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Project Performance Audit Report

MALAWI LILONGWE LAND DEVELOPMENT PROGRAM
PHASE II

(Credit 244-MAI)

May 17, 1977

Operations Evaluation Department

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PREFACE

Credit 244-MAI for US$7.25 million was signed in May 1971. It was the second in an ongoing series of three IDA credits helping to finance the Lilongwe Land Development Program (LLDP). The first IDA credit (US$6.0 million) was signed in February 1968. A third credit (US$8.5 million) was signed in May 1975. A performance audit report (PPAR) on the first project was issued to the Board in October 1975 (No. 751).

LLDP started to attract widespread Bank interest in 1972 when it was included as a case study in the Africa Rural Development Study, managed by the Development Economics Department. The report of the case study was released late in 1974, and was followed within 12 months by the audit of the first project, by a follow-up evaluation for the case study, by a separate report prepared by the Development Economics Department questioning some of the findings of the earlier three reports, and, finally, by a project completion mission staffed by the Regional Office. A monitoring and evaluation capability was developed within LLDP in 1969, making this one of the few programs in the Bank's portfolio with several years of monitoring experience and explaining some of the interest in LLDP.

In terms of lessons for the Bank, this is one of the more important of the smallholder projects in its portfolio. Nevertheless, the intensity of recent reporting, including issue of a PPA on the first project little more than a year ago, persuades OED not to mount another full audit at this time. Also, the controversial topics will not be clarified until more years of farm performance have elapsed. The project completion report (PCR) for the second project, which forms the bulk of this performance audit report, brings the most important issues in LLDP up to early 1976, when the PCR was finalized. The audit of the third project will be the occasion for another in-depth review by OED.

The short audit memorandum was based on a review of the three appraisal reports, the earlier ex-post evaluative reports, correspondence touching upon those reports, separate studies of two other Malawian special rural development activities implemented at Shire Valley and Salima in the same period as Lilongwe, and the PCR. A two-day visit to Lilongwe in March 1976 provided an opportunity to discuss with Government and LLDP staff the draft audit report. The PCR is judged in the light of the other material and comments received to present a good discussion of the project. The audit memorandum focuses on four subjects which follow from the substantial body of literature. The assistance of Project staff, farmers, and Government officials who provided data and responded so readily to questioning of the PCR and audit missions is gratefully acknowledged.

Basic Data Sheet

MALAWI LILONGWE LAND DEVELOPMENT PROGRAM
PHASE II (Credit 244-MAI)

A. Amounts (in US$ million)

	Original	Disbursed	Cancelled	Repaid	Outstanding
Credit 244-MAI	7.25	7.25	0	0)	7.41
Exchange Adjustment		0.16		)	

B. Project Data

	Original Plan	Revision	Actual
First Mention	(Repeater Project)		
Government Application	" "		
Board Approval			5/04/71
Credit Agreement			5/13/71
Credit Effectiveness	9/ /71		8/18/71
Physical Completion	12/31/75		12/31/75
Percentage of Original Project Actually Completed			100% ±
Loan Closing Date	3/31/76		3/31/76
Total Costs	US$8.59		US$8.63
Economic Rate of Return	13% 1/		8 % 2/

C. Mission Data

	Sent by	Month Year	No. of Persons	No. of Weeks	Man-Weeks	Date of Report
Appraisal	Bank		5			April 16, 1971
Supervision IV 3/	Bank	June 1971	2	3	5	July 26, 1971
" V	"	January 1972	1	1.5	1.5	February 22, 1972
" VI	?	August 1972	?			
" VII	RMEA	March 1973	3	1	3	May 8, 1973
" VIII	"	October 1973	3	2	5	November 14, 1973
(Appraisal III	Bank	May-June 1974	3			February 28, 1975)
Supervision IX	RMEA	July 1974	1	1	1	August 12, 1974
" X	"	January 1975	2	1	2	February 28, 1975
Completion	Bank	September 1975	1	2.5	2.5	February 24, 1976
Supervision XI 4/	RMEA	February 1976	3	3	4	March 8, 1976

1/ The appraisal rate of return estimate of 13% included Phases I and II. The rate for Phase I alone was estimated then at 11%. No separate estimate was given for Phase II.

2/ This is the mid-point of the range within which OED believes the final estimate is likely to fall. The figure refers to Phase I and II combined. See PPAM para. 9. The PCR does not recompute the rate. The PPA for Phase I did not either.

3/ Supervision Mission numbers pick up the series started in Phase I.

4/ Supervision of Phase III starts.

Rate of Exchange Floating: in 1971 Mk 1 = US$1.3, in 1975 Mk 1 = US$1.1.

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HIGHLIGHTS

The audit reviews progress during the second of three phases of the Lilongwe Land Development Program (LLDP), the oldest of Government's four major area development schemes. Beginning with preparation in 1966, the Bank has been closely involved in the Program and has now committed a total of US$22 million in three separate credits. The Program, one of the first "integrated" rural development schemes, is more complex than most because the construction of physical infrastructure and delivery of fertilizer/seed packages was preceded by land survey and registration and other tenure reform. Phase II consolidates progress in the phase 1 area and extends LLDP activities to an area of about equal size. When phase III, begun in 1975, is completed in 1978, LLDP will cover almost one million smallholder acres and over 109,000 families.

The Program through phase II is considered to be successful, but more so with respect to changes and innovations introduced to the farmers and in Government policies and services than with respect to the original productivity objectives. The Bank, which for three years has been looking closely at this experience for lessons of relevance to other integrated programs, has shown concern for the lag in the rate of farmer adoption of the high yielding crop packages, the leading edge of the Program according to the appraisal report. That concern has generated fruitful discussion of the costs and benefits of yield measurements and of the role of LLDP's special Evaluation Section.

The following points may be of particular interest:

- The impressive evidence of progress and its interpretation (paras. 5-9 and PCR paras. 3.06-3.10)

- Changes in crop yields and their limitations as indicators (paras. 6-7 and PCR paras. 3.02-3.04)

- Major efforts in extension and other forms of farmer training (PCR paras. 2.07-2.10)

- Controls over credit repayments and the near absence of delinquency (PCR paras. 2.11-2.14)

- Impact of price changes on fertilizer use (PCR para. 2.15)

- Delays in recruitment, promotion and localization (PCR para. 2.21)

- Efforts to improve the project evaluation system (PCR paras. 2.22-2.24)

Project Performance Audit Memorandum

MALAWI LILONGWE LAND DEVELOPMENT PROGRAM
PHASE II

(Credit 244-MAI)

1. The Lilongwe Land Development Program (LLDP) grew out of a pilot exercise begun in 1965 with British aid. Discussion with the Bank started at the same time. The first project was prepared the next year by ADS staff connected to the Permanent Mission in Eastern Africa, and appraised, along with the proposed Shire Valley agricultural development project, in 1967. The Government was at the same time finalizing plans for a third "integrated" agricultural development project at Salima, with German aid. The three projects were to be run by separate units under a new office - the Agricultural Development Branch - in the Ministry of Agriculture and Natural Resources (MANR). (A fourth project, partly financed by the Bank, was started at Karonga five years later.) A credit agreement for US$6.0 million (Cr. 113-MAI) was signed in February 1968; the credit was closed, fully disbursed ahead of schedule, in August 1972 (Project Performance Audit Report No. 751, dated 5/23/75).

2. The second phase, the subject of this Report, was appraised in 1970 as a direct sequel of the first phase. This phasing had been anticipated in the original plan, but the area covered by LLDP was to increase even more than in that initial design. The most important innovation of the second phase was to introduce livestock activities - a state ranch and facilities for smallholder fattening of feeder stock from the ranch - to what had previously been an exclusive crop orientation. An agreement for a credit of US$7.25 million was signed in May 1971, became effective in August of that year, and was closed, fully disbursed, on schedule in March 1976.

3. That five-year implementation period was intercepted by several studies organized in the Bank outside of the Regional Office. LLDP's importance is partly explained by the fact that it included since its inception many elements of "integrated" rural development activity. It involved Bank staff in planning for integrated activity long before the latter became fashionable; it is the oldest program of the type in the Bank's portfolio; and it offers for review eight years of implementation experience. Its interest to the Bank is also explained by its Evaluation Unit, a small section, said to be understaffed at the supervisory level, which has unexpectedly found itself in the spotlight of the international development community with a reputation as being one of the most important experiments to date in farm level monitoring and evaluation (the work of the Unit is discussed in PCR paragraphs 2.22-2.24). The several studies of LLDP have provoked debate over the meaning and significance of the

collected field data, some of which has never been analyzed, so that LLDP is at once one of the best known and one of the more controversial among the Bank's rural development projects.

4. The Program will ultimately cover about one million acres of the plateau west of Lilongwe town, now the capital of Malawi. The area is the breadbasket of the country with an estimated population of 109,000 farm families. The dominant objective of LLDP has been to increase yields and production of smallholder maize and groundnuts, on expanding acreage, while increasing yields and maintaining production levels for tobacco on a reduced cropped area. The leading edge of the crop program, as discussed in all three appraisal reports, has been the maize package, a mix of a (then) new "Askari" synthetic variety, fertilizer, credit and effective extension. The maize package distinguishes Lilongwe from Shire Valley and Salima, lowland areas where the programs emphasized cotton and where maize played a much less important role. All three areas were rainfed, but conditions in the Lilongwe area are superior to the other two and the Lilongwe smallholders include the most progressive in the country. The economic rate of return to projects I and II strung together was estimated at appraisal in 1971 at 13%.

5. LLDP is much more than a maize fertilizer program. It includes the construction of approximately 40 unit centers, rural road improvements, conservation works, investments in health posts and boreholes (water for domestic purposes), organized extension, organized input delivery and crop purchasing systems, etc., all as described in the PCR. Although in the area as a whole the yield performance of the three crops has been variable and generally well below expectations, and although the volume of fertilizer sales on credit has fallen short of targets (especially, but not only, because of the increase in the price of these chemicals in 1974), the improvement of husbandry practices and yields on adopting farms and the creation of new physical infrastructure are apparent to observers. Moreover, the program projects an image of prosperity and vigor (see PCR paragraph 3.07).

6. OED will add four comments to the discussion of the PCR. The first is that LLDP's image of success is related less to signs of progress toward original crop and rate of return objectives than to other desirable improvements - increased farm consumption, new shops and other rural non-farm investments, experience in the administration of rural programs, training of Malawians for service on other schemes, etc. - which, although implicit as long-term goals, were not spelled out in this appraisal. It was the means to those ends which were specified in the first appraisal, and these targets were unambiguous; to intensify farm

practices in order "to raise the yields of food crops, especially maize and groundnuts".1/ The infrastructure was to be strengthened in order to ensure the widespread adoption of the food crop packages. This concept is echoed in the appraisal report of the second project. Except for the beef fattening activity, all rates of return analyses for the second project are tied to quantified estimates of yield increases on the average farm within the project boundary; all supplementary expenditures are justified in terms of the support they bring to the food crop production and marketing systems.

7. Early data suggested that yields of adopting farmers had been lagging, but Government believes now that those farmers are catching up to the forecasts. Nevertheless apparently only about half the farmers expected to adopt the high yielding packages have done so thus far, and average yields in the area therefore fall considerably short of projections.2/ The reliability and significance of the yield and adoption data have both been challenged, partly because of the high incidence of home consumption and smuggling. But the point is that LLDP cannot yet be called a success by appraisal standards on the basis of existing evidence, and the Region does not consider it so.

1/ Appraisal Report, January 3, 1968, page 2:

> "A new Agricultural Development Branch has been established within the Department of Agriculture to assume responsibility for major agricultural development schemes in Malawi. The Government's agricultural development policy is concentrated on improving the production of the main existing smallholder crops. Two major development schemes are being launched to increase the yields of cotton, the main export crop. The rapid growth of population and the imminent threat of localized domestic food shortages, however, require greatly intensified efforts to raise the yields of food crops, especially maize and groundnuts, which are most economically grown in the Central Plains near Lilongwe, the commercial hub of the populous Central Region.
>
> Past experience, based on successful pilot schemes, indicates that intensification is best supported by an integrated package program, on a scale which is large enough to be effective but still manageable. Such a program would consist of soil conservation measures; improvements in the rural infrastructure; cultivation of remaining unused land; an intensive extension and credit effort concentrated in a well-defined geographic area in order to accelerate the use of modern inputs; and land reorganization and registration of holdings, which would provide farmers with recognizable units of land and thus promote long-term farm improvements and sustain the results achieved in the short run."

2/ The PCR's updated yield estimates (PCR para. 3.02) are below those given in the last Bank evaluation of Lilongwe (June 1975), which, in turn, were higher than and used to challenge those of two earlier reports (September 1974 and May 1975). Substantial yield shortfalls are reported also in the Shire Valley and Salima projects, especially for the maize components. The PPA for Shire Valley I (No. 895) says there was no progress at all in maize productivity.

8. Emphasis has been given in some other Bank reports, however, to the broader benefits of LLDP, postponing an assessment of husbandry improvements for several years when the effects of the erratic rainfall pattern of the early 1970s will have less influence on the averages[1] and when the adopter/non-adopter ratio will have stabilized. Also, it is argued that since the costs of securing accurate and meaningful yield estimates are high, LLDP and the Bank may have to settle for proxy indicators or for the other signs of increased economic activity and smallholder prosperity. This view was pressed on OED at MANR, which said it was prepared to accept yields lower than appraisal estimates (provided other program spinoffs remained high) and, therefore, was reluctant to exhaust the funds of evaluation units chasing after elusive yield estimates.[2] OED sees a danger, however, in bypassing the husbandry standards of appraisal. It is possible to be fooled by the physical appearance of input and market systems which are developed to support new crop technologies. Program monies can buy those roadside appearances. If the underlying technical transformation of the farm enterprise is not successful, either the one predicted in the appraisal reports or a substitute, those appearances cannot be maintained without continuing subsidy from outside the food crop economy.

9. To date, one still must accept the conclusion of the audit of the first project that no convincing evidence is yet available to repudiate or to confirm the economic viability of the investment undertaken. MANR says the same thing - that none of the information on yields, production and sales adequately measures the output effects of the obvious improvements in crop husbandry. Officials have a gut feeling that there has been an important increase in production due to the project. But it cannot be confirmed. The economic rate of return is not updated in the PCR; the project authority has not recalculated it either. Since the cost schedule

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1/ The early appraisal missions guessed wrong on the incidence of bad weather. The first appraisal report states: "the annual rainfall is reliable, reducing the risks that accompany the use of fertilizer by smallholders in less fortunate areas."

2/ MANR also suggested that the Bank's insistence on improvements in the measurement of yield and other crop variables reflected the Bank's interest in drawing universal lessons from LLDP, an objective which Malawi must consider a luxury and hopes will attract external support. MANR does not intend to ignore the output record. But it would like to discover a methodology which can use the cheaper input measures as a fair and adequate proxy for output. It looks to the Bank for advice on methodology, both to find the surrogate input indicators and to measure the "other" benefits.

was completed roughly on schedule, changes in the rate of return will hinge on shifts in the benefit schedule. If we accept the argument that adopter yields are now on target but that the rate of adoption of the full package is half as fast as expected, and assume therefore that the quantity of incremental crop production is and will continue to be about two thirds the appraisal level, then under these conditions, and holding all other factors constant (and ignoring other benefits), the rate of return for phases I and II combined would fall from the appraisal figure of 13% to about 8%. The latter figure allows for price changes, both for the relative increase of maize prices in Malawi in the years after appraisal, and for smuggling of Lilongwe maize into Zambia and Mozambique, where prices are at least twice as high.

10. The second point is related to the first. It is easily conceivable that a dynamic development process has been generated in the LLDP area, presumably induced by LLDP, but that it is not dependent on the maize and groundnut packages per se. The implications are intriguing. They could mean that the alleged core of the Program, the high yield maize fertilizer package and the extension and credit services that are linked to it, is essentially irrelevant to the growth process that has been observed, or at least that it served as no more than an instrument for bringing available human resources together and for loosening the civil service system sufficiently to bring good talent in the Ministry quickly through the ranks to management positions. In ways that have not yet been explained, the growth process may be attributable to the roads, to the dynamization of extension activities, to the backward and forward influences exerted by the new market facilities, to the jobs and incomes created in the construction period, etc. The new maize and groundnut technologies undoubtedly play some role in the process, but may not form the leading edge except as resource mobilizer. Other packages may have served the same purpose. Credit, or extension, may not be essential to it. The point to be made is that the link between the signs of prosperity and the food crop packages has not been made, and in fact would appear to be weak. That leaves a host of interesting questions to be answered about the mechanism of development in Lilongwe. The PCR hints at another interpretation of the process, that labor and land resources have been freed by the partly successful maize and groundnut packages and it is the uses of those extra resources that is fueling the growth process (paragraph 3.04). Thus, 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.

11. And this suggests a third point to be made. The hard pressed Evaluation Section probably does have a special role to play. It has a data base, especially the collection from three consecutive years of intensive farm sample survey, which will serve as a baseline and early program record

against which new information can be measured at the end of the decade and important growth hypotheses tested. The PCR argues that the Bank and the Government should find a way to capture the important micro detail of the surveys, because they offer a rich resource for subsequent ex post analyses (paragraph 2.24). The audit supports that view. The monitoring work should continue as well.

12. Fourth, and finally, one hopes that the micro detail of the Lilongwe farm studies ultimately will help identify the main factors limiting the rate of adoption and efficacy of the new crop technologies. The forecast yield and benefit schedules presented at appraisal are not unreasonable, at least for maize and groundnuts (the tobacco yield estimates look optimistic). In 1970 the appraisal team reported that research trials in the Lilongwe area with the Askari maize synthetic yielded 7,000 lb/acre, that the average yield in a 1969 maize growing competition was 3,400 lb/acre, and that the average yield for all farmers was 1,100 lb/acre. The team set 1979/80 targets of 3,000 lb/acre for the most progressive half (45%) of the LLDP farmers, and 2,000 lb/acre for all farmers living in the Program area, including non-adopters. Those targets, interpreted as forecasts in the economic analysis, seem acceptable. Nevertheless doubts have been raised by performance during the first half of the 1970s whether those average targets can ever be reached. Similar shortfalls from apparently reasonable food crop yield targets are reported in the majority of smallholder projects in the LDCs, and have yet to be adequately explained.1/

1/ The Program unit stresses the importance of price policies on the rate of adoption; the Bank has picked that up as a major issue and recommended that Government reform its input and crop pricing formulas, both of which now tend to discriminate against the farmer.

Project Completion Report

MALAWI LILONGWE LAND DEVELOPMENT PROGRAM
PHASE II

Note: The PCR was issued in February 1976. Data extends only through the 1974/75 season, and, with the exception of a few added footnotes (marked by an *) which bring pieces of the story up to date, the discussion refers to the period before the date of issuance. Since the credit was closed in March 1976, the PCR effectively covers the disbursement period.

The Appraisal Report was entitled the Lilongwe Agricultural Development Project, Phase II.

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LILONGWE LAND DEVELOPMENT PROGRAM

Phase II

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LILONGWE LAND DEVELOPMENT PROGRAM
PHASE II

I. THE PROGRAM AND PROJECT

1.01 The Lilongwe Land Development Program was conceived to be implemented over 13 years in three phases, starting in 1968. The first phase, partly financed under Credit 113-MAI, was completed in 1972 and performance was reviewed by the Operations Evaluation Department in Report No. 751-MAI dated May 23, 1975. The second phase, the Project under review, covered four years between 1971 and 1975. Investments under the third phase, appraised in May/June 1974 for financing under Cr. 550-MAI, started in August 1975. The Program was initially designed to increase production of major farm crops over 500,000 acres, especially maize and groundnuts to meet rapidly rising domestic demand, and to intensify tobacco production for export. The Program area was later extended to 1.1 million acres and beef, dairy and poultry components were added. The Program was the first of four similar rural development programs operating in Malawi and together covering some 20% of the country's farmers. All take a similar approach of integrating provision of roads, market and administrative centers, water supplies and conservation measures with intensified extension services, credit and input supplies and varying levels of social services. Following recommendations of the Bank's Agricultural Sector Review report of 1973 (235a-MAI), planning of modified programs to cover the remaining areas of the country is now under way.

1.02 The Phase II Project includes construction of crop extraction roads, rainfall diversion channels and boreholes to serve an additional 240,000 acres of the program area divided into 14 units, each with its service center including a produce market and input store and staff housing and offices. It expands the provision of agricultural extension and training services. It continues the management organization established in Phase I and expands provision of inputs for cash or credit. It includes the establishment of a ranch to provide feeder stock for stall fattening by project farmers. Details are given in Annex 1.

1.03 The Project cost was estimated at US$8.6 million of which foreign exchange costs were US$3.35 (or 39%). The Credit of US$7.25 million was to meet 88% of major expenditure items. Retroactive financing for US$105,000 for ranch development was included. The Project became effective on August 18, 1971. It was to have been completed by September 30, 1975. The closing date is March 31, 1976.

II. PROJECT IMPLEMENTATION

2.01 "Phase II" can variously mean an area--a series of units--of the program area in which work was started in the period 1971/72-1974/75, or, alternatively, operations taking place in that period in both the area mainly developed in Phase I and the Phase II area. The meaning is generally clear from the context.

Development Work

2.02 Most physical construction was close to appraisal estimates in total and generally somewhat ahead of schedule in timing. At the start of Phase II land development works covered 286,000 acres compared with some 163 000 acres originally planned. During Phase II, in 1972/73-1974/75, 11 standard "units" totalling 235,000 acres were brought into the Project against 12 units, estimated at 240,000 acres at appraisal. In addition five "modified input areas" totalling 140,000 acres (vs. 116,000 acres at appraisal) were incorporated in the Project, and 161,000 acres of the Dzalaryama Forest Reserve were developed as a ranch, as scheduled (see para 2.05 below). In total these areas cover about 77,000 farm families, 50% ahead of appraisal estimates. The Phase II Project aimed to reach 24,000 new farmers in the Phase II area as well as continue services to 28,000 in the Phase I areas at the intensities planned in Phase I but not achieved.

2.03 Unit offices and staff housing were built in all unit service centers as planned. Input stores have been built in all standard units, but two still lack permanent markets, to be constructed by ADMARC. Road construction exceeded estimates by 10% and 47 bridges were constructed, 24 in Phase I units and 23 in Phase II area. Rainfall diversion ditches were close to anticipation and some 260 miles of artificial waterways were developed in addition. Details are given in Table 1.

Table I: BUILDINGS AND OTHER CONSTRUCTION

	1971/72	1972/73	1973/74	1974/75	Total Phase II	Total to End Phase II
Housing						
Unit Offices	4	5	4	4	17	26
Housing Units	105	101	43	45	294	453
Temporary Housing	90	6	10	-	106	106
Water						
Water Supply	5	4	5	2	16	25
Dips	-	3	2	-	5	5
Roads						
Bridges and Drifts	10	20	12	5	47	109
Road Mileage	240	158	152	50	600	1,233
Conservation						
Diversion Ditches (Miles)	214	378	551	506	1,649	3,690
Waterways (Miles)	88	42	83	50	263	493

2.04 At the time of the appraisal of Phase II, survey under Phase I was behind-hand due to shortages of qualified staff, and although the development program was not held up, land registration has been delayed. The staff situation was rectified by the end of 1971. During Phase II survey of some 376,000 acres was completed, above estimates and ahead of schedule (Table 2), and survey is no longer a bottleneck.

Table 2: SURVEY, LAND REGISTRATION AND FARM DEMARCATION (ACRES)

	1971/72	1972/73	1973/74	1974/75	Total
Project Year:	1	2	3	4	
Survey (Area surveyed up to Farm Registration)					
Appraisal Estimate	75,000	100,000	100,000	100,000	375,000
Actual	117,000	115,000	77,895	66,070	375,965
Registration	-	33,178	21,991	41,324	96,493
Farm Allocation	33,220	93,280	75,500	59,800	261,800

Land allocation and registration only got under way in 1971 and have lagged, while farm demarcation, which was getting ahead of allocation/registration has been held back. In the Phase II period about 262,000 acres were demarcated and 97,000 registered. Given a well-advised policy of not hurrying this process and given the enormous effort needed for this task, this seems, within the guideline of its objectives, creditable. However, land reform does not finish at allocation--people have to take up their allocations and transfer plots--and although there are no data on progress with this, there are reports of slow take-up of allocations.

Dzalanyama Ranch

2.05 The scheduled 161,000 acres of the Dzalanyama Forest Reserve were released to the Project and are being developed as a ranch to provide feeder stock for program farmers. However, the build up of the herd has been restricted by shortage of stock in Malawi and high prices due to this and competition from a number of livestock projects. By the end of Phase II the herd was scheduled to be about 11,000 head: it was, in fact, only slightly over 5,000 (see Table 3)*, and instead of sales to farmers of fatteners of about 2,000 a year the level was about one-third. The fattening component appears to be operating well and is showing a handsome gross profit to farmers (see Annex 2). There is some suggestion, however, that feed (principally maize stalk) would be inadequate for the level of development which was planned: the evaluation unit is to investigate this.

* The herd continued to expand in 1976, though the head count can be misleading because of the success of the programs for selling heifers and steers to smallholders. The March 1977 Supervision Report shows herd size at 92% of appraisal forecasts in December 1976.

2.06 Considerable loss of grazing has taken place through brush fires, apparently particularly prone to enter from the Mozambique border.* The cost of establishing fire breaks would be considerable but from information available could be a viable operation. The wood resources of the ranch area are not being methodically exploited although selective cutting would appear to be beneficial to both forest and grazing, and remain essentially on a protected basis as the area is gazetted forest reserve. A cost/benefit analysis of both fire control measures and full exploitation of the timber resources of the Ranch area would be justified.

Table 3: DZALANYAMA RANCH: STOCKING IN PHASE II

	Oct. 1971	Dec. 1971	Dec. 1972	Dec. 1973	Dec. 1974	Mar. 1975
Cows	172	271	798	1,572	2,000	2,071
Calves	59	107	412	682	1,012	932
Heifers	102	113	124	152	468	490
Steers	225	226	278	500	648	616
Bulls	35	35	48	48	54	51
Weaners	-	-	126	670	653	765
Quarantine	-	-	162	54	82	134
Total	593	752	1,948	3,678	4,917	5,059

Extension Services and Training

2.07 The appraisal report called for expansion of extension coverage to an additional 24,000 farming families for a total of almost 50,000. In fact cover, as defined by the number of farm families within the orbit of unit centers, had reached nearly 78,000 by 1975. The ratio of extension workers to farmers was expected to be 1:200 for the first 2 1/2 years after establishing a unit and 1:400 thereafter, a level which was not, however, achieved in Phase I because of a shortage of trained extension workers. Similar difficulties continued into Phase II and the overall Program ratio was 1:374 in 1975, or 1:348 in the Phase II project area alone if it is assumed that Phase I areas and early Phase II areas each had a 1:400 staffing ratio (Table 4). Given the resource constraints, Government feels that these ratios are quite satisfactory and that the appraisal target was unrealistic.

Table 4: EXTENSION SERVICES
Coverage in Phase II Project

Year	Extension Staff	Phase I Area Families	Phase II Area Families	Total Families	Overall Extension Workers/ Families	Probable Ratio in New Areas a/
1971/72	148	25,300	9,200	34,500	1:233	1:233
1972/73	178	26,100	19,900	46,000	1:257	1:216
1973/74	228	26,800	40,200	67,000	1:294	1:237
1974/75	208	27,600	50,300	77,900	1:374	1:348

a/ An approximation which assumes 1:400 ratio is maintained in areas exposed to extension workers for 2 1/2 years or more.

* These brush fires were brought under better control in 1976.

2.08 Mere numbers do not, of course, make an efficient extension organization; it has to have a well structured line of communication to and from farmers, and have up-to-date and worthwhile advice to transmit. In this, LLDP seems strong; a pyramid structure provides a ladder from the Principal Field Officer, through Senior Field Officers in charge of groups of five units, each headed by a Field Officer supervising two Field Assistants per unit; and staff transportation seems adequate.1/ Impressive monthly farm activity schedules are drawn up and these together with regular briefings on project matters from Project Manager through Divisional and Section heads down to contact staff ensure the pyramid is used. Each farmer should be contacted about four times a year. Random checks during field visits left some doubt whether this level was achieved, whether everyone who should be reached is regularly reached, and whether the information is passed on adequately (producer price information did not appear to reach the village very reliably): but the general impression was an extension service that was enthusiastic, well briefed and active. Effectiveness is harder to judge in a short visit outside the main crop period, and in large part depends on such exogenous factors as producer price levels.

2.09 The cattle dipping program expanded during the Phase from covering nine units to 24 units, and the rather shaky data suggest an increase in the proportion of the herd dipped. Dipping rates vary seasonally, principally because access is limited by crop cultivation, but in 1975 it appears that about 80% of the 48,000 head herd in LLDP was covered. Unfortunately there has been no attempt to measure the effectiveness of the program within LLDP.

2.10 Staff and farmer training programs appear to have continued at the Project Training Center and Nsaru FTC respectively much as anticipated by the appraisal mission. The level of 200-250 days of staff training maintained each year appears satisfactory given the virtual exclusion of training in the main agricultural season, November through March. Courses averaged 5-7 days with 20 resident places filled per course. Farmer training contact increased through the Phase and in 1973/74 (the last year for which figures were complete) there were 94 residential courses over 313 days involving 2,700 students and 7,600 student days: whilst day courses involved over 30,000 students that year. One-third of all resident students, and over a half of day class participants were women. No courses were current during the completion mission, but the interest of training staff supported the impression from the figures that the training program was operating well.

Credit and Input Supply

2.11 Nearly all seasonal inputs used in the Project have been made available on credit in kind. During the Phase II period the number of borrowers rose from under 5,000 to over 25,000 in the peak year 1973/74

1/ And possibly excessive in quality: the proportion of four-wheel drive vehicles in the LLDP fleet may be greater than is justified given the road conditions and probably low cost of delays in operations which the use of standard vehicles would entail.

when the total loan value was K495,000. These were close to appraisal estimates for 1974/75 1/ in which year there was in fact a decline in borrowers but an increase in the amount lent and a doubling of average loan size (Table 5) all caused by the sharp increase in world fertilizer prices that year. In 1973/74 rather under 40% of families covered by the extension services in that year received seasonal credit: but credit was received by 75% of families in units established for at least two years and who were, therefore, most likely to have been appraised for credit-worthiness.

Table 5: SEASONAL CREDIT OPERATIONS

Year	Number of Borrowers	Total Loans (K)	Av. Size (K)	Repayments On Time*	Repayments Later	Borrowers Fully Paid Back On Time	Borrowers Fully Paid Back Later
				%	%	%	%
[1970/71	4,408	83,254	18.90	88.1	99.1/2	n.a.	98/2]
1971/72	19,804	328,663	16.60	78.3	97.2/3	n.a.	87/2
1972/73	21,121	392,403	18.60	74.8	95.6/3	61	n.a.
1973/74	25,396	495,413	19.50	90.8	96.4/3	84	n.a.
1974/75	20,496	735,932	35.90	90.1	-	84	n.a.

2.12 The efficacy of a credit service should be judged by whether the items supplied on credit have the desired effect of securing effective use of new techniques which would otherwise have failed to take on because farmers had a liquidity problem and whether, after a few years of using credit, farmers became independent of it. There is little information on how the credit program has performed on these criteria--yield data have been somewhat controversial (see paras 3.02-3.04) and production with and without credit has not been evaluated while most of the uptake of inputs has been associated with credit issues. Cash sales were only 1% of total value in the first two years but rose to 10% in 1973/74 and 1974/75. There are no data on farmers being weaned from the credit program.

2.13 Typically, repayment rates have been more closely monitored. These have been well above the levels typical of African agricultural credit operations (Table 5), and in the last two years, with over 90% of sums lent recovered by the due date, have been particularly commendable.

1/ According to Annex 5, pp. 1, 3, and 5. At para 6.09 the appraisal report appears to suggest only 14,000 participants by the end of the Phase.

2/ January 1974.

3/ August 1975.

* i.e., by August 31 of borrowing year.

Table Source: Papers provided by LLDP staff.

2.14 Good recovery rates variously reflect profitable input packages made available on credit on the right scale; sound judgment on the selection of borrowers (done in this case largely by the extension service with the help of headmen); a simple recovery mechanism which gives borrowers good opportunity to pay back (and little to avoid it); and the certainty of punitive action for wanton default. In LLDP credit is for suitably sized packages combining inputs of plant nutrients and seed that have proved technically and economically beneficial in tests, and must be presumed sound. Although subject to criticism among LLDP staff, especially concerning failure to stop past defaulters getting loans from neighboring Units, the extension services seem to have been effective at weeding out bad risks. However, the system of rating used does probably tend unnecessarily to exclude some borrowers who could benefit from credit. The collection at markets, immediately after payment, seems fair, efficient and persistent. A K2.00 surcharge added immediately on any default doubtless encourages payment on time, but as this charge never increases a borrower, once a defaulter, does not have any incentive to clear his debt. The coercive element then comes from the traditional courts which are, naturally, not subject to the jurisdiction of the Project. These have failed to keep up with credit default cases during Phase II and in one area at least have set a bad example with all the court officials, themselves defaulters. Mobile recovery teams of LLDP credit and extension staff have operated with some effect in 1975, but it is hoped that the new creation of a special mobile court with adequate capacity to cope with the default flow expeditously, will ease the expense and resource diversion involved in thus maintaining good repayment rates. It has been estimated that for the credit program to be self-supporting a charge of 26% would be needed.1/ At present, most of the field extension staff is involved to some degree in credit collection.

2.15 Seasonal inputs supplied under the Project include fertilizer (CAN, Sulphate of Ammonia, Urea or a 20:20:0 mixture) for maize and tobacco; seed for maize and groundnuts; and sulphur dust for groundnuts. These are provided in packages suitable for one acre application in combinations which reflect extension advice. In 1974/75 there were 17 different packages available: 12 for maize, 3 for groundnuts, and 2 for tobacco; a total of 37,750 were sold, down from 42,600 in 1971/72 when there were nine different packages. Fertilizer use increased markedly over Phase I, but expansion has been checked, probably by a combination of the increase in fertilizer prices and increased interest charges which greatly raise total package price.2/ In 1974/75 fertilizer use was little different from the start of Phase II, enough for about 40,000 acres. Total issues of fertilizer in 1974/75 were only half of those projected, although during the previous three years they were acceptably close to estimates (see Table 6).*

1/ Interest charges which had been 10% on the season were raised to 12-1/2% in 1974/75: this is the equivalent of 15-16.5% a year.
2/ The weighted average cost of a package in 1971/72 was K7.70: in 1974/75 it was K28.20.

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* Fertilizer use rebounded in the next two seasons, following a decline from the high prices of 1974/75. Total tonnage sold increased to an all time high before the end of 1976/77 (on a larger area, however), and is expected to reach appraisal forecasts (Supervision Report of March 1977).

Table 6: FERTILIZER USE
(m tons)

Year	Sold for Cash			Sold on Credit			Total Issue		
	Projected	Actual	Actual / Proj'd %	Projected	Actual	Actual / Proj'd %	Projected	Actual	Actual / Proj'd %
1970/71 (Phase I)	-	83	-	-	794	-	-	877	-
1971/72	1,940	59	3	1,340	3,877	289	3,280	3,936	120
1972/73	2,570	44	2	2,110	3,898	185	4,680	3,942	84
1973/74	3,410	1,050	31	2,880	4,884	170	6,290	5,934	94
1974/75	4,160	499	12	3,580	3,496	98	7,740	3,995	52

Source: LLDP and Annex 5.

2.16 The expected shift to cash purchases has not taken place and even in 1973/74 when total issues were close to projections, under one-third of the expected cash purchases took place. It is interesting to consider how soon a farmer participating in a credit program can be expected to switch to cash purchases. Such change will obviously be delayed if credit is relatively cheap, and the more so if the farmer, a risk averter above all, thinks there is a chance either of avoiding repayment or, in the event that there is a widespread crop failure, a general moratorium on credit repayments.

Costs and Financing

2.17 To August 31, 1975 expenditures under the Project totalled K6,647,712 which, together with contingent liabilities of K130,000 for vehicles still to be delivered and K118,000 against storage constructed by ADMARC and not yet billed, brought costs virtually to the appraisal estimates for Government and IDA financing (farmers' contributions of a further K330,000 were anticipated through the cash purchase of seasonal inputs). Considerable variation took place within the overall total (Table 7). Generally good control seems to have been exercised over expenditure units, but saving also reflects procurement problems: e.g., livestock costs are down because cattle have been harder to obtain than was expected, major savings on expatriate staff reflect recruiting difficulties (which have put a considerable strain on the senior staff in post), and the under-expenditure on local staff in the extension services are also accounted for by a shortage of these key workers. Building costs have tended to exceed estimates although the worst of the world-wide cost escalation was avoided by completion of major investments early in the Project. Savings seem to have been made in vehicle orders without impairing efficiency, due to good management control on their use and an effective maintenance organization.

Table 7: EXPENDITURES RELATED TO ESTIMATES
(K '000)

	Category (DCA, Schedule 1)	Total Credit Allocated	Total Expenditure to 8/31/75	Deviation	Expenditure as % of Allocated
I.	Vehicles, Machinery, Equipment, Fertilizers and Insecticides	1,060.6	130.0 * 553.5	-377.1	64
II.	Livestock	352.3	239.6	-112.6	68
III.	Buildings				
	a) Headquarters & Conservation	167.6	268.8	+101.2	160
	b) Service Centers	333.3	424.1	+ 90.7	127
	c) Ranch	143.9	102.4	- 41.5	71
IV.	Services of Expatriate Staff	834.3	554.1	-280.2	66
V.	Services of Local Staff for:				
	a) Soil Conservation, Planning and Building	352.3	498.7	+146.5	142
	b) Surveys and Land Allocation	206.4	237.7	+ 31.3	115
	c) Extension, Training and Marketing, Service Center Units	1,054.9	703.7	-351.2	67
	d) Ranch	48.3	89.9	+ 41.6	186
	e) Headquarters, Evaluation and Headquarter Credit	281.2	366.5	+ 85.3	130
VI.	Marketing and Storage Facilities of ADMARC	162.9	118.0 * 40.0	- 4.9	97
VII.	Operating and Maintenance Costs	1,467.8	2 568.7	+1,100.9	175
VIII.	Unallocated	399.6	-	-399.6	-
	Total	6,861.5	248.0 * 6.647.7	+ 34.7	100

* Upper figures are commitments.

2.18 The final credit allocations by category are close to the pattern of total expenditures. Disbursements have been remarkably close to appraisal expectation (Table 8), and no major problems with disbursements were reported by project management. There was some complaint at Ministry level on the inflexibility which Bank procurement procedures introduce in a country in which dealerships are limited and stocks held are small. The $25,000 exclusion from ICB was felt to be too low in view of rising prices (this limit was raised to $30,000 in Phase III). Total procurement times for vehicles are currently running at about 18 months including preparation of documents, advertizing time, clearance with RMEA (30 days) and the Central Tender Board, and a 12-month delivery time from placement of orders.

Table 8: SCHEDULE OF DISBURSEMENTS

IDA Fiscal Year and Semester	Accumulated Disbursements at End of Semester (US$ equivalents, '000) Actual	Appraisal Estimates	Actual as % of Estimate
1971/72			
June 30, 1972	120	559	21
1972/73			
December 31, 1972	1,365	1,679	81
June 30, 1973	2,634 *	2,656	99
1973/74			
December 31, 1973	3,445 *	3,489	99
June 30, 1974	4,074 *	4,331	94
1974/75			
December 31, 1973	5,199 *	5,182	100
June 30, 1974	6,289 *	6.005	105
1975/76			
December 31, 1975	7,244 *	6,802	106
March 31, 1976	7,250 *	7,250	100

* With exchange adjustment removed.

Organization and Management

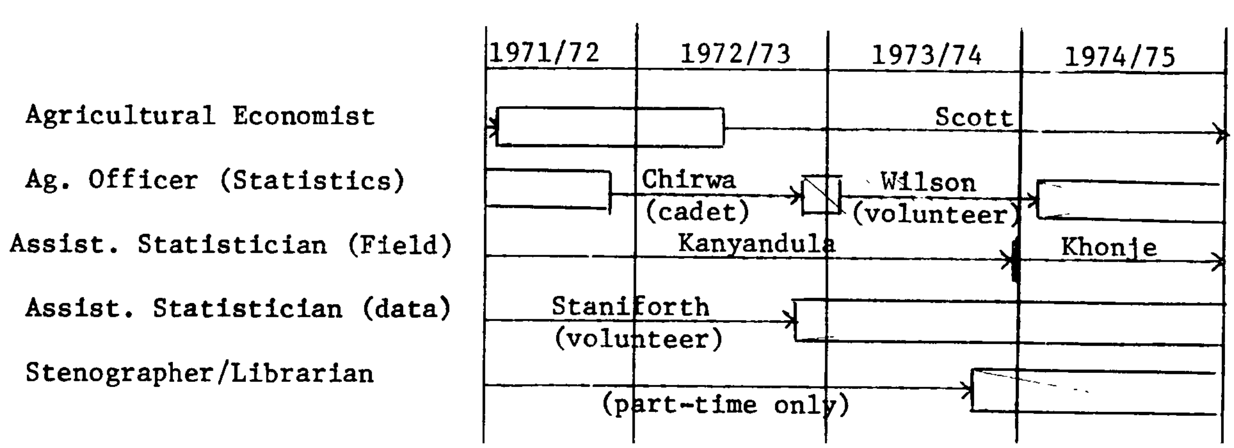
2.19 Changes recommended at appraisal in the organization of the Project were carried through with only minor modifications. The Program Manager was made directly responsible to the Ministry of Agriculture and Natural Resources (MANR) at Deputy Secretary level; a Liaison Committee was created within 12 months of signing of the Project Agreement; a restructuring of management divisions took place; and management trainees recruited. The Liaison Committee, with the Secretary for Agriculture and

Natural Resources in the Chair has been extended to include the Managers of the other rural development projects, has generally met quarterly, and is felt by management to have improved inter-ministry relations. Membership of the Committee is shown in Annex 3.

2.20 Five functional divisions were created in 1973 covering Construction, Finance and Credit, Field Development Services, and Administration and Transport each with a Divisional Head in charge and a fifth division embracing Project evaluation and land allocation under the Program Manager. The organization appears satisfactory except for the inclusion of land allocation under the Program Manager. This has arisen due to Government's failure to recruit a competent person to handle the delicate issue of land allocation and the accident that the PM was previously in charge of land allocation. Although the present Program Manager is extremely hard working, the combined task is too much, a situation aggravated by the show-piece nature of LLDP which involves much of his time in public relations, the shortfall of senior staff in other divisions, and possibly also his personal inclination to play a direct role in most facets of project operations.

2.21 Although there were delays in recruitment the required appointments of principal accountant and senior agricultural credit officer has been made, and three Malawians are in post as management trainees. Staffing problems have been continuous, slow Government procedures particularly affecting senior staff recruitment and replacement, and low salary scales affecting higher and intermediate levels, so that on this subject the appraisal report looks rather optimistic. Some recent improvement was reported, but even so as at August 1975 there were 32 vacancies in senior posts defined as TO and above, or 25% of the establishment; and 45 vacancies (8% of the total) among junior posts. Overall 11% of all posts were not filled. Inadequate promotion opportunities were reported to be affecting morale of lower technical staff (there were recently over 600 applicants for 16 vacancies as senior technical assistants) and although 1-year upgrading courses have been reintroduced, this remains a problem.

2.22 <u>The Evaluation Unit</u>. An area particularly hit by staffing problems has been the Evaluation Unit: a unit which is especially vulnerable to gaps in staffing because of its small size and the need for continuity in its work. Over the Phase II period the staffing position has been:



No one person has been in post throughout the Phase, only one post has been filled continuously, vacancies have existed for some 7 of 20 man years of time. There has been no shortage of enumerators and clerks, but there has been inadequate supervisory and analysis capacity for the 34 enumerators on strength.

2.23 This situation has undoubtedly impaired the performance of the Evaluation Unit, and it has also had other problems. It was set up under Phase I, a year after the Program started, and without clear terms of reference on its activities or mode of operation; received no further guidance (or even mention) from the Phase II mission; and has developed a program without clear priorities which has resulted in substantial collection of data which is either unanalyzed or irrelevant to immediate needs. There was also a feeling within the Unit that although it should be monitoring project progress principally for the Program Manager (with which I agree), most work had been done principally for the Bank. This view did not appear to be well supported, however. In another communication Government indicated its satisfaction with the useful information flowing from the evaluation units of LLDP and the other major programs. It points out that lessons learned in the program areas lead to policy changes which have a salutory effect throughout the country.

2.24 Reflecting concerns expressed by a Bank mission to Malawi in January 1975, and following an initiative taken by the Karonga Evaluation Officer, a Working Party on Evaluation was set up "to examine the role of Project Evaluation Units in Rural Development Projects in Malawi and related topics" and has since reported to MANR. The Report (dated August 1975) makes proposals for the rationalization of data collection in Malawi, discusses ways to bring the various data collection bodies into a common methodological basis, and makes proposals for centralizing enumerator training. The Report makes useful distinctions between different levels of data collection but has little to suggest on methodology. Close attention was also paid to the Evaluation Unit in the recent Project Performance Audit Report of Phase I. 1/ I fully agree with the comments and contentions of that report and do not propose reiterating them here. I would only add three comments:

a) that Lilongwe is a prime example of the need for the Bank to clarify its views on the data requirements, collection and analysis methodologies, organization, and work programs required of evaluation units and find a way of building these requirements into all projects which embrace an evaluation component. The need for terms of reference for evaluation units to be written into project reports has support in Malawi, this being a recommendation of the Working Party;

b) it is by no means clear that the activities of the Evaluation Unit should be limited to collection of data on acreages and yields as "the Bank" is alleged to have suggested to the Agricultural Economist in charge; and

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1/ Report No. 751-MAI dated May 23, 1975.

c) that if the Planning Unit of the Ministry of Agriculture and Natural Resources is unable to do the work, a way should be found to provide funds for the analysis by an outside body of a 3-year farm management survey of 120 households which is in danger of being lost if no action is taken.

Legal Covenants

2.25 The covenants appear to have been adhered to.

III. PROJECT IMPACT

3.01 Probably more has been written about the impact of LLDP since its inception than any other Bank project. The following is largely to supplement rather than repeat the detailed conclusions of others.

Crop Yields

3.02 Insofar as LLDP is involved in intensification of production, yields per acre become a key indicator of project impact. Yields have been measured for maize and groundnut production and are shown, for developed and undeveloped areas and with averages compared with appraisal projections, in Table 9. Considerable year-to-year fluctuations are apparent and generally yields have been behind projections through Phase II.

Table 9: ANNUAL MAIZE AND GROUNDNUT YIELDS
(lbs/acre) 1/

Crop	1969/70	1970/71	1971/72	1972/73	1973/74	1974/75
Groundnuts						
Developed Areas	522	490	431	323	427	495
Undeveloped Areas	588	540	397	306	389	497
Total Sample	550	520	409	313	410	496
Projected Yield:						
Phase I	531	541	552	563	574	585
Phase II 2/	575	590	605	620	635	650
Maize						
Developed Areas	1,072	1,299	1,845	1,143	1,236	1,356
Undeveloped Areas	1,010	1,152	1,115	1,008	988	882
Total Sample	1,023	1,180	1,351	1,100	1,141	1,265
Projected Yield: 2/	1,263	1,322	1,384	1,449	1,517	1,587

1/ *i.e.*, lbs shelled maize and groundnuts.
2/ Implied progression from appraisal reports. See also Phase I Audit Report, Table I.

3.03 Examining the causes of these fluctuations, Anderson 1/ found that groundnut yields were set back for three years by rosette, whilst after an encouraging start to Phase II, maize was set back by high fertilizer prices. Poor rains in 1972/73 affected both crops. Anderson concludes:

> "Even with these set backs, however, yields are higher than before the program, higher in the developed areas, and higher than what would have been achieved without the program. The reasons are that husbandry has improved remarkably--the improvements have also spread widely to the undeveloped areas--and, until recently, maize farmers were moving to the high yield seed-fertilizer packages. The response of the farmers to the program has been enormous; hopefully the problems now occurring with fertilizer and crop prices will not be allowed to undermine the response."

3.04 Although observation, and also data on input supply (Table 6) lend support to this summary, the yield data in fact provide only weak corroboration. Some of the optimism in Anderson's report is the result of high initial estimates for groundnut yields for 1974/75 (672 ± 75 vs. 495 lbs/acre finally recorded after his report was issued) which lead him to expect a stronger recovery than appears to have occurred. In fact the actual yields in 1974/75 barely recovered to the levels of the last year of Phase I and were below the base-line of 575 lbs/acre which, on rather slight evidence, was the level revised from (an implied) 550 lbs/acre in Phase I. Maize yields to 1973/74 were also 25% behind the appraisal estimate: the 1974/75 data show a good increase.* Tobacco yields, expected to rise from 200 lbs/acre to 500 lbs/acre were 419 and 269 lbs/acre respectively in 1973 and 1974.2/ The tendency for average yield projections to be over optimistic in project appraisals appears to have applied in LLDP Phase II, but 5 years is too short a time-span for this to be conclusive, and for this reason, as well as the problems of field measurement, yields are not a totally satisfactory monitoring index. Moreover, even if per acre yields of one crop do remain static this does not necessarily mean that inputs are having no effect on the farm business. By raising the productivity of labor, seasonally still probably the scarcest resource in Lilongwe, inputs and improved techniques may be permitting an area expansion or a change in the enterprise mix which is achieving as good or better results than the direct impact of yield increases on the target crop. Such changes cannot be detected without careful monitoring of the whole farm, not single enterprises or input applications in isolation.

1/ Studies in Employment and Rural Development, No. 28: "Fluctuations of Maize and Groundnut Yields in the Lilongwe Land Development Program", June 1975.

2/ These yields are derived from a division of sales by recorded area, not yield measurements.

* More recent LLDP figures for average yields of maize "all varieties": show slight declines from 1973/74 to 1974/75 and again to 1975/76. Some special varieties ("SR 52 Hybrid" and SV 37 Synthetic) show increases however. LLDP figures for average yields of groundnuts show a decline from 1974/75 to 1975/76 (Supervision Report, November 23, 1976).

Production and Sales

3.05 Sales of the three major cash crops to ADMARC are shown in Table 10. Unfortunately there is no guarantee of their reliability,1/ nor do sales to official markets have much relationship to marketed production in a situation where outside markets are more profitable than the official one. Nor, in a semi-subsistence economy, do sales have a constant proportional relationship to production. Kinsey 2/ estimated maize production to be well ahead of appraisal estimates for 1971/72 and below estimates by rather less in 1972/73. There are no comparable data for the remaining period of Phase II. Kinsey similarly suggests that production of groundnuts in 1971/72 and 1972/73 were two-thirds and one-third respectively of appraisal estimates but this conclusion has been controversial and the fact is that reliable total crop production data and total sales data are not available.

Table 10: CROP PURCHASES BY ADMARC: SHORT TONS

	1971	1972	1973	1974	1975*
Maize	934	9,000	16,106	14,868	10,046
Groundnuts	9,505	7,424	3,620	4,877	7,550
Tobacco	3,019	4,202	4,705	5,688	6,468

* to September 19, 1975.

Incomes and Wealth

3.06 The level of lending operations and fertilizer use (see Tables 5 and 6) suggest, however, that a very real impact has been made in introducing new technology to smallholders in the LLDP and *prima facie* their incomes may be expected to have risen as a result. Again, there are few data available on changes in farmers' earnings. But there is impressive secondary evidence in the LLDP of change taking place and it is a reasonable presumption that the program has played a leading role in this.

3.07 A number of farmers, mostly selected at random to avoid undue bias, were visited on field trips. They generally showed good knowledge of and enthusiasm for the program. Many were showing considerable commercial acumen and could point, on the one hand, to changes in their farm enterprises brought about by the Project and, on the other hand, capital and consumption expenditures derived from it. Among these, rather consistently, house improvements, ox-carts, bicycles, radio, clothes and education were cited as expenditure items with house improvements frequently first or second and no discernable priority in the other items.

1/ There are many versions of sales data. Those used in Table 10 were supplied by LLDP management.

2/ Studies in Employment and Rural Development, No. 9: September 1974, p. 117.

The standard of housing seen was very high compared with many other areas of Africa and on casual examination appeared to be significantly superior to areas near to Lilongwe. The most impressive observed evidence of the program's impact is the spontaneous development of quite well stocked retail stores in Unit centers in the area, the satisfaction of shop-keepers' with business, the number of new stores under construction, and the associated development of craftsmen, mainly carpenters and bricklayers. The program allocates plots in Unit centers but provides no capital aid or credit. Most shopkeepers appear to have been or continue to be farmers. The growth of shops in the Phase II area is shown in Table 11.

Table 11: UNIT AND TRADING CENTERS: PLANNING AND ESTABLISHMENT OF RETAIL SHOPS

			Phase II (Oct. 1971-Mar. 1975) Completion of Center Plan				No. of Shops Established	
No.	Name	Date Gazetted	1971/72	1972/73	1973/74	1974/75	At Unit Center	At Trading Center
7	Mawelo	Apr. 21, 1972		X			-	7 Nsundwe
12	Nsaru	Apr. 21, 1972	X				3	
14	Msanama	Jun. 15, 1973		X			6	
22	Milindi	May 17, 1974			X		1	
23	Nakachoka	Not yet				X	1	3 Chiseka
24	Mitundu	Not yet				X	new unit w/ estab-lished trad'g center	
26	Chikowa	Jun. 15, 1973			X		3	
27	Demela	Jun. 15, 1973			X		4	
29	Chileka	Jun. 15, 1973			X		3	
30	Mingbngo	Jun. 15, 1973		X			4	
35	Kasiya	Jun. 15, 1973			X		4	
Northwest modified input area								
A	Chiungo	-				X		
B	Mwala	-				X		2 Tonde
Southwestern modified input area								
D	Kamanzi	-				X	2	
E	Chiputu	-				X		
	Total						43	

Total number of units established in Phase II = 15

Self-help
3.08 Self-help contributions have also been impressive in the program area. These have been raised by farmers typically by contributing maize for sale. In this way over K10,000 is reported to have been raised in the Phase II period with farmers also contributing molded bricks for projects of which clinics for under-fives have been easily the most popular. In addition, in the 1975 "youth week", 363 projects involving labor contributions were recorded. The quality of work is hard to judge, but the politically inspired mobilization of the people in the LLDP area does appear to have been rather effective.

Nutrition
3.09 Although there are people in the area interested in guaging it, and potential facilities for it, no measure of the nutritional impact of the program has been established.

Conclusion
3.10 In terms of measuring the impact of an investment, a mid-program review, and particularly one taking place immediately following completion of the Phase, has limitations: the physical progress of the program is easier to establish. This last has been impressive and reflects well on successive managements and the support of Government. If some accurate measure is to be required of the project's impact on farm incomes and farm-family well-being, which are the ultimate objective of the program, the nature of such measure, the means by which it can be obtained, and the resource implications of the data gathering and analysis process should be discussed and agreed with project management as soon as possible.

IV. THE FUTURE AND BANK/PROJECT RELATIONS

4.01 Phase III of the Lilongwe Program became effective in August 1975 under a $8.5 million Credit to help finance development of a further 15 unit centers and cover an additional 32,000 farm families. The Phase III closing date is June 30, 1979, but projected maximum crop production is not expected until 1985/86 and an administrative structure and staff will need to be maintained after 1979. Under the Phase III Credit Agreement Government is to submit proposals to IDA by September 1976 for post-program continuation of services.

4.02 Proposals are already under discussion, and appear to envisage components being directly run or maintained by the relevant ministries or District Councils, with ADMARC taking over all stores. Satisfactory proposals for the coordination of the many facets of development in the LLDP area when the Project Unit is removed would appear to be key, and so too will be the provision of adequate finance to continue operations.

4.03 In view of this and of the Government of Malawi's intentions to develop more LLDP-type projects in a national program, it was suggested at a roundup meeting that Government should be more fully aware than it is of the impact of programs of this nature on the national budget. The point was accepted and it was agreed that the Treasury should take the lead in deciding how to monitor such impact and carry out the measurement.

4.04 Other matters discussed included:

a) the need to fill staff positions more rapidly and to provide promotion channels for technical staff (para 2.21);
b) the need to reconsider the evaluation program and in particular establish a means of guaging the receptivity of farmers to the program and the effects of the extension services, credit and other measures. It was agreed that guidelines on target data and methodology would be valuable (para 2.24);
c) the need to establish the costs and benefits of fire control measures and to consider an approach to exploiting the timber resources to achieve optimum development on Dzalanyama Ranch (para 2.06); and
d) in view of the show-piece nature of LLDP the need for Government to provide an experienced Public Relations Officer to handle visitors and take this burden from the Program Manager (para 2.20). This was agreed.

4.05 Government staff at the meeting felt that its Government/Project relations with the Bank had been good on LLDP and other projects, that supervision missions had been useful and particularly commented that RMEA staff had been most cooperative and helpful. One constructive observation was that if project management could be informed in advance of the emphasis of any supervision mission steps would be taken to assemble relevant data ready for the mission.

MALAWI
LILONGWE LAND DEVELOPMENT PROGRAM

Description of the Project

The Project consists of the following:

I. Land Development. This includes:

a) the construction of about 540 miles of crop extraction roads;
b) the construction of about 1,700 miles of drainage ditch; and
c) the boring and equipping of about 160 boreholes.

II. Land Reorganization and Surveyance. This includes:

a) the carrying out of topographical surveys and the preparation of contour maps; and
b) the demarcation, reorganization and registration of holdings in approximately 375,000 acres.

III. The Provision of Marketing and Storage Facilities. This includes the construction of a service center in each of 14 different Area Units, each including a produce market, a 450 ton fertilizer/feed store, and associated offices and housing.

IV. Extension, Supply and Credit Services. This includes:

a) the provision of intensive agricultural extension, and staff and farmers training services;
b) the provision of facilities for the cash sale of agricultural inputs to farmers; and
c) the provision of seasonal and medium-term credit to farmers.

V. Livestock Development. This includes the establishment of a ranch of about 161,000 acres in the Dzalanyama Forest Reserve to provide upgraded feeder stock for stall-fattening by farmers in the project area.

VI. Management and Staff. This includes:

a) the staffing of a program organization under the Ministry of Agriculture and Natural Resources with Headquarters in Lilongwe;
b) the establishment and staffing of a Program Evaluation Unit;
c) the recruitment of qualified managerial, professional, technical and administrative staff and the provision of in-service training;
d) the construction, equipping and maintenance of houses and offices for Program staff in Lilongwe and in the program area;
e) the purchase, operation and maintenance of vehicles, machinery and equipment; and
f) the provision of administrative services.

ANNEX 2

MALAWI

LILONGWE LAND DEVELOPMENT PROGRAM

The Stall Fattening Component

1. In the second phase of the Lilongwe Project there has been a major expansion of beef production by smallholders by fattening steers in stalls.

2. Farmers purchase on credit 2-2 1/2 year-old steers from the Lilongwe Ranch. The steers are fattened for 150 days on maize stalks, bran, groundnut stover, banana leaf or local lĕgumes with supplementary salt.

3. Tick control is by hand picking. Bedding straw is typically used for manure when the stalls are vacated. Stalls are normally 9' x 9' although in some cases local zebu are in 9' x 4 1/2' subdivisions and these seem satisfactory. A recent development has been the building of stalls in rows of 14, as 14 steers make up a single truck load for both delivery and purchase. A farmer typically has two steers fattening at any one time; therefore, rows are shared by 7 farmers in a village. Stall construction is typically of eucalyptus poles with a grass thatch roof. Locally, materials for two-stall units cost K15 (US$18) and last three years.

4. Live weight gains have been 1.2-1.8 lbs per day and over the past six years steers costing between K37 and K62 per head have sold on average at K54-100 after 150 days, giving average gross margins of K17-42 per head on average cold dressed weights of 340-450 lbs. As a farmer could put through four head a year, he can make gross margin of up to K175 (US$210) a year from this enterprise. Details of average performance are shown in Table 1, in which, however, it should be noted the small cash outlay for salt has been omitted and no charge made for labor.

ANNEX 2
Table 1
Page 1

LIVESTOCK SECTION

1. Increase in Beef production
2. Elimination of East Cost Fever by 100% Dipping
3. Correct Dambo Management
4. Improved Poultry Keeping
5. Increase in work ox-utilization
6. Stall Feeder Programme
7. Dairying

K1 = US$ 1.2

STALL FEEDING PRODUCTION

YEAR	ISSUE PRICE PER 100 LBS/LWT.	GRADE	PRICE AT SLAUGHTER	NO. OF STEERS	%	MEAN ISSUE PRICE	MEAN SLAUGHTER PRICE	MEAN GROSS PROFIT MARGIN	MEAN COLD DRESSED WEIGHT
1968	K8.00/LBS LWT.	CHOICE	K20.42/100 lbs CDW.	26	66	K42.15	K73.48	K31.33	
	2-8 P. TEETH	PRIME	A = K18.34/100 lbs B = 16.25 "	11	27	41.67	65.90	24.23	
	500 LBS & OVER	STANDARD	K15.00	3	7	39.47	46.42	6.75	
		TOTAL		40	100	K41.82	K69.36	K27.54	355 LBS
1969	K8.00/100 LBS LWT.	CHOICE	K20.42/100 lbs CDW.	133	69	K39.90	K69.19	K29.29	
		PRIME	A = K18.34 B =K16.25	44	22	43.47	57.26	13.79	
		STANDARD	K15.00	17	9	57.22	61.20	3.98	
		TOTAL		194	100	K42.23	K65.78	K23.55	342 LBS
1970	UP TO 30TH APRIL, 1971	CHOICE	K20.42/100 lbs CDW.	133	65	K39.52	K58.57	K19.05	
		PRIME	A = K18.34 B =K16.25	68	34	33.70	47.23	13.53	
	K8.00/100 LBS	STANDARD	K15.00	2	1	40.40	41.25	-.85	
		TOTAL		203	100	K37.58	K54.60	K17.02	357 LBS
1971	1ST MAY, 1971 - 31ST JANUARY,	CHOICE	K20.42/100 lbs CDW.	136	59	K36.98	K72.35	K35.37	
		PRIME	A = K18.34 B =K16.25	72	31	37.89	60.75	22.87	
	1973. K7.80/100 lbs	STANDARD	K15.00	23	10	34.75	44.53	9.78	
	COMMERCIAL =K6.12	COMMERCIAL	K13.34	1	-	38.40	36.53	1.87	
		TOTAL		232	100	K37.04	K65.84	K28.79	395 LBS
1972	K7.80/100 lbs LWT.	CHOICE	K20.42	275	73	K47.62	K95.91	K48.30	
	2-6 P. TEETH	PRIME	A = K18.34 B =K16.25	71	19	42.54	76.01	33.47	
	K6.12/100 LBS LWT.	STANDARD	K15.00	27	7	43.91	58.31	41.40	
	COMMERCIAL (8 TEETH)	COMMERCIAL	K13.34	3	1	43.19	47.40	4.21	
		TOTAL		376	100	K46.36	K89.07	K42.71	446 LBS
1973	1ST FEBRUARY, 1973	CHOICE	K24.00	336	77	K58.52	K104.76	K46.24	
	GRADE A = K11.40	PRIME	K21.00	74	17	55.38	87.12	32.34	
	GRADE B = K9.60	STANDARD	K18.00	21	5	55.95	71.10	15.15	
	GRADE A = 2-4 P.TEETH	COMMERCIAL	K15.00	3	1	50.40	47.52	2.88	
	GRADE B = 6 P. TEETH	TOTAL		434	100	K57.80	K99.73	K41.93	431 LBS
1974	UP TO 8TH SEPTEMBER 1974. GRADE A=K11.40	CHOICE	K25.50	500	52	K65.52	K109.70	K44.18	
	GRADE B = K9.60	PRIME	21.50	397	41	59.54	82.11	22.57	
	FROM 9TH SEPTEMBER 1974 TO 31ST MAY,	STANDARD	19.50	65	7	58.92	66.54	7.62	
	1975. GRADE A =K12.60 GRADE B = K10.20	TOTAL		962	100	K62.60	K95.35	K32.75	422 LBS

2/..

YEAR	ISSUE PRICE PER 100 LBS/LWT.	GRADE	PRICE AT SLAUGHTER	NO. OF STEERS	%	MEAN ISSUE PRICE	MEAN SLAUGHTER PRICE	MEAN GROSS PROFIT MARGIN	MEAN COLD DRESSED WEIGHT
GUST,	GRADE A = K12.60	CHOICE	K31.50	158	49	K64.87	K131.43	K66.56	
1975	GRADE B = K10.20	PRIME	K28.50	132	41	63.34	101.05	37.71	
	UP TO 31ST MAY, 1975	STANDARD	K25.50	33	10	63.24	85.35	22.11	
		TOTAL		323	100	K64.10	K114.31	K50.13	451 LBS.

1. Improved herd management
2. Stall Feeding
3. Planting Improved grasses
4. Fencing of paddocks
5. Rotational Grazing
6. Issue of Advisory Booklets

MALAWI

LILONGWE LAND DEVELOPMENT PROGRAM

Composition of Project Liaison Committee

Secretary for Agriculture, Chairman

Secretary to the President and Cabinet

Secretary to the Treasury

Secretary for Works and Supplies

Secretary for Local Government

Secretary for Natural Resources

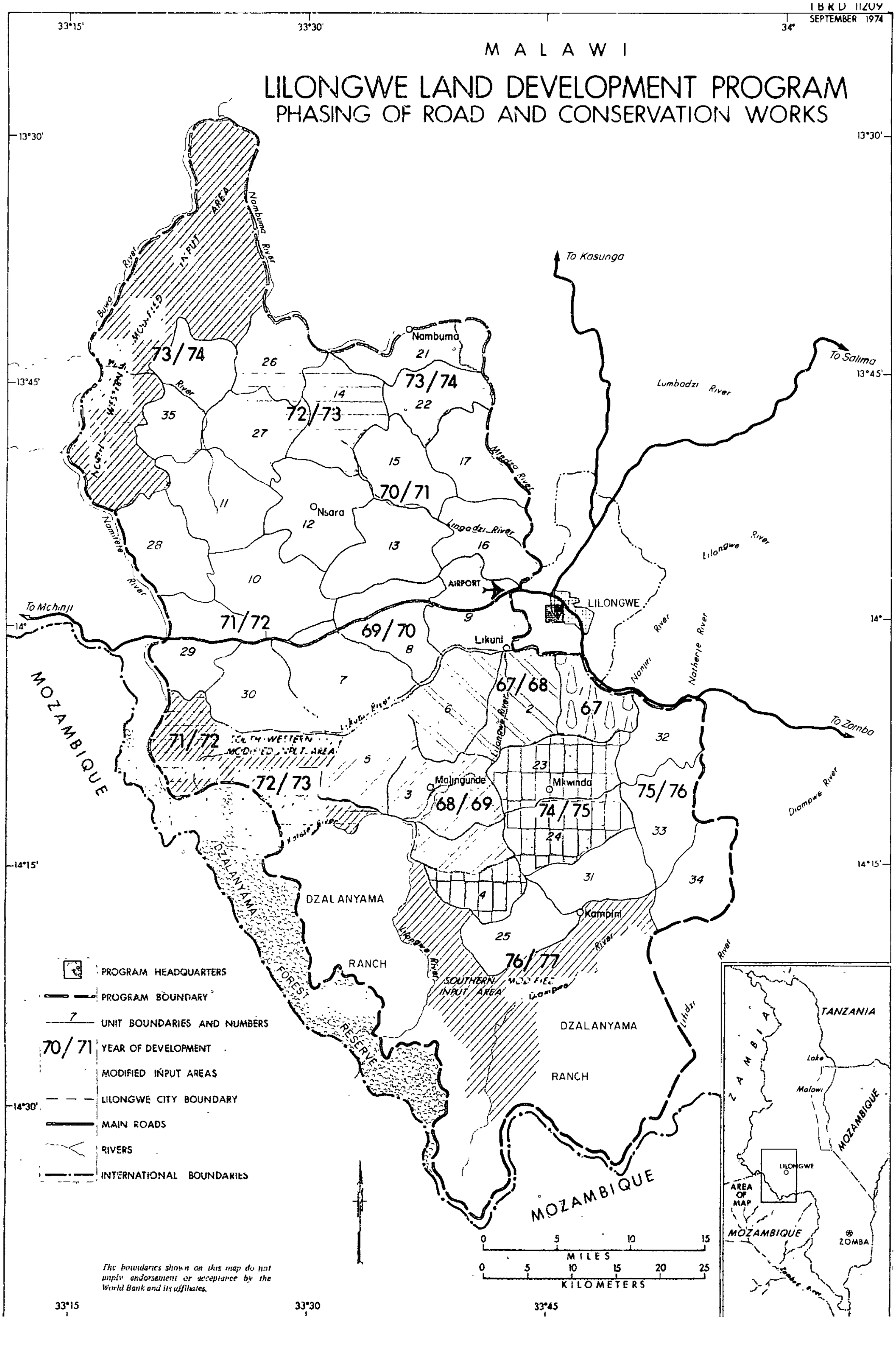
Secretary for Health

Secretary for Community Development and Social Welfare

General Manager, ADMARC

Program Manager, LLDP

Chief Agricultural Officer (Development) - Secretary


IBRD 11209
SEPTEMBER 1974
MALAWI
LILONGWE LAND DEVELOPMENT PROGRAM
PHASING OF ROAD AND CONSERVATION WORKS
To Kasunga
To Salima
To Mchinji
To Zomba
LILONGWE
AIRPORT
Nambuma
Nsara
Likuni
Malingunde
Mkwinda
Kampini
MOZAMBIQUE
DZALANYAMA RANCH
DZALANYAMA FOREST RESERVE
NORTH WESTERN MODIFIED INPUT AREA
SOUTH WESTERN MODIFIED INPUT AREA
SOUTHERN MODIFIED INPUT AREA
PROGRAM HEADQUARTERS
PROGRAM BOUNDARY
UNIT BOUNDARIES AND NUMBERS
YEAR OF DEVELOPMENT
MODIFIED INPUT AREAS
LILONGWE CITY BOUNDARY
MAIN ROADS
RIVERS
INTERNATIONAL BOUNDARIES
MILES
KILOMETERS
TANZANIA
ZAMBIA
Lake Malawi
AREA OF MAP
ZOMBA
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