for example concerning pricing of agricultural produce or the taxation system. Therefore, and also because additional deficits may result from the implementation of future NRDP projects, it was agreed at negotiations that the Government would undertake a study....of the long-term budgetary implications of all agricultural development projects" (para 6.07).

5.2 This study came out in September 1977, just before NRDP I was appraised. It showed that, only taking into account existing projects and those to be financed under NRDP I, the Government would need to find an extra MK 17 million to finance the annual incremental recurrent costs of maintaining these projects, compared with the net revenue expenditure of MOA in 1977/78 of less than MK 6 million. The additional incremental revenue the projects would generate was MK 2 million. It was also estimated that ADMARC would make an additional MK 8 million profit from marketing project production. Since ADMARC's profits did not enter the Government's exchequer the deficit to the Government was in reality MK 15 million or two and a half times MOA's then total revenue expenditure.

5.3 There were two schools of thought in the Bank about this problem of the size of NRDP in relation to the resources available to finance it. The Central Projects Staff view was that it would be "more meaningful to examine a number of development designs in relation to their predicted costs and benefits" rather than to opt for just one; and that the Bank needed better assurances that it "was supporting the Government to cut its (development) coat according to its (fiscal) cloth" and not just "continue to put off the evil day when it has to meet the recurrent budgetary commitments arising from the development path which began with the Lilongwe project''. The Regional Projects staff view was that this was a similar problem to that seen in other agriculturally dependent countries where rapid improvement in living standards was sought but where the productive base responded only slowly. "If we wish to transfer resources to the less developed countries, and put them in agriculture and give them to the poorest sectors now at the subsistence level we must recognize that there may be a considerable lag between the expenditure of capital and concomitant recurrent costs and the expansion of marketed production to a level that can produce sufficient Government taxes to maintain the recurrent services necessary to obtain and maintain that production". (NRDP I Issues Paper of December 13, 1977, para 16). The paper went on to propose that the Bank continue what it had tacitly agreed to do in the IRDPs, to undertake the funding of projects, including the funding of recurrent costs, until Government revenues had increased sufficiently to support them; recommending that it should finance second phase projects whose funding would cover all of the recurrent costs that the Government could not finance from revenue and treating them as capital costs. The Bank and most other donors were already financing 85% of total project costs at the time, including a substantial proportion of operating costs.

5.4 The question of postponing negotiations until the problem could be examined was rejected on the grounds that it was important not to delay the project as it was the only one in Malawi that was addressing the issues of increasing the incomes of the poorer sections of the community.

5.5 During negotiations assurances were obtained that "the Government would prepare and submit to IDA for comments by end September 1979 a report on the budgetary implications of the national development program and the measures it proposes to follow to ensure the progress and viability of the program". No covenant was included in the Credit Agreement to this effect. Loan Committee review of the project stressed the importance of the study and its timely completion.

5.6 In the appraisal report, which did not come out till November 1978, the financing problem seemed to have evaporated. ADMARC's profits from incremental production marketed under the project, principally tobacco, were, according to the appraisal report, to be transferred to the Government's budget; together with other revenues these would cover the incremental recurrent costs. There was no mention in the appraisal report of how the recurrent costs of other projects were to be financed.

5.7 The study was overtaken by the financial crisis that developed in 1979, the result, among other factors, of the rise in international interest rates, the decline in Malawi's terms of trade following the second oil price shock, and the burgeoning budget deficit, caused mostly by a large increase in civil service salaries in 1978. The MOA's Planning Division, still understaffed, was too fully employed in coping with budget cuts for 1980/81 and 1981/82 and the preparation of NRDP III to be able to devote adequate time to long-term studies. It did, however, prepare a five-year forecast which it sent to the Ministry of Finance for the Bank's consideration. This was not forwarded because the MOF wanted a similar exercise completed by other ministries first. In the end the Bank never received the report and the NRDP Review Mission of late 1981 carried out the work instead; and ADMARC's profits were never transferred to the Government budget, indeed tobacco prices collapsed in 1979 and ADMARC's profits collapsed with them.

5.8 The whole issue of recurrent cost financing then also got caught up in the start of the SAL process (the first SAL was appraised in mid 1980). The budgetary crisis had meant that MOA was unable to meet its on-going recurrent cost obligations which had been increasing rapidly under the combined effect of civil service salary increases and the transfer of a number of projects from the development to the revenue account.29/

5.9 In addition, under NRDP I, the Government had agreed with IDA that, in order to reduce the impact of a sudden transfer of operating costs to the revenue budget at the time external financing finished, it would transfer an increasing share of the operating cost to the revenue account during project implementation. The MOA was unable to meet most of these obligations and, as part of the first SAL, the Ministry of Finance was required to transfer sufficient funds to MOA to enable it to do so. The PPAR on SAL I comments that this very specific condition was made without a careful analysis of the budget and in the eyes of Malawi officials "was no more than a safeguard devised by Bank agricultural projects staff to ensure the full counterpart funding of on-going Bank financed project activity".30/

5.10 Concurrently with this, the NRDP Review was studying the recurrent cost problem. It concluded that the likely deficits in the MOA's revenue budget for the period up till 1985/86 for existing projects were dramatic (e.g. a deficit rising to about 50% of the likely availability in 1985/86, just for NRDP) but that recurrent cost implications for later years for future projects were "not nearly so problematic". It made some suggestions about possible minor changes for on-going projects but had no real solution. Looking to the longer term it had suggestions for the design of future projects: e.g. cutting down the farmer: extension worker ratio; lengthening project life; reducing construction standards; transferring operating costs to the revenue account during implementation. It concluded that the phasing of future NRDP projects need not be affected by the present recurrent cost problems of existing projects "provided these problems are dealt with now and proper measures are taken in future to ensure a smooth transfer of operating costs from development to revenue account during the project period or an establishment of operating costs on revenue account from the beginning" (para 2.64).

5.11 The Review was able to come to this conclusion because its basic philosophy had already accepted the premise that the returns to NRDP were

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29/ Under Malawi's budgetary system most projects are financed by external donors and the majority of project costs, including most operating costs, are on the Ministry of Finance's development account. As external assistance is phased out the projects operating costs are transferred to the revenue account and financed entirely from local sources.

30/ Report No. 6833 of June 12 1987, para 29.

acceptable" and that "with sufficient access by smallholders to technical advice and to credit for purchasing inputs, with timely input delivery and access to markets for crops, and given proper incentives to smallholders, agricultural productivity and farmers' incomes would be significantly increased" (para 1.31). Its view of the recurrent cost problem was colored by its conclusion that "the real question for financing existing and future NRDP projects is whether the benefits justify the cost", not whether the cost was affordable; having decided before the Review started that the recurrent costs were justified it concluded that the question of how to pay for them should be addressed by the Government and that this issue was beyond the scope of the Review (para 2.66). It did, however, touch on the possibility that some of ADMARC's profits, or some additional crop taxes, might be used to offset the MOA deficit.

5.12 Throughout this period (mid 1980 to mid 1981) the shape of NRDP III was being discussed between the Bank and MOA. The magnitude of the budgetary crisis made it apparent that funding difficulties, which had hitherto only been apparent on a project by project basis, were a fundamental factor to be taken into account in project design. The issue was raised as to the appropriate mix between infrastructure and operational components, how to cut down the post-project recurrent costs and even whether the Government could afford a project that might end up with a negative cash flow. One step was to eliminate a number of new areas where the Government had proposed to start RDPs. Other than this, however, the concerns about recurrent costs never became reflected in the final design. The project became principally a means of financing the recurrent costs of the on-going Karonga II. The Bank had long accepted the principle of financing recurrent costs during the development phase of a project and, despite the fact that KRDP would have been on-going for ten years at the time the new phase started, there seems to have been no difficulty in continuing to finance recurrent costs for another five years. However, to make this financing of recurrent costs acceptable, a number of new components within Karonga were included, many with their own recurrent cost implications. Thus the on-going macro-economic developments were put on one side in the final design on the argument that "sectoral issues should be kept separate from essentially project ones". The concerns of Central Projects Staff about sustainability were ignored, with the Region arguing that the project could always be scaled back during implementation if the NRDP Review proposed fresh standards. The Review did just this and so, even before the Project became effective, a supervision mission reported that "an issue <u>which was not foreseen at appraisal</u> but has now surfaced is that of extension staff density". Attempts to scale the staffing intensity down failed. This is a clear case where the pressure to lend overcame the resistance of those who argued for delay until future project design could be adequately evaluated.

5.13 Shortages of recurrent funds were a permanent feature of the closing years of NRDP I and the whole of NRDP III. They are reported to have caused major setbacks to the efficient operation of the extension and research activities. They played an important part in the need to extend the Closing Dates of both projects by at least two years.

5.14 The design of NRDP IV was able to incorporate the recommendations of the NRDP Review for cutting costs and the proposed road and health components were excluded and the farmer extension worker ratio reduced. In addition, the recurrent cost problem was believed to have been solved once again. The projections of the 1982 Economic Report showed that, contrary to the findings of the NRDP Review, on-going NRDP projects would have adequate resources for their maintenance as they were transferred to the recurrent budget. Also the second SAL was about to be appraised and this was expected to tackle the problem of budgetary resources both by generating counterpart funds and making the provision of adequate recurrent funds part of the conditionality. So the only proviso that the Project contained about the recurrent budget was that the transfer of staff (salaries) to the recurrent budget would be scheduled over the life of the project to prevent a large transfer at the end.

5.15 The same problems of recurrent budget shortfalls as were being experienced in all the other on-going projects recurred during the implementation of NRDP IV and were almost certainly made worse by the covenant which had required that all staff costs should be transferred to the revenue budget during implementation. The shortfalls were also at least partially responsible for a two year delay in project completion.

5.16 These shortfalls in the revenue budget were not project-related. They were a feature of Malawi in general and MOA in particular at the time. The most recent Bank report on Malawi's public expenditure situation has examined the extent of the problem.31/ It found that the increases in the revenue budget of MOA had not been commensurate with investment levels for at least the past five years. Allocations in the revenue budget in the 1984/85 to 1987/88 period had declined in real terms compared to a 22 percent increase that would have been needed to meet recurrent costs in full. The situation deteriorated further in 1988/89. The prospects for the future were found to be no better, with the likelihood of a continued shortfall unless foreign donors substantially increase their funding of recurrent expenditures. The President's Report on IDA's latest funding for the agricultural sector also stressed the same point about the need for donor assistance for recurrent expenditures "in appreciation of the fact that recurrent expenditures which result in improved technologies and enhanced knowledge of such technologies among farmers are in the nature of development investments".32/ From the point of view of this audit, it is the very projects under audit which have been partly responsible for the large increase in recurrent costs which has occurred and the question which arises is whether this was either inevitable or worthwhile.

31/ Malawi: Public Expenditure Review, Report No. 7281-MAI, April 7, 1990.

32/ Report and Recommendations of the President of the International Development Association...on a Proposed Credit..to the Republic of Malawi for an Agricultural Sector Adjustment Program, Report No. P-5189-MAI, March 6, 1990 (para. 95).

5.17 The impact of the shortage of recurrent budgets is felt even more acutely after the withdrawal of the donor which has been financing the project than during implementation. The transfer of staff to the recurrent budget during implementation makes the impact of the withdrawal worse because it is not the staff salary component (personal emoluments) of the recurrent budget which bears the burden of any shortfall, it is the other recurrent costs, such as those of fuel and vehicle maintenance, of building maintenance, stores, spares, training and general running costs, known as recurrent departmental charges'. The ratio of recurrent departmental charges to personal emoluments (RDC/PE ratio) gives an indication of the relative adequacy of one against the other. Experience indicates that for efficient project operation recurrent departmental charges need to be higher than personal emoluments i.e. a ratio greater than 1.0. The ratio for MOA as a whole was 1.04 in 1985/86, declining to 0.8 in 1987/88. For Karonga ADD, since NRDP III financing ceased, the ratio has been 0.53 in 1988/89 and 0.41 in 1989/90 and an estimated 0.47 for 1900/91, indicating a critical shortfall in funds available for recurrent expenditures. For Lilongwe ADD the ratios were 0.48 and 0.34 in 1988/89 and 1989/90 and an estimated 0.38 in 1990/91. This pattern reflects the transfer of staff costs from NRDP IV financing to the revenue budget and an even more critical shortage of operating funds than in Karonga.

5.18 These shortfalls in recurrent departmental charges are literally crippling to project activity, particularly to staff mobility and the maintenance of all capital assets, in particular vehicles. A study by the Evaluation Unit in LADD found that in former project areas supervisory staff and subject matter specialists could not function and a supervision mission, commenting on the study, felt their employment in such circumstances was a waste of money. In Karonga the audit mission found a similar situation. The staffing situation was relatively satisfactory, with 88% of posts filled. Many of the project vehicles were still on the road, thanks to a UK-financed rehabilitation program. Shortage of operating funds, however, was preventing the staff from doing their work. Typical of the situation, for instance, was one of the three Extension Planning Areas in Chitipa District; the six advisory staff were reduced from having one motorcycle each to having one for all six, and that one motorcycle had to cover an area of more than 500 square kilometers. Most of their supervision was thus confined to areas within walking distance. Another example of the effect of recurrent fund shortages was that training was suffering badly. At the Meru Residential Training Center, built under the project and still fully staffed (except for one less cook and waiter), the number of farmers courses had fallen from 13 per year under the project to two per year since; training for project staff was down from about 2-300 per year to 82 per year. The animal health program had also almost come to a halt for lack of funds to buy acaricides for the dips built under the project. The dips could not be used regularly, as they should be to control pests, but only when acaricides was available; lack of funds to repair the project pump meant the dips could not he emptied between seasons.

5.19 This situation clearly indicates that the shortage of operating funds is severely reducing the impact of the projects under audit now that project funding has ceased. As the Public Expenditure Review points out this is not confined only to these projects and it is not primarily a problem of maintenance and materials expenditures.33/ The number of extension workers per hectare of arable land is already very low by African standards, so it is not that the personal emoluments part of the revenue budget is very high. It is a problem of an overall squeeze on funds for total recurrent expenditures. Yet expenditures from the revenue budget are being reduced at the cost of the efficiency of the systems that have been established. The main solution of the Review is for donors to fund recurrent expenditures.

5.20 The question thus arises, why did the Bank stop funding recurrent expenditures through area-based projects in Malawi? The Bank helped the Government to establish a National Rural Development Program in 1978 with the objective of covering the whole country with RDPs over a 20-year period. There was at least an implicit commitment to funding the Program as it had been funding Lilongwe and Karonga for three or four phases. Yet within five years the Bank stopped funding fresh RDPs,34/ and the RDPs it had financed, with the exception of Lilongwe and Karonga, were all passed over to the revenue budget within five or six years, knowing fairly certainly that the revenue budget was too small to allow them to be adequately financed. There seem to be two reasons for this apparent abandonment of a policy on which it had embarked with the Government with such evident enthusiasm. The first is that as the result of better policy analysis the Bank realized that the other obstacles to the effective operation of the RDPs could not be tackled within the confines of an area-based project. They required another approach. The second is the unforeseen financial crisis which overtook events and which pre-empted much of the available financing for SAL-based lending.

5.21 The new approach was a series of structural projects tackling those problems which could not be satisfactorily dealt with under area-based lending; fertilizer supply (1983), research (1985), extension and planning (1985), credit (1987) and marketing (1988). The last financing in the sector was the Agricultural Sector Adjustment Program Credit which contained nothing for NRDP. No support to area-based projects is anticipated in the coming years although some of the lending is planned to provide support on a time-slice basis to research, extension and credit and this may be of some help in covering future recurrent expenditure. To some extent the SAL-based lending may be helping to

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33/ Shortage of operating expenditures is not confined to the agricultural sector either. It is a financial issue affecting all Malawian government services - indeed almost all governments in Africa.

34/ The Bank did help appraise projects in four other RDPs that were funded by IFAD between 1981 and 1985. The Bank had also planned to finance another area-based project in Mzuzu ADD, (NRDP V) but during appraisal it was decided to switch the emphasis of the project to the provision of more specific support to the extension system and it was renamed Agricultural Extension and Planning Support Project (Cr. 1626).

finance the revenue budget of MOA through the generation of counterpart funds.35/

5.22 The reluctance of the Bank to provide further direct support for the RDPs which it has financed in the past may also arise from the fact that the past projects have already financed most of the infrastructure which was needed on an immediate basis in the RDP and that future projects would largely be confined to financing recurrent costs. The logic of this is hard to follow. The Bank was prepared to finance Lilongwe and Karonga for 15 years, yet it is cutting off more recently adopted RDPs after only five years. If the Bank were to follow the logic of its own arguments, ("recurrent expenditures which result in improved technologies and enhanced knowledge of such technologies among farmers are in the nature of development investment") and also to follow its own suggestion to other donors to finance recurrent cost, then it could help to salvage some of its past investments by continuing to finance these RDPs. The problem which its present policy is causing is that, by the time it has solved all the national and sectoral problems needed to make the extension service effective, the extension service itself will have become run down for lack of an operating budget.

VI. ISSUES AND LESSONS

Issues

The Evolution from Integrated Area to Policy-based Lending

6.1 The length of time covered by the projects under audit makes it possible to analyze the evolution of the Bank's lending strategy in Malawi from its beginning in 1968. The start was the Lilongwe and Shire rural development projects. The successful implementation of these and their successive phases led the Bank to the conclusion that it had found a project design that was suited to Malawian conditions; and one which could be extended to other parts of the country with some modifications to take into account financial and human resource constraints. The outcome was NRDP. During the five years which it took from the time the idea was first proposed till the first NRDP project was approved the Bank continued to finance the old-style IRDPs.

35/ The Region argues that, once all RDPs were covered by donor support, far from deserting NRDP it was logical for the Bank to proceed to support the various component services of NRDP through specific National Service Projects. The new Agricultural Services Project, in the pipeline, continues to provide support to NRDP, indeed is really NRDP VI; and the provision of operating funds for the National Extension and Planning Support Project has been of prime importance during preparation, including a review of staffing levels. The allocation of proceeds under that project has also been amended to increase the proportion useable for operating costs.

6.2 The actual modifications that were made to the IRDP design were cosmetic. The first NRDP projects were as costly in financial and human resource terms as their predecessors. It was not until NRDP IV that the proportion of infrastructure financing was reduced and the farmer:extension worker ratio was reduced to a level which was regarded as realistic in terms of likely staff availability. At the same time every analysis of the recurrent costs of financing such a level of extension showed that it was not sustainable with Malawi's own resources. No analysis was ever made of what a financially sustainable NRDP would look like or whether the farmer:extension worker ratio was a meaningful criterion. The Bank must therefore take a major share of the responsibility for the present difficulties of MOA in trying to find enough resources to operate and maintain the present structure which has been set up under the IRDPs and NRDP.

6.3 The Bank never made any explicit commitment to go on financing NRDP, but implicit in the early documents relating to NRDP is the understanding, that the Bank would continue to support it financially during, the 15-20 time period which was agreed it would require.

6.4 The Bank stopped financing area-based projects when it realized that they were not achieving the anticipated results in increased agricultural production. The principal reason that the anticipated results were not being achieved was the lack of packages of yield increasing technology <u>that were acceptable to other than a small proportion of farmers</u>. It is extraordinary with hindsight to see how long it took the Bank to appreciate the significance of the low rate of uptake of the packages that were being promoted. Part of this stemmed from the fact that project impact was initially being measured by comparing crop yields of 'adopters' with those of 'non-adopters', where there <u>was</u> a significant difference, and also by the 'scheme' approach of farmer groups, with those not joining the groups not being part of the project. It thus looked as if the project were leading to large and widespread increases in yield whereas in reality the increases are confined to a small proportion of the farm population. Another part of the reason for the Bank failing to appreciate what was happening was the evident shortages of improved seed and fertilizer. This appeared to be preventing farmers from adopting the recommended packages. Most of the reason, however, must have been unwillingness to believe that farmers could not want to adopt such an obvious route to increasing their production as growing hybrid maize. Eventually the work of the evaluation staff showed that only farmers with enough land to produce a surplus above their own food requirements were adopting the recommended packages; and there were not many of them.

6.5 Another compelling factor behind the abandonment of the area-based NRDP approach was the realization that there was a whole range of other factors which were directly reducing the success of the area-based projects which could not be put right through area-based financing. The first of these was fertilizer supply. Problems at the national level were affecting fertilizer supply at the project level. This was a significant matter nationally; by 1981/82 NRDP I areas were providing two-thirds of all maize bought by ADMARC. From this emerged the 1983 fertilizer project. The second was the research project of 1985 which was to produce packages of improved practices which farmers would want to adopt. Again this was not something that could be tackled within the confines of an area-based project. The third problem which it was felt should be tackled through a national project was extension and planning. It seemed more important to consolidate and improve the cost-effectiveness of the existing extension structure than to expand it. This was approved in 1985. The fourth national project was for credit, designed to consolidate the multiplying number of area-based credit schemes into a national smallholder credit system. The area-based approach had become too big and needed to be centrally managed to allow flexible use of resources. This was approved in 1988.

6.6 The existence of a parallel series of SAL projects also allowed a number of other policy-based problems that were identified as obstacles to NRDP to be tackled after 1981. These included: (i) setting up a system for crop pricing that would keep prices in line with export/import parity levels in order to provide farmers with appropriate price signals; (ii) increasing the amount of funding from the Ministry of Finance to MOA's revenue budget; (iii) introducing an element of competition in crop marketing by allowing the private sector to compete with ADMARC for certain crops.

6.7 The final evolution has been into sectoral lending through an Agricultural Sector Adjustment Program credit.

6.8 The abandonment of the concept of integrated rural development has not, in the audit's view, the result of a faulty design concept. At the time it was introduced it met the felt need of a country where the basic rural infrastructure was almost totally lacking. It seemed as important to provide this as to increase agricultural production. The administrative structure did not exist within the Government to handle it separately. The synergism argument may have been overdone but it was nevertheless administratively very convenient to combine rural infrastructure with agricultural development in a single package. As the administrative capacity to handle infrastructure development grew, so the case for synergism was undermined. By the time NRDP IV was appraised the case for including infrastructure within an agricultural project had almost disappeared. The transition to functional projects was therefore a natural progression.

6.9 The issue that remains unsolved at the end is how Malawi is to continue to afford the scale of agricultural administration which has emerged at the end of this long process without continued reliance on external financing. In the long run the only answer seems to be to impose a tax on non-food crop marketings. For all the disincentive effects this might have it seems fair that, since the only beneficiaries of the extension system are those with a marketable surplus, they should pay for it. If this reduces foreign exchange earnings the loss to Malawi may well be less than the increase in external debt that would otherwise be needed. The tax should not be imposed on food crops as this would raise food prices for farm families who cannot produce their subsistence needs.

6.10 In the shorter term external donors will have to be prepared to finance recurrent costs. Since the Bank agrees that recurrent costs are in the nature of development expenditures, provided they "result in improved technologies and enhanced knowledge of such technologies among farmers" (i.e. research and extension) then it should be considering a sector loan directed towards supporting the extension system it has helped to set up, otherwise by the time new and improved packages are available and all the other sectors issues are sorted out, there will not be an effective extension system still in place.

Nature of Beneficiaries

6.11 It also took the Bank a surprisingly long time to become concerned that virtually all the directly production-increasing benefits were concentrated on the small group of farm families who cultivated enough land to produce a surplus above their own subsistence requirements. For all the Bank was saying about rural poverty at the time NRDP was conceived, NRDP has never really benefitted those below the poverty line in Malawi. Other than some very general statements in appraisal reports about project beneficiaries being in the target group, there was no analysis of the needs of those who could not produce enough to feed themselves. It is only quite recently that this has become a matter of urgent debate.

6.12 The knowledge that the projects were only reaching the better-off, credit-worthy farmers had become apparent in the early evaluation work of LLDP. The immediate reaction to this in the subsequent projects appears to have been to lower the expectations about the proportion of farmers who would benefit. It was only when the Bank tried to broaden the coverage of the extension service, away from its almost total concentration on Farmer Clubs, and reach out to smaller farm families, that there is any indication that the Bank appreciated the significance of its failure to help the below-subsistence families. This approach only began with the Extension and Planning Support Project, prepared after the projects under audit had started to be implemented.

6.13 The important issue, from the point of view of the audit, is why it took so long for the Bank to realize that its projects were not doing anything to solve the problems of the below-subsistence farm families. The answer seems to be that it was not until after the start of the SAL process, with the much more searching analytical work on the agricultural sector that it induced, that the Bank realized that their problems were different to the problems of the larger farmers. The apparent success of Malawi in maintaining self-sufficiency in maize production had concealed the underlying gap between consumption and need of this group. This led the Bank to put the emphasis on increasing production for the market not for home consumption; and in SAL I the promotion of smallholder export crops, not maize, was the priority in order to raise foreign exchange earnings.

6.14 The scale of the problem is enormous, as the following figures show. About 55 per cent of smallholders cultivate less than 1.0 hectare and cannot produce enough to feed themselves; and about half of the 31 per cent who cultivate between 1-2 hectares are unable to produce a surplus above subsistence needs. Thus only about 30 per cent of farm families are capable with existing technologies of producing a surplus. Only a proportion of these have benefitted from NRDP. The major shortcoming of NRDP has been its inability to offer an acceptable improved technology to the second layer of farmers, those with enough land to produce a surplus, and thus be credit-worthy, if they could raise the productivity of their farming systems. This is partly a matter of the unacceptability of the improved technology on offer and partly of the exclusiveness of the Farmer Clubs and their perfectly rational unwillingness to accept non credit-worthy members. The problem of improving the lot of the bottom 50 per cent of farm families is something which is greater than merely improving the productivity of the farming system.

6.15 The pricing and marketing reforms introduced under the SALs have similarly been of little relevance in production decisions for those farm families who do not market any of their production. Pricing reforms that have raised the price of maize in fact make 70 per cent of the farming population worse off because they depend on the market for part of their consumption needs. A recent study in Lilongwe, for instance, estimated that 75 per cent of farm families would run out of food stocks by December 1990, four months before the next harvest and that by the time of harvest over 90 per cent would have run out.36/

Lessons

Cash Inputs in Subsistence Farming

6.16 The experience of these projects highlights the difficulties of promoting the use of purchased inputs in an economy where the majority of farm families do not produce even enough to meet their own subsistence needs and where there are few other income-earning opportunities. Even if they were willing to take the risk involved in using purchased inputs, most farm families do not have the cash to buy inputs or to repay a loan if they got them on credit. Thus the use of purchased inputs has been confined to the top 20 per cent who are capable of producing a surplus. What the projects failed to do was to bring into the cash economy the second layer of farm families, those with enough land who would be capable of earning a surplus if they could raise the level of productivity of their farming system. The Farmer Club credit system tended to keep out the marginally credit-worthy might have been able to do so. The unsuitability of the hybrid maize varieties for subsistence purposes compounded the problem. The significance of the pilot burley tobacco component in NRDP III lay in establishing its suitability as an alternative means of raising a surplus but until 1990 smallholders were prohibited from cultivating it. Ways of broadening the impact of NRDP are still being sought so far this remains an intractable problem.

36/ Lilongwe ADD, Evaluation Section "Food Security", July 1990.

Land Registration

6.17 The land registration program in Lilongwe did not arise from any deeply felt local need for a different system of land tenure. It was an externally perceived concept of a necessary condition for the development of a commercial farming system. The lack of any apparent impact throws doubt on the validity of the concept and indicates that attempts to 'modernize' systems of land tenure need to be based on a more thorough understanding of the existing system.

Soil Conservation

6.18 The lack of maintenance of the soil conservation works that were constructed in Lilongwe indicates that the local population did not perceive that they were of enough benefit to their farming operations to be worth the organizational problems of maintaining them. The lesson here is that successful soil conservation requires the active involvement of the local farming population in solving problems they perceive as critical to their well-being. The lack of impact of soil conservation components in subsequent projects is also attributable in part to lack of local participation.

Ex-Post Economic Rates of Return

6.19 The description in Annex 1 of the repeated efforts to calculate ex post ERRs on the basis of inadequate data and misleading assumptions about the future, and the bewildering changes in the results with each subsequent recalculation, indicates the inadequacy of this measure as a guide to subsequent action. The estimators of ERRs always appear to be straining to be optimistic. As a result the Bank was persuaded into accepting the IRDPs as an economic success for far too long, even though it was generally agreed that they were not meeting the expected production levels. It is clear from the documentation on file that the Bank wanted to believe them a success so it could go on financing subsequent phases. This may well have been the most appropriate course of action but it was not one that could be justified by the evidence of past performance.

Output Pricing

6.20 From the time the Bank realized that crop prices were having an unexpectedly large impact on project production levels, it spent a considerable effort in trying to persuade the Government to review prices jointly in order to get them 'right'. It eventually succeeded in getting the Government to set up a functioning price review mechanism under SAL. The experience with this system since it was introduced provides two lessons. The first is that changes in prices have not produced any measurable aggregate production response; they have merely induced farmers to alter their crop mix. The second is that, unless the Government and the Bank agree on the objectives of the price review, the crop mix which results may not be the one the Bank anticipated. In Malawi's case the Bank wanted the price signals to induce farmers to increase the production of crops for export. The Government was more interested in food security and it fixed prices to induce farmers to increase production of maize; which they did.37/

Coordination with Non-project Institutions

6.21 The Bank's experience in trying to obtain the cooperation of ADMARC in the input supply and crop marketing components of the projects provides an object lesson in the difficulty of using an outside agency which is not in full agreement with project objectives.

6.22 ADMARC's role in providing fertilizer and other purchased inputs was in line with its statutory responsibilities. Difficulties arose, however, when fertilizers were in short supply nationally. ADMARC naturally tended to favor those areas where distribution was easiest and cheapest. Karonga was the most remote area in Malawi and thus tended to come low down on ADMARC's priority list. Consequently much of the extension effort in creating a demand for fertilizer went unfilled. Even in more favorably situated project areas, projects did not necessarily receive preferential treatment. Thus fertilizer supply became one of the project bottlenecks. Unlike in many other countries the Bank did not finance fertilizer imports. It would perhaps have been better if it had done so under these projects. It did so later under the fertilizer project, but this did not give priority to the Bank-financed NRDP projects and they continued to face fertilizer shortages.

6.23 Continual difficulty was experienced in getting ADMARC to construct the supply and marketing depots which the projects called for. As ADMARC was not a party to any of the agreements, and only answerable to the Government, increasingly strong attempts in each project to make it comply came to naught. To some extent this may have been a justified tactic on ADMARC's part as most of anticipated incremental production never materialized. It also reflected the differing objectives of ADMARC and the Bank. ADMARC's objective was to extract a surplus from marketing smallholder crops in order to invest it in the estate sector. The Bank's objective was to increase ADMARC's investment in the smallholder sector. The Bank took a long while to realize its objectives diverged from those of ADMARC. It was only with SAL II, when the role of the private sector in crop marketing was encouraged, that the Bank was able to get around ADMARC's monopsony marketing role. Curiously enough the Bank then proceeded to reverse its position by requiring ADMARC to close some of its markets where the throughput did not justify the costs.

37/ Failure to maintain the maize/export crop ratio subsequently led to a switch back again to export crops. More recent concern again about food security has led to further large price increases for maize.

PROJECT PERFORMANCE AUDIT

MALAWI

ANNEX I

ECONOMIC RATE OF RETURN CALCULATIONS

1. The Lilongwe Land Development Program has probably been the subject of more impact studies than almost any other Bank projects and yet even in 1990 there is still controversy over what impact the projects actually had. This annex reviews the series of attempts that have been made, ex ante and ex post, to calculate the economic rates of return (ERRs) for the various phases of this program and for the Karonga program as well.

2. By the time the first Lilongwe project was appraised, the Bank had been using rate of return calculations under various different terminologies for some years, nevertheless the calculation of the ERR for Lilongwe in particular, and IRDPs in general, was particularly critical for reasons explained by Lele:

> "Because there are no easy objective criteria by which to judge such accomplishments as the training of manpower or the development of administrative abilities, investment in these integrated programs tends to be judged primarily by the criterion of an acceptable internal rate of return, calculated on the basis of quantifiable production targets. These targets.....do not take into account some of the crucial complementarities in realizing production objectives - namely the supply of trained manpower to administer an input delivery system, the effectiveness of administrative procedures, or the existence of other physical infrastructure such as roads to facilitate the movement of inputs. Thus, the larger the proportion of expenditure in a given project on these latter type of components, the greater appears to be the need for ambitious production targets to carry the burden of these indirectly productive activities.....This may necessitate setting ambitious production targets in the short run, introducing a contradiction in the project design from the very outset, for such targets may distract the attention of the project authorities from acquiring and training competent indigenous staff, from evolving; administrative procedures that will last long past the stage of donor financing, and from developing effective working relations with the normal administrative structure."1/

The Lilongwe Calculations

3. The original phase I appraisal report of Lilongwe (January 1968) estimated the ERR on the first phase alone, in case it was not extended to the full 13

1/ The Design of Rural Development, op. cit., page 129.

years envisaged, at 9 per cent; and on the full 13-year program at 13 per cent. The PPAR of this phase (May 1975), in trying to calculate the ex post ERR, admitted defeat. "It is not possible to make a sound reassessment at this stage of the projected economic return to the project." Four factors contributed to this conclusion: (i) price uncertainty: the price of maize had risen far faster than the general level of prices but this seemed unlikely to last; (ii) data uncertainty: area estimates, yield estimates and crop shares were each subject to a plus or minus error of at least 10 per cent and together the combined error was estimated at about 40 per cent, compounded when calculations were based on what was actually happening with what could have happened without it; (iii) inaccurate baseline data: pre-project figures were too unreliable to justify any conclusions about what had happened during implementation (a particular problem as the project gradually developed one unit area after another and each unit was at a different stage in the process); (iv) attribution problems: it seemed that yields were growing as rapidly outside the project as within, so it was impossible to assess how much of the growth inside the project area was the result of the project. It concluded: 'no convincing evidence is available from Phase I either to repudiate or to confirm the economic validity of the investment undertaken.' It then went on to point to the many non-quantifiable benefits that were apparent.

4. The PCR for Phase II (May 1977) did not attempt to calculate an ERR either, while the PPAR on the basis of some very hypothetical assumptions, calculated the combined ERR of Phases I and II at 8 per cent. Its conclusion was that "though there is a basis for confidence that the LLDP is moving in the right direction, not enough is known to say how and why". It considered the project to be successful "but more so with respect to the changes and innovations introduced to the farmers and on Government policies and services than with respect to the original productivity objectives".

5. Just over a year later the appraisal report for NRDP I, which funded the consolidation phase of Lilongwe, speculated further about the ERR of Phases I through III. It thought the yield assumptions used in the last PPAR were too optimistic and, after saying the appraisal mission was reluctant to quote a 'definitive' figure, it estimated the ERR on all three phases at minus 2 per cent. It again returned to same problems that earlier attempts to recalculate the ERR had found. The methodology for the evaluation of incremental benefits was flawed. It had used as a baseline the yields of 'undeveloped' areas and compared them with the yields of 'developed' units, even though there was general agreement that the 'undeveloped' areas had also been benefitting from the general development that was going on around them. Thus the incremental benefit from the 'developed' units was underestimated and the benefit from the undeveloped areas escaped the analysis altogether. In addition the appraisal report claimed that yields would have declined without the project (although this was not the experience of other areas where there was no project). Despite these doubts, the ERR for the consolidation (fourth) phase alone, treating the costs of the other three phases as sunk costs, was estimated in the appraisal report at 68 per cent. This high figure is scarcely surprising since the project was largely financing recurrent costs. The ERR for all four phases together was estimated at 12 per cent.

6. The next recalculation of the Lilongwe ERR was in the PCR of Phase III (April 1981) just over two years after the appraisal report of NRDP I. This report made no attempt to calculate the ex post ERR of Phase III in isolation from the earlier phases. It recalculated the benefits over the whole program from 1968 both for a 20-year and a 30-year project life. The ERRs came out respectively at 24 and 25 per cent. The assumptions made seemed reasonable at the time. The results tended also to bear out the calculations of NRDP I benefits that showed dark-fired tobacco was becoming a more important source of project benefit than maize, even though it was only grown on around 10 per cent of the project area, compared with over 80 per cent of the area grown to maize. (Unfortunately I do not have the relevant pages of the PCR - Annex VIIIc - so I cannot comment in more detail but it would be useful to follow up this point about tobacco). The PPAR accepted these figures without comment.

7. The PCR on NRDP I, which included the final phase of Lilongwe, also found it impossible to recalculate the ERR due to serious data limitations although it said it was clear that results were substantially below expectations. For Lilongwe it speculated that the ERR was probably in the range of 5-10 per cent (presumably for the fourth phase only) although this does not take into account the fact that the incremental maize production had come at the expense of a reduction in 'other crops', the total crop area remaining unchanged.

8. Although the present audit mission did not attempt to recalculate the ERR yet again, it was clear that the projections used to arrive at any of the ERR figures have turned out to be incorrect. In the first place the level of extension service support has not been maintained at project levels once external funding ceased. Secondly, the tobacco area, the main source of benefits assumed in the PCR, which had been forecast to be 27,400 hectare in 1989/90, was actually only 7,300 hectare and tobacco yields were lower than those assumed for the without project situation. On the other hand average maize yields in the late 1980s did seem to be higher than in the early project years. This was not, however, due to increased areas of hybrid maize but to fertilizers on local maize.

<u>The Karonga Calculations</u>

9. The ERR calculations for Karonga I depended upon the successful expansion of rice production. The appraisal report forecast an expansion of just over 5,000 tons over the project life. The PCR calculated the actual increase at 4,800 tons. This figure was arrived at by taking the rice area brought under the project 'schemes', assuming that without the schemes only 50 per cent of this area was cropped and attributing the increase to the project, plus a small increase in yields in the scheme areas over the non-scheme. This implied an increase in the rice area of 2,860 hectare. All the evidence indicates that no such increase occurred, though it is impossible to check it because total area figures were not presented in the PCR or the appraisal report. All the calculations were based on incremental scheme areas. A good indication, however, is given by farmer sales of rice to ADMARC. These had been increasing steadily over the late 1960s and in the last pre-project year had reached 5,600 tons. In the four project years used in the PCR to calculate the ERR they averaged 6,600 tons, an increase of only 1,000 tons. There was no sign of any increasing trend in sales during these four years as there would have been if rice area and

production had been growing in the way the PCR assumed, particularly since the producer price for rice offered by ADMARC was attractive and increased by over one-third during the project period.

10. The 6 per cent ERR that resulted from these calculations seems greatly inflated. One project component, that for irrigated rice, suffered a very large cost overrun, and the PCR calculated that without this component the ERR would have been 33 per cent, leading to the conclusion that the project had a very high rate of return and that it was "also of considerable value to the economy". This conclusion is dependent on the rice price that it is appropriate to use. Very shortly after this PCR was written a Bank agricultural sector mission wrote that "the expansion of rice production involves a net loss to the economy, as ADMARC's prices have implied subsidies of 50-90 per cent. If producers in Karonga were given the actual farmgate equivalent export parity price, they would not produce rice."2/

11. So was the Karonga Project of value to the economy or not? The PCR stated that the crop prices were the actual import and export parity prices for each individual year on the basis of figures supplied by ADMARC and IBRD. These were not quoted but they can be found in the next PCR (of Phase II). For rice in 1976/77 the economic farm gate price according to ADMARC was MK170 per ton, equivalent to about MK110 per ton of paddy, or just about ADMARC's farm producer price. The Bank mission calculated the export parity price for paddy for that year in Karonga at MK11 or one-tenth the ADMARC producer price. At this price the project would never have been approved by the Bank in the first place. Even the PCR agrees that ADMARC was making a loss in exporting rice at its own so-called export parity price and the clearly stated objective of the project was to produce rice for export.

12. The appraisal report for Phase II calculated that the ERR for the part of the project related to Karonga/Chitipa would be 14 per cent if the cost of those components that could not be quantified, (research, health, evaluation and livestock, about one-third of costs) were excluded from the calculation. The PCR prepared by the Government recalculated the ERR ex post using the same assumptions about costs and arrived at an ERR of 33 per cent. After review by the Bank commenting on the contradictory nature of the data on crop areas and yields, and in addition requesting that actual export/import parity prices be used in the analysis not those projected at appraisal, the ERR was reduced to 14 per cent. This apparently satisfactory result still concealed the fact that the calculation was subject to a very high margin of error for the same reasons as pointed out in the case of Lilongwe: (i) the accuracy of the data base was admitted to be low and different sources of data gave different results; this was compounded by uncritical acceptance of clearly implausible data (e.g. a rice production increase of 120 per cent between 1979/80 and 1980/81 compared with an actual decline in ADMARC rice purchases); (ii) even within the PCR there are different figures for the incremental maize area in Chitipa (much of the confusion appears to result from the use of the scheme versus non-scheme

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2/ Malawi - The Development of the Agricultural Sector, Report No. 3459-MAI, May 1981, quoted in Malawi - Growth and Structural Change: A Basic Economic Report, Report No. 3082-MAI of February 8, 1982, page 71.

methodology of calculating incremental area and production); (iii) the same attribution problem as in Lilongwe, crediting to the project production increases that were the result of price policy. For instance, in the Highlights of the PCR, commenting on the favorable 14 per cent ERR, was the following statement: "This success compares very favorably to other Rural Development Projects in East Africa having similar design. The critical factor was probably the relatively favorable agricultural policy environment in Malawi, particularly price policy for rice and maize." Thee main determinant of the ERR was in fact the price of rice since the expected benefits from maize did not materialize so that in the ex post calculation of the ERR three-quarters of crop benefits came from rice.3/

13. In the PCR for Phase III the earlier methodology of comparing, scheme and non-scheme production to arrive at the incremental production resulting from the project was abandoned. The result of this was that every change in crop production that occurred during the project life was attributed to the project regardless of causality. For instance the production impact of the 68 per cent increase in maize price in 1981/82 was all counted towards project benefits. Two PCRs were prepared for Phase II, one by the Government and another by staff of the FAO/World Bank Cooperative Program for the Bank. In the PCR prepared by the Government the ERR was calculated on the crop components only, the data on the livestock and forestry components being reportedly inadequate to include in the analysis. It was calculated at 24 per cent. In the PCR prepared for the Bank the ERR, again for the crop components only, was calculated at -0.1 per cent, "as a result of heavy front-end investment costs and shortfalls in production targets". The ERR in the appraisal report had been 19 per cent. Both calculations were based on the same production statistics except that the PCR prepared for the Bank included actual figures for one more year.

14. Neither PCR mentions what costs were included in the analysis but imply that it was only the crop-related ones. It seems clear that if two reports prepared on the same set of basic data can come up with such different results the reliability of either ERR is at least questionable. In the Borrower's review of the PCR prepared for the Bank the only comment on this difference is that the inclusion of the extra year's actual production could be misleading because it was a drought stricken season.

15. A closer look at the basic assumptions made in calculating the ERR in both reports indicates that neither calculation takes into account the available data. The PCR prepared for the Bank cautions that this ERR is "indicative only because the unexplained sharp increase in production in the first year of the project, particularly of maize, would appear to indicate that the without project area and production figures in the appraisal report were materially underestimated." In fact both calculations used the appraisal report without project baseline figures (which were underestimated) without looking at the actual production figures for

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3/ The export parity price of rice was no longer a significant issue by the late 1980s. ADMARC purchases of rice in Karonga fell steadily during the decade reaching a low of 2,200 tons in 1987/88 and national rice exports also dwindled to less than 700 tons annually between 1983 and 1987.

the pre-project situation, which had not been available at the time the appraisal report was written. Had they used the much more recent figures available from the Project Evaluation Unit the results would have been quite different. For instance the PCR for Phase II (with figures derived from the Evaluation Unit) shows that the 'with project' (i . e. the Phase III pre-project) maize production in Karonga District averaged over 6,330 tons from 1977/78 to 1980/81, while the appraisal report uses a figure of 2,880 tons as the baseline production. No figures are available for 1981/82 (KRDP's data base only starts from 1982/83) but the first year's estimate of maize production in Karonga District for Phase III in both PCRs is a seemingly reasonable 7,984 tons (particularly in view of the producer price rise) giving an increment of 5,104 tons over the appraisal estimate but only about 1,750 tons over the actual average production of the preceding years. The lower figure seems more plausible. Similar discrepancies exist in the other crop increments assumed. Adjusting the figures to take account of a more realistic baseline would make the ERR substantially negative.

PROJECT PERFORMANCE AUDIT

MALAWI

ANNEX II

PRODUCTION AND YIELD DATA

1. This annex brings together the available data on crop production and yields in the Lilongwe Land Development Program area, the Karonga Rural Development Program area and the NRDP IV areas from the time of the start of project implementation until the present. Although the data come from different sources and are subject to a considerable margin of error, it is believed that a 15-20 year picture of production and yields will show the general trend of what has happened without having to be precise about the exactness of a particular reading in a particular year.

Lilongwe Data

2. The production of the three main crops in the LLDP area, from the time the area was fully covered by the Program, shows that there have been big increases in maize production with large fluctuations in the production of groundnuts and tobacco.

LILONGWE RURAL DEVELOPMENT PROGRAM AREA

Agricultural Production of Major Crops 1977/78 to 1988/89
(000 tons)

	Maize	Groundnuts
1977/78	158.8	8.3
1978/79	186.8	16.6
1979/80	204.4	20.3
1980/81	246.5	2.2
1981/82	202.5	17.3
1982/83	301.8	16.3
1983/84	293.4	16.8
1984/85	226.9	30.9
1985/86	203.0	42.5
1986/87	180.9	22.2
1987/88	251.0	20.6
1988/89	307.5	5.6

Sources: 1977/78 and 1978/79 PCR Phase III, Page 106
1979/80 to 1980/81 PCR on NRDP I page 25
1981/82 to 1988/89 LADD Evaluation Office

3. The major jump in maize production between 1981/82 and 1982/83 was the result of a large increase in the producer price paid by ADMARC. It was achieved by a switch from 'other crops' to maize (PCR NRDP I page 25).

4. Yield data for maize and groundnuts shows that there has been no consistent increase in the yields of either crop over the past 20 years. All the increases in production in the above table are the result of increases in crop area and not yields. The following table presents the yield data.

LILONGWE RURAL DEVELOPMENT PROGRAM AREA

Maize and Groundnut Yields (Kilograms/hectare)

Year	Maize	G'nut	Year	Maize	G'nut
1969/70	1146	616	1979/80	1328	238
1970/71	1322	582	1980/81	1362	190
1971/72	1515	458	1981/82	1326	215
1972/73	1232	351	1982/83	1434	275
1973/74	1107	420	1983/84	1518	275
1974/75	1340	549	1984/85	1463	1189
1975/76	1350	427	1985/86	2070	1044
1976/77	1180	372	1986/87	1912	474
1977/78	1206	283	1987/88	1873	538
1978/79	1540	531	1988/89	1660	259

Source 1969/70 to 1978/79 PCR of LRDP III Table 5.5
1979/80 to 1982/83 PCR of NRDP I Annex 1
1983/84 to 1988/89 LADD Evaluation Office
I find the 1984/5 and 5/6 g'nut readings unbelievable - check

5. A statistical analysis of these figures shows that the average annual change in maize yields is +2.2 per cent for the full 20 year period, or 1.1 per cent for the period ending 1984/85. The figures for the final four years appear implausibly high. The latter growth figure is not statistically different from zero. For groundnuts the trend rate of change is -2.6 per cent for the 20 year period.

Karonga Data

6. An analysis of the Karonga Program on these lines shows a similar pattern. The total production figures for the whole Karonga Program are shown in the table below. As they are again from different sources they may not be strictly comparable but they show the overall pattern clearly. The figures for rice begin in 1971/72, the year before the Phase I project started, while for maize and groundnuts they begin in 1976/77, the year when Chitipa District was added to the project area.

KARONGA RURAL DEVELOPMENT PROGRAM AREA

Agricultural Production of Major Crops 1971/72 to 1988/89
(000 Tons)

Year	Rice	Maize	Groundnuts	Cotton
Pre-Project				
1971/72	5.7			
Phase I				
1972/73	6.3			0.2
1973/74	7.5			0.4
1974/75	5.3			0.3
1975/76	9.1			0.3
Phase II				
1976/77	7.3	13.0	0.2	0.5
1977/78	9.4	20.0	0.2	1.0
1978/79	13.5	19.9	0.2	0.6
1979/80	12.0	19.9	0.3	0.6
1980/81	n.a.	17.7	0.1	n.a.
1981/82	17.1	n.a.	n.a.	n.a.
Phase III				
1982/83	7.9	16.5	n.a.	n.a.
1983/84	12.9	16.5	1.2	0.5
1984/85	11.4	26.0	1.1	0.9
1985/86	8.4	17.1	0.6	1.2
1986/87	10.7	14.1	0.9	1.2
1987/88	10.5	16.1	1.1	0.7
Post Project				
1988/89	13.6	19.7	0.9	1.8

Sources: 1971/72 to 1975/76 PPAR of Phase I page 17
1976/77 to 1980/81 PCR Phase II Table 8
1981/82 to 1988/89 KADD records.

7. The picture that emerges from these figures is (i) a steady increase of rice production from the start of implementation of Phase I until the end of Phase II followed by a levelling off during Phase III; (ii) no clear trend in maize production; (iii) no apparent increase in groundnut production until the early eighties then a widely fluctuating level from year to year and (iv) a slow increase in cotton from a very low base as this was a new crop for the area.

8. The extent to which yield increases have been responsible for the production increases can be seen from the following yield figures for rice groundnuts and maize. The groundnut and maize yield figures are shown separately for Karonga District and Chitipa District. The rice yields are for Karonga District only.

KARONGA RURAL DEVELOPMENT PROGRAM AREA

Yields of Rice, Groundnuts and Maize (kilograms/hectare)

	Karonga District			Chitipa District	
	Rice	G'nuts	Maize	G'nuts	Maize
1974/75	1456	392	952		
1975/76	2352	280	1064		
1976/77	1774	395	1131	251	1265
1977/78	1037	360	1947	526	2398
1978/79	2669	346	1153	530	1734
1979/80	2266	365	1158	465	1836
1980/81	3037	362	1105	346	1937
1981/82	2843	710	1160	409	1800
1982/83	2267	628	1031	564	1198
1983/84	2217	453	967	606	926
1984/85	2306	427	1138	487	1449
1985/86	2288	660	1344	387	1640
1986/87	2040	508	1297	353	1449
1987/88	3030	480	1234	185	1322
1988/89	2854	386	1089	397	1346

Source: 1974/75 to 1975/76 PCR of Phase I Table 8 Non-scheme area
1976/77 to 1980/81 PCR of Phase II Table 7
1981/82 to 1988/89 KADD Records

9. A statistical analysis of the yield figures shows that only rice has a statistically significant yield increase, of 2.8 per cent per annum. The maize yield trends are negative for both Karonga District (-1.3 per cent) and Chitipa District (-3.0 per cent). These are not, however, statistically significant.

NRDP IV Area Data

10. A very similar result is also found in NRDP IV with its two sub-project areas, Lilongwe North-East (LNE) and Dedza Hills (DH). In both sub-project areas maize was the main crop, accounting for 63 per cent of expected benefits at full development in LNE and 90 per cent in DH. In LNE tobacco was the other important crop, accounting for just over 30 per cent of expected benefits. Groundnuts, which had not been an important crop before the project, grew rapidly in both sub-project areas in response to favorable prices during implementation. The following table shows the trend of crop production during the project life.

NATIONAL RURAL DEVELOPMENT PROJECT IV

Agricultural Production of Major Crops 1982/83 to 1989/90
(000 tons)

	Lilongwe North-East			Dedza Hills	
Year	Maize	Gr'nut	Tobacco	Maize	Gr'nut
Pre-Project					
1982/83	44.5	0.2	0.4	35.2	0.1
Project					
1983/84	65.9	0.3	0.8	29.0	.1
1984/85	53.7	3.0	.9	63.3	0.8
1985/86	85.4	7.7	1.0	36.7	1.1
1986/87	63.2	6.3	0.6	40.2	1.9
1987/88	91.1	6.6	1.0	38.9	2.0
1988/89	76.3	2.5	0.9	37.6	0.8
1989/90	54.9	0.9	1.1	a.a.	n.a.

Source: LADD Evaluation Office and Progress Reports
The DH figures for 1989/90 are available but not with me.

11. The table shows that maize production in LNE grew rapidly during project implementation. This was, however, the result of increased area not higher yields and owes little to the project. The production of tobacco grew rapidly in the early years but further increases were blocked by quota problems (Is this correct?). The increase in groundnuts was considerable up to 1987/88. The reduction in the last two years was the result of drought in 1988/89, with a knock-on effect reducing seed availability in 1989/90. In DH there was no consistent trend in maize production.

12. The data on crop yields are presented in the table below.

NATIONAL RURAL DEVELOPMENT PROJECT IV

Yields of Maize and Groundnuts (kilograms/hectare)

	Lilongwe North-East		Dedza Hills	
	Maize	Groundnuts.	Maize	Groundnuts
1982/83	1349	270	1023	317
1983/84	1666	170	1267	234
1984/85	1319	500	1633	500
1985/86	1742	550	862	450
1986/87	1421	450	926	400
1987/88	1673	400	892	400
1988/89	1463	200	836	180
1989/90	964	250	n.a.	n.a.

Source: LADD Evaluation Office and Progress Reports

These figures show once again than there is no apparent impact of the project on crop yields, which are much more influenced by seasonal factors such as rainfall than by increased fertilizer use or improved varieties.

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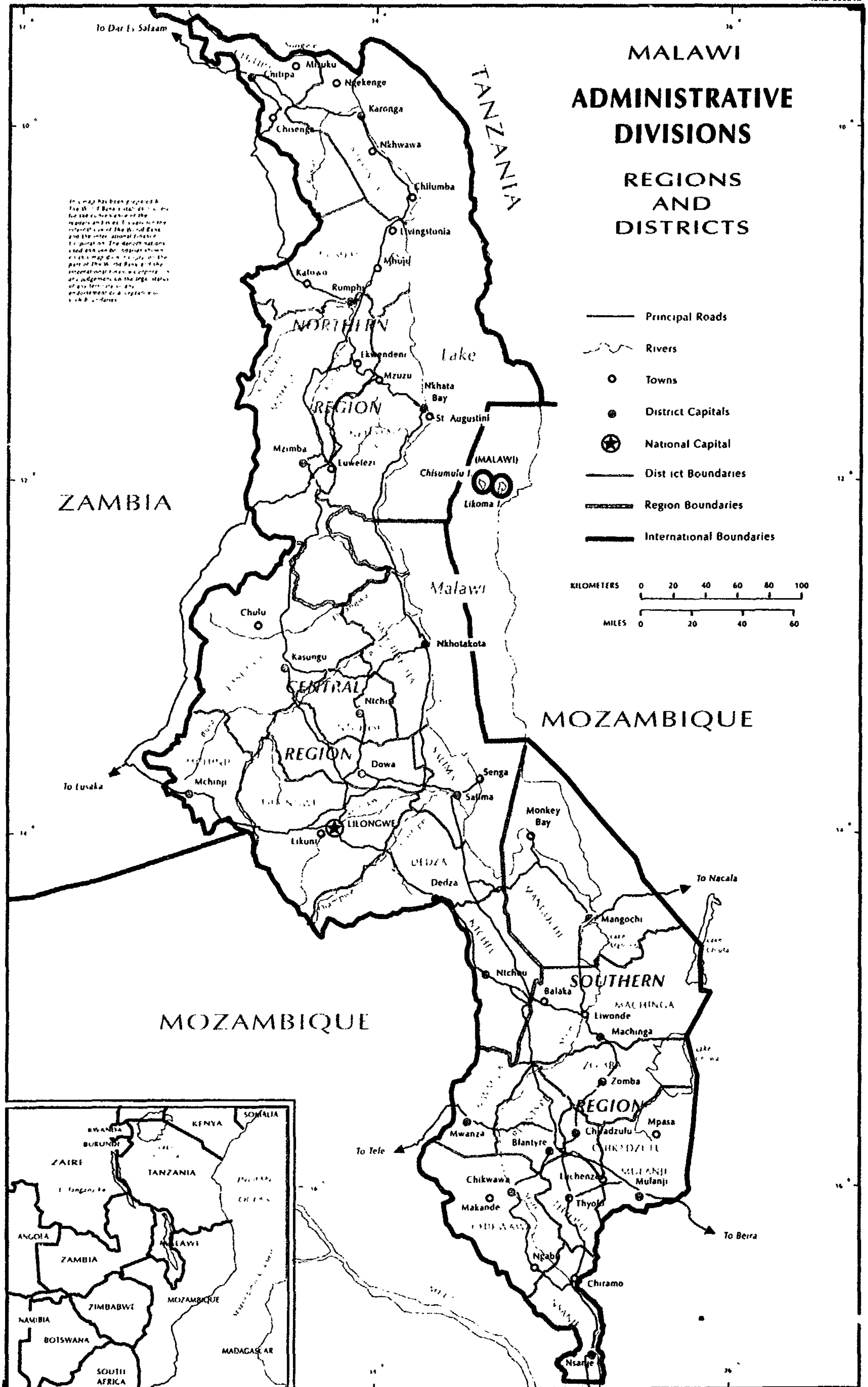

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