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AGRICULTURAL SECTOR REVIEW

MALAWI

December 28, 1973

East Africa Regional Office
Agriculture Projects Division

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BACKGROUND DATA

Rate of exchange US\$1 = 0.81 Kwacha (K) ^{/1}
Kwacha (K) 1 = 1.23 US\$

Population

Total population 4.7 million (1972) ^{/2}
Rate of growth 2.5% (1966 to 1972)
Rural population 4.3 million or 90% of total population.
In paid employment 0.19 million
Density of population 49 per sq. km.
Rural population per
cultivated area 1 per 0.44 ha.

Land Use

	<u>(million ha)</u>	<u>(% of total)</u>
Customary land under cultivation	1.9	19.6
Customary land, fallow	2.9	30.8
Estates	0.9	1.0
Non-Arable	3.3	34.9
Other land	<u>1.3</u>	<u>13.8</u>
Total land area	9.4	100.0

National Income (at factor cost 1972)

	<u>(K million)</u>	<u>%</u>	<u>Growth rate</u> <u>1964-72</u> <u>(Current Prices)</u>
Agriculture: Smallholder			
Subsistence	105	31	7
Monetary	45	14	14
Estate	<u>20</u>	6	16
Total Agriculture	170	51	9
Total GDP	333	100	11
Per capita GDP	K 71 (US\$87)		

/1 As of mid-March 1973. The Malawi Kwacha is pegged to the floating pound sterling.

/2 Estimated mid-year population.

Agricultural Production (Smallholder)

	Area '000 ha.	% Mixed Stand	Total Production '000 MT (1970)	Total Marketed Production '000 MT (1970)	Farm Gate Prices K/100 kg
Maize	1,068	94	1,019	105	2.76
Groundnuts	449	90	102	33	14.33
Pulses	841	99	121	17	3.82
Millet/Sorghum	496	97	71	6	-
Cassava	299	89	81	23	1.65
Paddy	48	NA	21	12	5.51
Cotton	37	NA	23 (seed)	23 (seed)	11.57
Tobacco	32	NA	24	24	24.25

<u>Exports</u>	1972	Index
	'000 MT	Average 1968-72 (Average 1964-67) = 100)

Smallholder crops

Maize	37	93
Pulses	16	51
Fire and air-cured tobaccos	14	96 ^{/2}
Cotton fibre	5	103 ^{/3}
Groundnuts	36	121
Rice	7	272

Estate crops

Tea	20	154
Burley tobacco	5	154
Flue-cured tobacco	6	306

Farm size and inputs

Average size of holding	1.5 ha
Average number of persons per holding	4.6
Number of holdings	885,000
Number of holding using fertilizer (1969)	13%
Total fertilizer consumption (1973)	24,000 MT
Consumption per ha (1973)	13 kg

^{/1} See Statistical Annex, Table 12.

^{/2} Includes oriental tobacco.

^{/3} Low due to increased domestic processing.

% of holdings with work oxen (1969)	5%
% of holdings with cattle (1969)	11%
% of holdings with sheep (1969)	2%
% of holdings with goats (1969)	23%
% of holdings with pigs (1969)	9%
% of holdings with chickens (1969)	57%

Livestock Population (1972)

Cattle	572,905
Sheep	88,516
Goats	565,580
Pigs	172,333

Public Expenditures (1973/74)

Development budget Agriculture	28%
Recurrent budget	" 7%

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SUMMARY AND CONCLUSIONS

i. The purpose of this study is to review the opportunities, constraints and strategy for agricultural development in Malawi and on this basis to suggest a long term lending program. The review is selective in coverage and no consideration has been given to the forestry and fisheries subsectors or to estate production. The main thrust of the report is the proposal for a National Rural Development Program throughout the country which would achieve a substantial increase in smallholder productivity within a period of twenty years. The program would supplement existing extension and marketing systems, improve input supply, credit and infrastructure, and create the basis for a more comprehensive effort to follow.

ii. Malawi is a landlocked country which is relatively densely populated (49 per km²), and has a rate of population growth of about 2.5%. About 90% of the total population is located in rural areas. With the exception of a few areas which are costly to develop, Malawi is short of suitable land for cultivation. Fallow periods have been reduced and erosion prone areas are farmed at a considerable risk to long-term fertility. The climatic conditions are relatively favorable. The national cattle herd is small (1 head per 8 persons) and owned by a small proportion (10%) of the farmers. With the exception of the estate sector, which occupies only 5% of total cultivated area but contributes 11% of total agricultural production, land is communally owned and farm size averages 1.5 ha.

iii. The domestic market is small and the main possibility for improving the living conditions of the rural population involves improved yields and the export of surplus production. Government relates farm prices to the world market situation but eliminates short term fluctuations. One-third of the development budget is devoted to agricultural development. Peasant farming is supported through a relatively well-established and trained extension service. Four major development projects have been established which have attempted to achieve a rapid expansion of smallholder production through intensified extension in combination with credit, improved marketing, supply of inputs, roads and soil conservation. Settlement on new land, partly in connection with the construction of irrigation facilities, is actively promoted. A public corporation 1/ is responsible for marketing of smallholder production throughout the country. The Government permits civil servants and other persons to engage in commercial agriculture and makes land available for this purpose. The off-take from the national herd has been enhanced by improved disease control and the establishment of marketing outlets. The provision of cattle for fattening, power or dairy production to stockless farms has also been given serious attention.

1/ Agricultural Development and Marketing Corporation (ADMARC).

iv. Research efforts have produced impressive results, particularly with respect to maize, groundnuts, tobacco and cotton. Maize presently occupies 78% of all cultivated land (pure or mixed stand) but productivity increases offer an excellent prospect for reducing this proportion, thus releasing resources for production of other commodities. Malawi specializes in confectionary groundnuts, and export opportunities appear excellent. The production of flue-cured tobacco has expanded rapidly and further expansion appears feasible, particularly if Malawi succeeds in gaining access to the EEC market. The market prospects for fire-cured tobacco are less promising. Certain areas along the Lake and in the Shire Valley are excellent for sugar production, and in spite of the transport cost Malawi will be competitive on the world market. Rainfed cotton can be efficiently produced in certain low-lying areas and there is an expanding domestic market as well as an established market in the U.K. Both production and marketing of irrigated rice have thus far been disappointing. Livestock production faces an expanding domestic market and good export prospects. By increasing beef prices to an export parity level and giving further attention to the development of poultry production for domestic consumption it may be possible to enhance beef exports.

v. Production of the estate sector (flue-cured and burley tobaccos, sugar, and tea) has expanded rapidly, while with the exception of paddy and cotton, marketed smallholder production has stagnated (groundnuts, maize) or decreased (pulses, fire cured tobacco). The major constraints have been the lack of credit, seasonal inputs, extension services, communications, and financial resources, as well as soil erosion. Where these constraints have been removed through the integrated regional development projects, production has gradually expanded. The ultimate aim should be to extend the rural development process over the country as rapidly as possible to avoid creating income disparities between regions. A first aim should be an initial increase in cash income. This limited objective would minimize immediate resource requirements and it would also generate resources to satisfy demands for improved living conditions. Sequential development would allow the organization of local, seasonally under-utilized manpower in self-help efforts. To assure sufficient resources for further development it would be necessary to start with those areas which have the highest potential for development; This pattern may be modified, however, to give attention to ^{areas} ~~ones~~ where incomes are particular depressed. In order to increase cash income it will be necessary to strengthen the extension service, make credit available for seasonal inputs, and proceed with construction of essential infrastructure (roads, soil conservation). This first effort should be concentrated on maize (to release land and labor) and the most promising cash crop for the area in question.

vi. The existing major projects should be utilized to find ways to economize on manpower and financial resources in initiating an effective national rural development program (as described above), as well as to indicate suitable approaches in the continuous effort that must follow the first step. Training of staff for the national program should also be part of their "spearhead" function.

vii. Progressive farmers should be given an opportunity to expand their productive capacity, and medium-term credit should be provided for this purpose. In view of the existing program for such farmers, credit of this kind should be made available throughout the country. In the promotion of medium and large-scale commercial farming, consideration should be given to efficiency as well as employment and income distribution criteria. A farm management service has already been established within the Department of Extension and Training, but this needs to be strengthened and converted into a fee-charging organization to provide an investment planning and implementation service for commercial farming.

viii. The emphasis in the settlement program should be shifted towards a consolidation of existing schemes, especially those involving irrigation. A review should be undertaken to determine the ways in which costs can be reduced and the self-reliance of settlers increased. Until new methods have been successfully tested, the expansion of settlement should proceed slowly.

ix. Further livestock development requires importation of breeding animals. The establishment of ranches to assure a satisfactory reproduction and allow a wide distribution of the offspring is recommended. The promotion of small scale poultry units should be accelerated.

x. A credit institution for small and medium scale farms and for short, medium and long-term credit should be established which would work in close collaboration with the extension service and ADMARC. Land use planning should be accelerated to identify immediate development areas. Crop pricing policy has two major objectives: to maximize and stabilize smallholder income and to ensure the availability of funds for investment to promote agricultural development. Prices are set by the Government, and ADMARC efficiently markets smallholder produce and invests the profits derived. The two objectives, both of which are essential, are obviously conflicting. Government may want to consider alternative means of raising development finance in order to improve producer incentives and effective stabilization and to ensure an investment program which is less dependent on world market fluctuations.

xi. The projects identified in this report, together with the continuation or expansion of ongoing projects are estimated to cost K 54.7 million over the period 1974/75 - 1978/79. To implement this program would require a 3% annual increase in the agricultural development budget. Ongoing projects will require K 19.3 million during this period. It is suggested that K 10 million be allocated for improvements in research, veterinary services, agricultural training and continuation of selected projects such as Salima; K 25.4 million would be needed for the projects described below, which may be of potential interest for IDA support.

- (a) National Rural Development. This project would initially involve the development of 2-3 new areas annually, each containing about 15,000 farms; it is expected that development would accelerate as experience is gained. The total cost for a five-year period is estimated at K 17 million,

of which K 5 million will be needed in or before 1978/79 assuming the project will be ready for implementation in early 1977.

- (b) Lilongwe Phase III. Continuation of present program with some additional spearhead tasks. Total cost for a four-year period is estimated at K 10 million, all of which will be needed in or before 1978/79 assuming the project will be ready for implementation in early 1975.
- (c) Karonga Phase II. Continuation of present program with some additional spearhead tasks. Total cost for a five-year period is estimated at K 5 million, of which K 1 million will be needed in or before 1978/79 assuming the project will be ready for implementation in 1977.
- (d) Flue-cured Tobacco. The establishment of a further 2,400 smallholder producers is now being planned. The project would be developed over five years starting in early 1976. Total cost is estimated at K 4.2 million, of which K 3 million would be needed in the 1974/75 - 1978/79 period.
- (e) Livestock Development. Under the project about 2,000 cows would be imported annually. The project would begin in 1976 and be completed by 1980 at a total cost of K 3 million, of which K 2 million would be needed in the 1974/75 - 1978/79 period.
- (f) Sugar. A study of the feasibility of a nucleus estate-smallholder sugar scheme is underway. If agreed, the project may be ready to proceed in 1977. Total cost is estimated at K 6 million (excluding the cost for the factory), of which K 2.4 million would be needed in the 1974/75 - 1978/79 period.
- (g) Shire Phase III. By 1978 ~~it is expected that~~ the third phase of the Shire Valley Agricultural Development Project is expected to require finance. It is anticipated that this phase would include a large-scale irrigation project based on a major canal from the falls of the Shire River. Farming systems which could use this water profitably are being sought as part of the Phase II project. The total cost of the project is roughly estimated at K 15 million, of which about K 2 million is expected to be required in 1978/79.
- (h) Rural Development Bank. A Rural Development Bank would be established in conjunction with the launching of the National Rural Development Project (NRDP), and funds for its activities are included under several of the above projects. Support for the establishment of the Bank should be included in the NRDP.

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I. INTRODUCTION

1.01 This report represents the findings of a mission consisting of Messrs. B. Nekby (Chief of Mission), R. Henderson, J. Russell (RMEA) and W. Schaefer-Kehnert (RMEA). The mission visited Malawi in April 1973 to review the Government's strategy for increasing agricultural production and improving rural living conditions. The report is intended to provide a basis for discussions between the Malawi Government and IDA concerning assistance for the agricultural sector. It is selective in coverage and no consideration has been given to the forestry and fisheries subsectors or to estate production.

1.02 After a review of the present structure of the agricultural sector and of existing policies and development efforts, an analysis of the opportunities and constraints for agricultural development is presented; this is followed by a discussion of future strategy, investment programs and growth estimates. Details of smallholder flue-cured tobacco projects and the institutional arrangements for agricultural credit are found in the Annexes. This report does not attempt to provide a comprehensive description of agriculture in Malawi; however, further information may be obtained from the Statistical Annex and through the publications listed in the Bibliography. Maps and charts are attached to clarify the presentation.

1.03 This report has been developed in close collaboration with the Malawi officials in the Ministry of Agriculture and National Resources and the Treasury, and to a large extent reflects a consensus of opinion with respect to the strategy of agricultural development. The responsibility for the statements made rests, however, with IBRD/IDA.

II. PRESENT STATUS OF AGRICULTURE

A. General

2.01 Malawi is a landlocked country extending some 900 km from north to south, and less than 200 km from east to west. It is bordered in the east and south by Mozambique, on the northwest by Zambia, and on the north-east by Tanzania. In the 1966 census Malawi's population was estimated about 4.04 million, increasing annually at 2.5%. The current population is about 4.7 million; 4.3 million of these are located in rural areas, and the number is expected to increase in absolute terms for the foreseeable future. The average population density is 49 per km², and it exceeds 100 per km² in the most productive agricultural areas of the Central and Southern Regions.

According to the latest population census (1966), 36% of the population age 5 years or over had attended school for at least one year. Education has a high priority, and it is expected that the enrollment rate in primary schools will be raised to 50% by the end of the decade. Agriculture is being taught in both primary and secondary schools.

2.02 The plateau in Malawi has been interrupted by rift movements of considerable magnitude; these have formed the rift troughs of Lake Malawi and the Shire River and give Malawi a generally dissected topography with many steep slopes. There are three topographic regions within the country:

- (a) The Shire Valley and Lake Malawi littoral, ranging in elevation from 40 to 500 meters;
- (b) The plateau areas of the Shire Highlands, Central Region and the Mzimba District of the Northern Region, generally between 750 and 1,400 meters; and
- (c) The highland areas of Nyika, Vipya, Misuku, Mafingi, Dowa, Dedza, Kirk, Zomba and Mulanje, ranging from 1,400 to 3,000 meters.

2.03 The land area of some 9.4 million hectares is administratively divided into three regions - the Northern, Central and Southern regions; about 50% of the total area can be classed as arable, and only 20% is under cultivation.

Table 1: LAND USE

<u>Arable Land</u>	<u>'000 Hectares</u>	<u>Percent of Total</u>
Land customarily under cultivation	1,840	19.6
Land customarily under fallow	2,895	30.8
Estates and plantations	92	1.0
Land not arable (grazing, long fallow and restricted drainage valley areas)	3,279	34.9
Other land (steep rugged country, forest, permanent swamps, towns and villages)	<u>1,294</u>	<u>13.7</u>
	<u>9,400</u>	<u>100.0</u>

Source: Ministry of Agriculture and Natural Resources.

2.04 Malawi has a warm rainy season from November to May, a cool dry season in June and July and a hot dry season in September/October. Average rainfall varies from 750 mm to 1,600 mm. Rainshadow areas in the Lower Shire, Mzimba and Lupembe (5% of total land area) have a rainfall less than 750 mm; the high plateau areas of Mulanje, Zomba, Vipya and Nyika (4% of total land area) receive above 1,600 mm, with a maximum of 3,200 mm reached on the slopes of Mt. Mulanje. Rainfall is consistent in most areas and often of high intensity; severe cyclones may occur in certain areas about once in five years (twelve having occurred in the last sixty years). Temperatures average 24°C along the Lake Shore and in the Lower Shire areas and 18°C in the higher plateau areas; the mean annual range is from 6° to 8°C.

2.05 About 93% of Malawi's land area drains into the Lake Malawi (79%) - Shire River catchment (14%); the remaining 7% drains into the shallow and slightly saline Lake Chilwa and Lake Chiuta which have no outlet. Lake Malawi covers an area of 2.2 million ha, and is well watered by perennial streams. Changes in lake level have however caused fluctuations in the flow of the Shire River. (The mean annual flow at Chikwawa varied from 8 to 15 thousand cusecs in the 1950's). The Liwonde Barrage is designed to control these fluctuations. New power installations are being constructed at Tedzani, and an irrigation canal to serve 10,000 ha is under consideration for the Kasinthula area. Recent detailed studies by Sir W. Halcrow and Partners have investigated the water resources and irrigation potential of both the lake shore areas and the Shire Valley.

B. Role of Agriculture in the Economy

2.06 Agriculture contributes about 50% of Gross Domestic Product (GDP), a slight decrease from an average of 57% in the years immediately after Independence in 1964. The estate sector is responsible for about 11% of total agricultural production, as compared with 7% in 1964. The smallholder sector, which is primarily subsistence, is responsible for the balance. Cash sales were around 20-24% of the total during 1964-70, increasing to about 28% over the last two years. The annual growth of total agricultural production in current prices has amounted to 9% since Independence. The estate sector grew at a rate of 16%, while smallholder subsistence production expanded by 7% and cash sales by 14% per year. The growth of smallholder production is, however, mainly due to price increases and the low production levels in 1964. If the average volume of sales during the period 1968-71 is compared with average sales during the first four years after Independence (Table 2), then only cotton and rice (where the development effort has been concentrated) show substantial increases, while smallholder sales of maize, pulses and tobacco have decreased.

Table 2: VOLUME OF CASH SALES AND EXPORTS
(Index; average 1964-67 = 100)

<u>Smallholder Sales</u>	<u>Average 1968-71</u>
Maize	91
Pulses	54
Fire-cured tobacco	71
Seed cotton	125
Groundnuts	98
Rice	222
<u>Exports</u>	<u>Average 1968-72</u>
<u>Smallholder crops</u>	
Maize	93
Pulses	51
Fire-cured tobacco	96
Cotton	103/1
Groundnuts	121
Rice	272
<u>Estate Crops</u>	
Tea	154
Burley tobacco	154
Flue-cured tobacco	306

/1 Low due to increased domestic processing.

Source: Economic Report 1973, Compendium of Agricultural Statistics 1971.

2.07 In view of the absence of other resources, Malawi's exports are almost entirely agricultural (95%). The main exports from the smallholder sector are fire-cured and sun/air cured tobaccos, groundnuts, cotton, pulses, maize (8 years out of 9), coffee, cassava and recently rice and sunflower seed. Tea, and flue-cured and burley tobacco are the main export crops produced in the estate sector. Exports from both sectors have grown by about 11% annually in current prices during the nine years since Independence. The growth of estate exports has been steady, while smallholder exports have fluctuated considerably. About 57% of actual growth of exports is due to increased volume. This proportion is considerably lower (46%) for the smallholder sector, where price increases are responsible for 54% of the actual growth. The low levels of exports in the base year (1964) again inflates the growth rate. A comparison of the average volume of exports during the first four years after Independence with the last five years is given in Table 2; major increases took place only for estate crops and rice.

C. Agricultural Production

Land Tenure and Farm Size Distribution

2.08 About 82% of the land area is held under customary tenure; about 2% is either freehold or leasehold estates or plantations. The remaining 16% has been acquired by Government for public use, and the majority is devoted to either forests or national parks. A successful scheme of land registration giving a form of title to individual families on customary land has been initiated as part of the Lilongwe Land Development Project. As might be expected from the relatively high density of the rural population, holdings are generally small in size, and average about 1.5 hectares. The average size ranges from 1.3 ha in the South, to 1.4 ha in the North and 1.9 ha in the Central Region. It is interesting to note that the size of holdings in the Northern and Southern regions is about the same (Table 3). Farm size is dictated by the amount of land which can be cultivated by a single family, as well as by the availability of arable land.

Table 3: PERCENTAGE OF HOLDINGS BY SIZE OF HOLDINGS (Hectares)

<u>Region</u>	<u>under</u>	<u>0.8-1.6</u>	<u>1.7-2.4</u>	<u>2.5-4.7</u>	<u>4.8 & over</u>	<u>Av. size</u>	<u>Av. No. of</u>
	<u>0.8</u>					<u>all hold-ings</u>	<u>persons living on holdings</u>
All Malawi	28.7	34.1	18.4	16.7	2.1	1.5	4.6
N. Region	31.9	34.6	17.6	14.4	1.5	1.4	4.3
C. Region	17.8	30.4	22.3	25.4	4.1	1.9	4.7
S. Region	35.6	36.5	15.9	11.2	0.9	1.3	4.6

Source: National Sample Survey of Agriculture (NSSA) 1968/69.

Estate and Smallholder Productions

2.09 The estate sector, although only a small proportion of total cultivated area, is responsible for almost all the production of tea, flue-cured and burley tobacco, sugar, and some tung oil; it is also involved in a minor way in beef production and to a lesser extent in dairy and poultry production. The value of exports from this sector has grown from K 9.9 million in 1964 to K 24.1 million in 1972.

2.10 The majority of smallholders are subsistence cultivators. Maize is the staple crop, occupying 78% of all cultivated land - much of it in mixed stands. Other major subsistence crops are pulses, groundnuts and cassava, with minor quantities of rice, sorghum and wheat. The major cash crops are groundnuts, fire and air-cured tobaccos, oriental tobacco, cotton, cassava and rice, and a little coffee and sunflower. The export value of smallholder crops has grown from K 12.2 million in 1964 to K 28.2 million in 1972. Smallholder areas and marketed production is given below in Table 4.

Table 4: SMALLHOLDER AREA AND MARKETED PRODUCTION

<u>Crop</u>	<u>1969 Area ('000 ha)</u>	<u>% Mixed Stand</u>	<u>Total Production 1970 ('000 MT)</u>	<u>Total Marketed Production 1970 ('000 MT)</u>
Maize	1,068	94	1,019	105
Groundnuts	449	90	102	33
Pulses	841	99	121	17
Millet/Sorghum	496	97	71	6
Cassava	299	89	81	23
Paddy	48	NA	21	12
Cotton	37	NA	23 (seed)	23 (seed)
Tobacco	32	NA	10	10

Source: NSSA 1968/69 and National Accounts Report 1972.

The high percentage of mixed stands from these NSSA figures, particularly for groundnuts and cassava, seems questionable. Cassava, for instance, is often underplanted late in the growing season in a maize field to get it established before the dry season; it is also found in the outer fringe of a field in a mixed stand. The total acreages derived from the mixed stand figures should thus be treated with reserve, as they undoubtedly overstate the effective extent of the mixed cropping.

2.11 Government policy has been directed toward the improvement of smallholder production. Particular attention has been paid to the use of fertilizer and improved seed. The growth of fertilizer sales is given in Table 5.

Table 5: FERTILIZER SALES TO SMALLHOLDERS ('000 M TONS)

<u>1960</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965^{/1}</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973^{/2}</u>
0.2	0.3	0.5	1.0	2.0	5.6	7.1	8.6	9.8	9.9	15.5	20.7	29.8	24.0

/1 Introduction of Fertilizer Subsidy.

/2 Up to 1973 all fertilizers used by smallholders can be considered as being 20% nitrogen. In the future as urea is introduced, fertilizer sales will have to be expressed in tons of nitrogen sold.

Source: Ministry of Agriculture and Natural Resources, Annual Reports.

The recent world price increases for fertilizer coupled with the removal of the 40% Government subsidy on sulphate of ammonia led to very large increases in prices to farmers between 1970 and 1973. Compound phosphatic/ nitrogenous fertilizer and sulphate of ammonia have increased in price by 110% and by 52%,

respectively. This increase and adverse planting conditions resulted in a 20% cutback in fertilizer sales between 1971/1972 and 1972/73; the upward trend can be expected to resume, however, although the profitability of fertilizer use has been reduced. The major development projects 1/ have been least affected by the decline in use; the 4,000 tons used (out of the national total of 20,000 tons) was a slight increase on the previous year, although below projected targets.

2.12 The cattle industry is constrained by the small size of the national herd which totals about 573,000 head 2/ with a 9% offtake rate; this means that only one animal is slaughtered per year for each 75 members of the population. Only 10% of farmers own any cattle, but goats flourish and are an important source of meat. Pigs remain a constant prey to endemic swine fever, and the problem of controlling parasites and worms in sheep has constrained efforts to increase the number of these animals. Poultry are an important source of protein, and village flocks are variously estimated at some 4 million. Total livestock population is given below in Table 6.

Table 6: LIVESTOCK POPULATION ('000 Head)

	<u>Cattle</u>	<u>Sheep</u>	<u>Goats</u>	<u>Pigs</u>
1950	264	39	260	53
1955	307	79	326	77
1960	357	69	442	72
1965	432	72	465	124
1970	492	96	639	146
1972	573	89	566	172

Source: National Statistical Office, Compendium of Agriculture 1971. Ministry of Agriculture and Natural Resources (unpublished information).

2.13 The Government, through the combined activities of the research branch, the extension service, development projects and ADMARC 3/ is breeding or buying improved varieties of seed of the major crops (maize, tobacco, groundnuts, cotton and rice, as well as grasses and legumes). There are on-going programs for certificated seed multiplication by Government, ADMARC and selected farmers.

1/ Lilongwe, Salima, Shire and Karonga (paras 2.31-2.36).

2/ Probably underestimated. National Sample Survey of Agriculture, 1968/69 reports 723,000 cattle on communal land alone.

3/ Agricultural Development and Marketing Corporation (para 2.37).

D. Government Agricultural Policy

2.14 In view of its role in the economy, agriculture has been given top priority in Malawi's development efforts; 1/3 of total public investment during the next three years has been allocated to this sector. Over the past decade the increase in productivity has been slower than population growth, and increased food requirements have been met mostly through an expansion of cultivated area. This in turn has meant both that land more susceptible to erosion has been taken under cultivation and also that the fallow period for land under shifting cultivation has been reduced. Faced with the need to maintain soil fertility and to reduce the pressure for cultivation of areas incapable of sustaining continued cropping, the emphasis of agricultural policy is now on increased productivity. Such an increase can be achieved by making the most efficient use of available land and labor, while economizing on the use of scarce capital and skills.

2.15 In implementing this policy the Ministry of Agriculture has utilized several development tools:

- (a) A national program carried out by the extension service;
- (b) Concentrated extension efforts;
- (c) Comprehensive regional development efforts implemented by semi-autonomous projects; and
- (d) Settlement schemes.

The general extension efforts have to a large extent focused on progressive farmers (Achikumbi) but they have also been able to promote adoption of improved varieties and fertilizers. Recently, concentrated efforts have been made in areas selected on the basis of active local participation. In such areas credit and the provision of minimum infrastructure have supplemented the extension efforts. The major projects have a semi-autonomous status and represent a more comprehensive and integrated rural development effort. Under the settlement program underutilized land and water resources are provided for use by especially selected and trained young persons in the Malawi Young Pioneers, whose employment opportunities outside traditional agriculture would otherwise be limited.

2.16 The Government's livestock program includes improvements in marketing, animal health, and the introduction of more productive breeds whenever conditions allow. A major aim is to increase the traditional herd to make better use of available grazing resources (particularly in the North) and to integrate stock into arable areas to achieve a better utilization of crop residues, and provide draught power and manure. The fertility of the land would also be improved through the introduction of fodder crops and leys.

2.17 Producer prices are set by the Government with the dual purpose of maximizing smallholder income and deriving funds for agricultural development, notably the expansion of production of flue-cured tobacco. The prices of export crops are generally related to export parity, while food crops for domestic consumption (particularly maize) may be priced slightly higher (but still below import parity) in order to encourage an adequate supply. The Government aims at maintaining a buffer stock of 80,000 MT of maize (7% of total production) against crop failure. The costs of storing and disposing of the unused proportion of the buffer stock are met by the producers. Minimum guaranteed prices are generally announced before planting and short term fluctuations in world market condition are expected to be minimized. ADMARC, the Government's marketing organization, is the sole buyer of all smallholder crops not required for local subsistence. The Corporation offers a uniform price throughout the country, but is permitted to restrict its buying in areas of excessive transport cost. All costs are supposed to be covered but a certain crop (presently, for example, rice) may be subsidized to provide an initial incentive if the longterm prospects for economic production are expected to be adequate. ADMARC is expected to set aside a certain proportion of its gross turnover as a price reserve fund to be held in liquid assets. Fertilizer is subsidized from the development budget. The ultimate aim of the Government is to remove the subsidy for nitrogen, and this objective was basically accomplished in 1972. In the face of rising world market prices it has been decided, however, to keep prices to farmers constant and thus to accept a temporary and limited reinstatement of this subsidy.

E. The Ministry of Agriculture

2.18 Development of the agricultural sector is controlled by the Ministry of Agriculture and Natural Resources under the direction of the Minister, presently H.E. Dr. Kamuzu Banda, the Life President of Malawi and his Permanent Secretary. The Ministry has three major Divisions: Agriculture, Natural Resources (forestry, wildlife, hydrology and geological survey), and Administration. The Natural Resources and Administration Divisions will not be considered here. The Agricultural Division consists of the Departments of Extension and Training, Research, Animal Health and Industry, Technical Services, Fisheries, and a Planning Unit. It oversees the four major development projects which have a direct link with the Permanent Secretary, who is also a Board Member (generally Chairman) of a number of statutory corporations (Chart 1). The activities and resources of some of the various departments, projects and corporations are briefly reviewed below.

Departments

2.19 Extension and Training Department. The extension program is designed both to assist those individual farmers who have shown an interest in progressing from subsistence to commercial farming, and to create an interest in improved farming methods among the large number of subsistence farmers. About 150 farmers are certified annually as Achikumbi and a limited amount of credit is made available to them from the Central Farmers Loans Board.

2.20 A more intensive approach has been adopted in specific areas with assistance from British Aid. These areas include West Mzimba in the Northern Region where 6,000 farm families on 18,000 hectares are receiving more intensive extension advice on maize, groundnut and oriental tobacco production, land conservation and increased use of oxen; particular emphasis is placed on animal husbandry and establishment of improved pastures. A similar scheme involving 4,000 farm families on 15,000 hectares at Mpenu in the Nathenje area of Central Region is designated to increase maize yields while reducing total maize area, increase groundnut yields and area, and improve conservation by contour ridging. Both these schemes have made a successful start and have made good use of local self-help efforts. In each case the construction of feeder roads, improved water supplies and the introduction of some short-term credit for seasonal requirements were essential features of the scheme. A new scheme aided by ODA is proposed for Phalombe in Southern Region where recently improved water supplies will be incorporated in a small integrated development program involving various Government agencies. The program will involve some 22,000 farm families on 59,000 hectares. Other development efforts involve special assistance from ODA with cotton and tobacco growing. The cotton development effort aims at increasing yields through insect control and through opening new areas for cotton cultivation. ADMARC provides insecticides on credit. Repayment results have been poor mainly due to the lack of concentration of the field staff. The effort with regard to tobacco has been concentrated on quality and yield improvement. The Extension and Training Department, together with the Animal Health Department, has attempted through the demonstration of improved feeding and management techniques, to integrate livestock production (for draught power as well as dairy and beef) with crop husbandry. About 60 animal husbandry demonstration units and 60 ox training units have been established and 1,500 stallfeeders distributed.

2.21 The field service includes three regional offices with specialists and supervisory staff, 13 divisions each with a residential farmers' training center, and about 50 areas, each headed by an area supervisor and containing a non-residential training center. The Department in 1971/72 employed 42 university graduates, 106 diploma level staff and 734 junior staff with two years of agricultural training.

2.22 The Bunda Agricultural College, now a part of Malawi University, offers degree and diploma training. The present annual output is about 12 degree-holders and 60 diploma level students. The Colby College aims at an annual output of 150 students after a two-year practical training course. A new Natural Resources College is contemplated which would replace and bring together all agriculturally based certificate training; this would increase the output of extension staff to 185 per annum.

2.23 Research Department. Agricultural research is conducted at four institutions - the Research Department of the Ministry of Agriculture and Natural Resources, the Agricultural Research Council (ARC), the Tea Research Foundation and the Agricultural Faculty of the University of Malawi. Research in flue cured tobacco is financed largely by a cess, the proceeds from which

are paid to the Tobacco Research Board of Rhodesia. The University's contributions are mainly in the fields of agricultural economics, cattle breeding and pasture improvement. The Agricultural Research Council takes major responsibility for cotton and grain legume research (groundnuts and soya beans) and biometric work, while the responsibility for all other research falls on the Research Department of the Ministry. Research stations now cover all major ecological zones, and available resources appear adequate.

2.24 A Government research advisory committee controls the overall research program, and ARC has its own Scientific Council. Continuity of staff and research results are among the best in Eastern Africa. Over the years, agricultural research has concentrated on key points of constraint, and excellent results have been achieved in several areas. The great increase in cotton yields from the use of insecticidal sprays has made possible the establishment of a major export industry. Also, the breeding of groundnut varieties resistant to rosette disease and the use of fungicides to control leaf spot should enlarge the confectionary growing areas and give a substantial increase in average yield.

2.25 Animal Health and Industry Department. Compared with neighboring territories, Malawi is relatively free of major diseases; however, Foot and Mouth Disease (in the North), East Coast Fever and tuberculosis are among the most important diseases which pose a potential threat to Malawi cattle. Trypanosomiasis is found in isolated areas throughout Malawi, but the disease will not become a major factor until the infested areas are required for an increased national herd. The Animal Health and Industry Department has sought to protect local cattle from Foot and Mouth Disease infected cattle from Tanzania by campaigns of preventive immunization and by institution of a disease-free area which would act as a barrier against the movement of cattle from infected areas. The Department has a vaccination program to reduce tuberculosis (about 60,000 are treated annually) and East Coast fever and other tick borne diseases have been controlled through the establishment of dipping facilities (255 dip tanks are now in use, of which 29 are private). About 300,000 head of poultry are vaccinated against Newcastle disease annually.

2.26 Genetic improvement of the local Zebu cattle has been undertaken through an Artificial Insemination Service, and by the provision of bulls from two improved herds of Malawi Zebus. Two main exotic breeds are being introduced - Friesian and Brahman; the latter is being introduced mainly in the Lake Shore and Lower Shire areas in view of its tropical adaptation. About 2,000 inseminations are carried out annually and about 100 crossbred females are distributed.

2.27 To facilitate the sale of slaughter animals and increase the offtake from the national herd, the Department operates 34 cattle markets and 8 holding grounds throughout the country. About 12,000 cattle (12% of total offtake) are marketed annually through these facilities. About 1,500 animals extracted from the national herd are distributed annually to individual farmers for stall fattening. 1,100 pairs of oxen were trained at Government centers in 1972. 500 farmers deliver milk into two schemes in Lilongwe and Blantyre under a Milk Marketing Project sponsored by UNDP and Danish bilateral aid. 22%

2.28 The Department employs 17 veterinarians, 28 senior staff, and a field force of veterinary assistants and dip attendants. Training for junior staff (presently around 40 per annum) will be transferred to the Natural Resources College when established. A new central veterinary laboratory is being established at Lilongwe, and the existing laboratory in Blantyre will then serve as a regional center.

2.29 Technical Services Department. This Department contains three sections. The Land Use and Planning Section is concerned with identifying and planning settlement schemes and assisting the new medium-sized estate owners. Its main task is the evolution over the next five years of a comprehensive land use plan for the whole of Malawi. The Irrigation Section gives particular attention to the design and construction of small irrigation schemes primarily for rice production. The Settlement Section helps to ensure the most efficient use of unoccupied land by establishing both dryland and irrigated settlements; priority is given to the settlement of young persons trained by the Malawi Young Pioneers. Thus far, ten irrigated settlement schemes have been established with a total of 1,900 settlers on 1,400 hectares (880 ha of rice); there are also four other schemes receiving technical assistance from Taiwan. There is a pilot irrigated rice scheme at Dwangwa supported by the British which has been most successful with its initial settlers and its experimental program. The average development cost has been K 1,300 per irrigated ha. There are now also twelve rainfed schemes with a total of 1,200 settlers on 12,000 ha (2,100 ha cultivated). The main crops are maize, cotton, burley tobacco and groundnuts, and the cost of these dryland settlements averages about K 450 per ha. Present plans call for the establishment of one or two irrigated settlements (200 ha) and four rainfed schemes (1,000-1,500 ha) annually.

2.30 Planning Unit. The Ministry has a small unit for planning, project preparation and the collection of basic data. To date, it has mainly been concerned with major project preparation.

Major Projects

2.31 During the last six years Malawi has been a forerunner in the field of integrated rural development for the subsistence farmers. To date, four major projects have been started with promising results. These projects cover areas containing about 184,000 farm families (20% of the total rural population). The cost per family is given in Table 7.

Table 7: MAJOR DEVELOPMENT PROJECTS

<u>Project</u>	<u>Total cost (million K)</u>	<u>Total number families in project area</u>	<u>Cost per family (K)^{/1}</u>	<u>Target Number of families adopting improved technology - final year</u>	<u>Cost per adopting family (K)^{/2}</u>
Lilongwe	12.8	52,000	246	29,000	441
Shire	14.1	74,000	191	25,000	564
Salima	3.3	40,000	83	9,000	367
Karonga ^{/3}	5.0	18,000	278	4,600	1,087 ^{/4}

/1 The comprehensiveness of the projects and thus the benefits to the recipients vary between projects.

/2 Includes costs for non-agricultural purposes which may benefit a larger number of farmers.

/3 Has just started.

/4 Includes a district hospital and two minor irrigation schemes.

Source: IBRD appraisal reports and Government Development Budget 1973/74.

2.32 The Lilongwe Land Development Project, supported by IDA, is now in its second phase. It covers an area containing about 52,000 farm families at a total cost of K 12.8 million. This integrated smallholder project provides for a complete road network, a soil conservation system of mechanically constructed terraces, marketing centers, credit, land registration and extension advice. The major crops are maize, groundnuts and tobacco, and a breeding ranch is operated to supply feeder cattle for a cattle fattening program. An evaluation of the Project is now being undertaken by the Bank, but findings have been constrained by the lack of pre-project data for comparison purposes. The project has been successful in reaching a large proportion of farmers, in achieving substantial yield increases for maize and groundnuts, and in obtaining excellent repayment records in its credit operations. The construction of the physical facilities is proceeding satisfactorily and there has been good progress on land registration.

2.33 The Lower Shire Rural Development Project, also supported by IDA, is ending its first five-year phase and commencing a greatly enlarged second phase. The Project will ultimately cover an area with 74,000 farmers at a total cost of K 14.1 million. The first phase dealt with an almost totally underdeveloped area, and had the single aim of improving the cotton crop by supplying medium-term credit for back-pack cotton sprayers and short-term

credit for the yearly supply of insecticides. Extension and marketing services were also provided, as well as some road and water supply construction. Yield targets of 900 kg/ha have been achieved, as compared with 300 kg/ha for nonspraying farmers. Loan repayments average about 97%. Phase II expanded into an Integrated Rural Development Project; it continues cotton spraying but also provides credit and extension for rice, maize, sorghum, groundnuts and cocoa as well as an overall land and crop use plan for the Lower Shire Valley, inputs for a district grazing scheme, research, some land reorganization and improved social facilities.

2.34 The Salima Lake Shore Development Project, now in its 5th year, covers an area with about 40,000 families at a total cost of K 3.3 million; it is partly financed by the West German Government. The concept is similar to that of Lilongwe, but there is less emphasis on mechanized road construction and soil conservation (although a certain amount of road building is being undertaken in the later stages). Major crops are cotton, maize and groundnuts. Yield targets have been achieved (900 kg/ha seed cotton and 1,000 kg/ha Mani Pintar groundnuts). Salima has been particularly successful in the training of rural craftsmen.

2.35 The Karonga Rural Development Project received an IDA credit in 1972, and building construction and staff hiring has now started. The Project will eventually cover an area containing 18,000 farmers at a total cost of K 5.0 million. It is located in the north of the country in an area with difficult communications which is cut off from the lake shore road by an escarpment; this renders the area dependent on an underdeveloped lake transport system. The Project will provide extension and credit for cotton, maize, groundnuts and rice, with some irrigation facilities; a livestock component aimed at developing marketing and livestock offtake by provision of stockroutes plus improved disease control is also included.

Expenditures

2.36 The total development expenditures of the Ministry of Agriculture and Natural Resources (excluding forestry and fisheries) are summarized in Table 8. Recurrent expenditures increased from K 2.2 million in 1971/72 to K 3.2 million in 1973/74; the latter represents about 7% of total recurrent expenditure.

Table 8: EXPENDITURES ON DEVELOPMENT ACCOUNT (Million K)

	<u>Total cost</u>	<u>Exp. before 3/31/72</u>	<u>Revised Est. 1972/73</u>	<u>Estimate 1973/74</u>	<u>Remaining Cost</u>
Extension & Training/ ¹	5.6	2.3	0.8	1.1	1.4
Research	1.5	0.7	0.2	0.2	0.4
Animal Health & Ind.	4.9	1.3	0.8	1.3	1.5
Technical Services	9.1	3.2	1.1	1.7	3.1
Planning Unit	0.3	0.1	0.1	0.1	-
Major Projects	35.2	11.0	3.7	5.4	14.9
Other	<u>0.8</u>	<u>0.3</u>	<u>0.2</u>	<u>0.1</u>	<u>0.2</u>
Total	57.4	18.9	6.9	9.9	21.5
Of which external assistance	46.9	15.3	5.6	7.9	18.0

¹ Includes fertilizer subsidy.

Source: Government Development Budget, 1973/74.

Other Institutions

2.37 The Agricultural Development and Marketing Corporation (ADMARC) is charged with the marketing of smallholder crops, and with supplying inputs and implementing Government price policy. The corporation maintains 52 main storage depots and over 700 temporary produce-buying stations throughout the country (1 station per 1,300 farm families), and has a storage capacity of over 225,000 metric tons (MT). ADMARC and its predecessor have made substantial crop marketing profits during the last few years; these amounted to K 2.0 million in 1969/70, K 2.7 million in 1970/71, K 8.7 million in 1971/72 and are estimated at K 6.0 million in 1972/73. It can be seen below (Tables 9 and 10) that the trading in tobacco and to a lesser extent in ground-nuts has shown profits, while that in maize and paddy has experienced a slight loss. The corporation is required to invest in a great number of old and new ventures, some of which have no connection with smallholder production; thus

far, it has extended unsecured loans of K 1.9 million, secured loans of K 8 million and shares of K 3 million to a number of estates, but as some of these have not proved viable, K 1.0 million has been written off.

Table 9: ADMARC PRICES AND VOLUME PURCHASED, 1971/72

<u>Crop</u>	<u>Farm Gate Price Top Grade (K/MT)</u>	<u>Average Farm Gate Price Paid (K/MT)</u>	<u>Sale Price (K/MT)</u>	<u>Volume Purchased (^{'000} MT)</u>
Cotton	121	111	NA	22
Groundnuts	143	106	185	37
Tobacco	331	273	731	15
Maize	28	24	43	37
Paddy	73	72	76	17

Source: ADMARC Annual Accounts, 1971/72.

Table 10: ADMARC TRADING, 1971/72 (^{'000} K)

	<u>Purchase Value</u>	<u>Buying Costs</u>	<u>Percent- age of Cost to Value</u>	<u>Change in Stocks</u>	<u>Sales Value</u>	<u>Sales Costs</u>	<u>Percent- age of Cost to Value</u>	<u>Overhead</u>	<u>Profits</u>
Cotton	2,466	896	36	+316	4,250	102	2	198	804
Ground- nuts	3,907	904	23	+429	7,065	372	5	200	2,111
Tobacco	3,933	1,415	36	-	11,456	183	2	312	5,553
Maize	884	413	47/1	-208	1,599	46	3	91	- 42
Paddy	1,223	228	19	+145	1,173	2	0	51	-185
Other	<u>1,486</u>	<u>261</u>	<u>18</u>	<u>+184</u>	<u>2,168</u>	<u>73</u>	<u>3</u>	<u>58</u>	<u>474</u>
Total	13,899	4,117	29	+866	27,711	778	3	910	8,715

/1 Includes storage costs.

Source: ADMARC Annual Accounts, 1971/72.

2.38 The Government Loans Board (GLB) is under the supervision of the Ministry of Trade, Industry and Tourism, but field work such as the preparation of loan applications and loan supervision is carried out: (i) for farmers by the extension staff of the Ministry of Agriculture and National Resources and (ii) for businessmen by District Commissioners and District Loans Boards. The original plan for farm credit was to provide progressive small farmers with medium-term credit for purchase of draft oxen, implements and ox carts. At present, however, K 153,000 of the loan portfolio of K 201,000 is tied up in six loans to large estates, and some funds have recently been reserved for short-term credit in some new extension ventures (para 2.20). Total capital funding is small (about K 242,000); approximately 60 percent of the loan portfolio is in arrears, and 40 percent of this is considered to be uncollectable.

2.39 The Kasungu Flue-Cured Tobacco Authority has initiated a program to establish 120 tenant tobacco growers on 70 ha farms (8 ha tobacco). The project is financed by the Commonwealth Development Corporation which acts as managing agents of Government. As a result of careful preparation, sound and adequate training and a balanced rate of initial development, the Project has been successful. The quality of flue-cured tobacco is excellent, and yield and prices obtained by the tenants are above the average for Malawi; in 1972 50 tenant farmers averaged 1,550 kg/ha at 20 t/kg. A smallholder scheme of 50 farmers has been launched and is expected to be expanded by 600 farmers as part of a new project in 1973/74.

2.40 The Cold Storage Company, using the buying and country market organization of the Animal Health and Industry Department, is the Government's residual buyer (at floor prices) of cattle obtained at official auctions. These animals are either slaughtered directly at abattoirs operated by the Company at the Blantyre and Lilongwe markets, or the cattle are processed through the smallholder fattening scheme (1,500 head per annum) to increase weight and grade. As a result of past studies, a new abattoir at Mzuzu in the Northern Region is now under consideration. The Company is charged with responsibility for Government price and stabilization policies, and presently handles about 20% of the cattle trade. The Company is also responsible for all meat imported for local consumption.

2.41 The National Oil Industries (NOIL) is in charge of rice milling; it also oversees the extraction of oil from cotton seed, and in 1971 it took over the cassava trade from private traders. The company buys cassava from farmers in peeled, dried and chipped form at 1.7 t/kg, and in 1972 it exported 28,000 MT to Europe at a slight profit. ADMARC has recently acquired the majority interest in NOIL, and is handling the export and internal marketing of all NOIL's produce.

2.42 Cooperative Movement - Cooperative development was first encouraged in the 1950's; development suffered, however, from an overly rapid expansion coupled with a lack of experience and training. Cooperatives are not at this time actively encouraged by Government, but societies are assisted if they arise spontaneously and show signs of viability.

III. PRODUCTION OPPORTUNITIES

3.01 Malawi is self-sufficient in the major staples; subsistence cultivation of maize, pulses, groundnuts and other basic foods has generally been sufficient to satisfy domestic requirements (Table 12, Statistical Annex). Government policy is to increase yields to cover the increased demand generated by population growth (estimated at 2.6% p.a.). Such a policy would help avoid the necessity of bringing marginal lands under cultivation and would help preserve soil fertility. The small domestic market for staple foods as well as for sugar, beef, milk and poultry products is growing in relation to the rate of urbanization, and will be further augmented with improvements in income. Between 1968 and 1971 the number of wage earners increased by 6.4% annually to a level of about 170,000; per capita earnings increased over the same period by 2.5% annually. The possibilities for exports are, however, the main determinants of farm cash income and price forecasts are summarized in Table 11.

Table 11: EXPORT PRICE FORECASTS (K/MT)

	Realized Malawi Export Prices 1972	DEVPOL ^{/1} Estimated Export Prices 1980	World Market Prices		Description
			Realized 1972	IBRD Forecast 1980 ^{/2}	
Tobacco					
fire-cured	1,000	662	-	-	-
burley)	881	882	-	-	-
flue-cured)	1,448	1,103	767	701	India Export
Groundnuts	200	165	216	138	Nigerian, cif Europe
Pulses	78	88	-	-	-
Maize	35	29	58	41	US No. 2, fob Gulf ports
Rice	153	121	120	100	Thai, 5% broken fob Bangkok
Cassava	29	29	-	-	-
Cotton (fiber)	536	418	676	466	Mexican 1-1/16" cif Liverpool
Sugar	96	88	130	99	"World" fob Caribbean
Beef	-	-	2,028	1,789	Argentine wholesale London

^{/1} Statement of Development Policies, 1971-80.

^{/2} In constant 1972 terms.

Source: Malawi Government, Statement of Development Policies (DEVPOL), 1971-80
Malawi Government, Economic Report, 1973,
IBRD (Working Paper) Exports of Developing Countries, 1973.

3.02 Increased production in response to domestic and export requirements depends largely on farmers' incentives, improved techniques and the amount of new land that can be brought under cultivation. Table 12 summarizes the returns to land and labor which can be expected from the main crops under present and improved techniques. Most cultivable land of good quality with readily available domestic water supplies is already in use, and new land can only be brought into cultivation with increasing risk of fertility and erosion problems. Where unused arable areas still exist there is usually an inadequate water supply and efforts are required to identify these areas and arrange for their productive use. Priority should be given to high value crops such as flue-cured tobacco which would make maximum use of the development resources required. The exploitation of the irrigation potential is even more costly and substantial benefits would have to be projected before investment could be considered.

Table 12: RETURNS TO LAND AND LABOR IN PRODUCTION OF
SELECTED COMMODITIES

	Present Techniques				Improved Techniques				
	Price (K/100 kg)	Yield (kg/ha)	Gross Return (K/ha)	Gross Cost (K/ha)	Gross Margin (K/ha)	Yield (kg/ha)	Gross Return (K/ha)	Gross Cost (K/ha)	Gross Margin (K/ha)
Maize	2.76	900	25	1	24	2,500	69	16	53
Groundnuts	14.33	450	64	13	51	900	129	20	109
Fire-cured tobacco	24.25	225	55	-	55	560	136	25	111
Flue-cured tobacco	88.18	-	-	-	-	1,100	970	711	259
Cotton	11.57	335	39	-	39	1,000	116	46	70
Rice	5.51	1,000/1	55	6	49	3,300/2	182	31	151
Cassava	1.65	1,100	18	-	18	3,300	54	12	42
Pulses	8.82	335	30	-	30	670	59	17	42
Grass-Fattening	25/3	-	-	-	-	7	175	115	60
Grass-Dairy	11/4	-	-	-	-	3,000	330	140	190

/1 Rainfed.

/2 Irrigated.

/3 Feeder (difference between selling and buying price, K per feeder).

/4 Milk.

Source: Mission estimates.

Maize

3.03 About 100,000 MT of maize are marketed by smallholders outside ADMARC. It is Government's policy to hold about 80,000 MT (7% of production) as an insurance against crop failure; in practice only half of this amount is actually stored. Assuming that wage earners' demand grows by 6.4% and

desired stocks by 2.6%, if 7% of total production is continued to be held as an insurance factor, then the marketed surplus by 1980 should amount to 250,000 MT : 110,000 MT above the present level. To allow total production to grow by 2.6% annually, yields must increase from 1,000 to 1,250 kg/ha by 1980, assuming that no new land is bought into production (although some undoubtedly will be). Government policy provides that when production in a normal year exceeds domestic demand the producer price will be gradually adjusted to an export parity level; this would encourage diversification, provide cheap livestock feed and allow unsubsidized exports. Maize research carried out at Chitedze has concentrated on fertilizer requirements and the provision and testing of maize varieties including hybrids, composites and synthetic types. This research has demonstrated the great potential increases possible using improved seed, fertilizers and good husbandry (Table 13).

Table 13: YIELDS OF SHELLED MAIZE
(kg/ha)

	<u>Double Hybrid</u>	<u>Composites, Synthetics, etc.</u>	<u>Unimproved Seeds</u>
With fertilizer			
Research results	7,000	4,500	2,800
Farmer results	4,000	2,200	1,500
No fertilizer			
Farmer results	-	1,300	1,000

Groundnuts

3.04 About 67% of groundnut production, or 70,000 MT, is used for subsistence consumption, which is increasing at about the same rate as the population. There is a firm demand on world markets for confectionary nuts, whose prices appear to be fairly independent of those of oil nuts. Present price levels are slightly more than K 200 per MT and are expected to be maintained even if exports double. The nuts have a low content of aflatoxin, which gives Malawi a comparative advantage over other producers. Due to the high cost of importing canning material and the limited durability of treated non-canned nuts, the possibilities for further processing within Malawi are not very encouraging. A limited amount of low-grade nuts are sold locally for processing into oil. Present yields are about 450 kg/ha of nuts in shell, with considerable scope for increases. Several improvements have raised yields and consequently returns to farmers, and varieties for different ecological conditions are now available. Sulphur has been used to control the major cercospera leaf spot fungal disease. Progress is also being made in breeding rosette resistant varieties. The Chalimbana variety commands a high confectionary price but has a large irregular nut; this necessitates hand shelling and means there is a high labor requirement. A single family can

shell the production of only about 0.7 ha. Attempts made to develop family size mechanical shellers have thus far been unsatisfactory, as they give rise to an unacceptable proportion of broken kernels. The absence of such a machine is a major bottleneck in the future expansion of production and this factor should be given increased attention in the research program. Among other oil crops, sunflower seems to offer good prospects.

Pulses

3.05 Pulses play an important part in the diet of the rural population, but production has not kept pace with local demand. Present production encompasses a wide variety of types and grades. About 15% of the production or 17,000 MT of the white harricot and sugar beans are exported. With better grading a slight improvement in price may be expected. Yields could be doubled in pure stand by improved cultural practices. Soya beans have been tried but the present conclusion is that they will not be an attractive proposition to growers. Work is now being done on a suitable canning bean for use as a winter crop in irrigation schemes.

Cassava

3.06 Cassava is a highly drought-resistant crop grown as a standby in the case of drought. Most of the production is consumed on the farm and about 25-30% is marketed. In response to recent favorable prices within the European Economic Community (EEC), exports have totalled about 28,000 MT. The future prospects are difficult to forecast but with present farm prices of K 16.50/MT for dried, peeled and chipped cassava, farmers with marginal soils find it an attractive crop.

Fire-Cured Tobacco

3.07 As fire-cured tobacco is sensitive to world overproduction, the Government limits the supply by licensing producers and imposing production quotas; increases are decided on only after discussion with major auction floor buyers. The US has lowered production in the face of increasing costs in this labor intensive industry and has also removed a subsidy given to its producers. The effects of this and of the recent dollar devaluation are unclear. Other producers have been increasing production, but appear to have trouble in maintaining quality. Limited expansion possibilities exist for this crop within Malawi, and prices will remain stable with effective production and quality control. At present prices and with improved techniques, tobacco production is a very attractive proposition.

Burley Tobacco

3.08 Production of burley tobacco has been stimulated over recent years, and there has been a considerable increase in the number of growers. These new growers have opened new areas for tobacco production. In this process quality has suffered slightly, but the problem is being tackled by the joint efforts of the Research and Extension Departments.

Flue-Cured Tobacco

3.09 Malawi has used the Rhodesian situation to increase its market share of flue-cured tobacco from 900 to more than 8,000 MT, and is now firmly established as a major producer of leaf of satisfactory quality. The British Commonwealth preference is safeguarded until 1975 (under Protocol 22 of the Treaty of Accession by which Britain joined the European Community). In order to gain long term preferential access to these markets, Malawi has applied for association with EEC. Provided this is successfully negotiated, Malawi would have excellent prospects for further expansion of production. The increased production has thus far been derived exclusively from the larger farms and estates, but the successful project at Kasungu has demonstrated the feasibility of tenant and smallholder production. Utilizing this expertise, a major extension of smallholder production should be given serious consideration. Average yield figures have increased from 600 kg per hectare in the 50's to 1,200 kg in the period 1967-72. Research efforts promise further yield increases, although major production increases will come from an expansion of area. The current rapid development of new estates will continue, spurred on by the 50% rise in average prices from 89 t/kg to over 118 t/kg received at the current 1973 auctions. Over the past 6 years some 70 new medium and small estates have opened in Central Region, and these have not yet reached their full potential.

Cotton

3.10 Malawi produces a strong medium-to-long staple cotton for which there is a good demand in the UK. Total production of seed cotton in 1972 amounted to about 22,000 MT; with a 30% ginning out-turn, this produced about 6,600 MT of lint, 5,000 tons of which was exported. World market prices are expected to drop, however. Local processing is expanding, and would require about 3,250 tons in 1973. Pest control through spraying is vital throughout Malawi, and has resulted in large increases in yields (from 300 to 1,000 kg/ha). It is a costly process, however, and requires intensive extension efforts. Production will increase on the Lower Shire, but will only expand in other areas if cotton remains competitive with respect to alternative crops. There are already signs of a decrease in farmer interest in the Salima Project, where groundnuts show more attractive returns.

3.11 Ongoing breeding research is excellent, and the next generation of higher yielding varieties will soon be issued. The cotton research program on chemical insect control has been very successful, as has been the preliminary work on biological control of insect pests. The biological program, however, must be expanded if the continuous long-term application of chemicals to crops is to be avoided. The present practice of issuing free seed is both wasteful of seed (an average of 65 kilos per hectare are distributed, whereas 25 would suffice) and encourages cotton growing by the inefficient who do not spray. A pilot program to sell de-linted seed is being conducted in the Lower Shire and should be applied countrywide. The introduction of this change could be associated with the existing proposal for a modest price rise. As credit is already needed for pesticides, it could also be given for seed; in view of the monopoly position of

ADMARC (the purchaser), this should not present a repayment problem. Production increases can be realized, but they must be based on the present Shire and Salima projects and the selection of areas such as Bwanje Valley for intensive extension efforts including credit.

Rice

3.12 Malawi has developed an export rice market, but the long-term price prospects do not appear favorable. Malawi presently produces some US varieties (mainly Blue Bonnet) but has experienced difficulties in achieving a good quality and in double cropping due to long growing periods. Preferential treatment has been obtained in the South African and Rhodesian markets, but export costs are not fully covered at present farm gate prices. Until 1968 the majority of the rice production came from rainfed cultivation, but over the last five years increasing attention has been given to irrigated rice production; this has in turn led to a significant increase in exports from 1,000 MT in 1964 to 7,000 MT in 1972. More research must also be given to rainfed rice production, and to other irrigated crops that could be grown instead of or in combination with rice.

Sugar

3.13 Domestic demand for sugar is estimated at 38,600 MT in 1973, and is expected to double by 1981. Malawi has acquired a quota of 14,000 MT under the United States Sugar Act and has applied for a quota of 20,000 MT rising to 30,000 MT under the new International Sugar Agreement. Exports in 1972 amounted to 3,800 MT, but in 1973 are expected to reach 20,000 MT. World market prices are expected to remain favorable for the foreseeable future. Malawi has areas with a good potential for irrigated sugar production. Since 1966 an area of 4,850 ha has been developed in the Shire Valley by the Lonhro Company and a further expansion of the Lonhro estate by 4,160 ha has been agreed. This is expected to increase total production to a level of about 95,000 MT by 1979, which would still be short of estimated demand.

3.14 Government is contemplating two alternative areas for additional sugar cultivation: Kasinthula which contains an area of 8,000 ha adjacent to the Sukoma sugar estate (this could be irrigated either by pumping from the Shire river or by gravity through a 26 km canal) and Dwangwa at Lake Malawi, which also contains about 8,000 ha of irrigable land. A successful pilot rice scheme is in progress in this area. Yields in Sukoma average 12 MT/ha; this compares favorably with Mauritius at 9 MT/ha with double the labor costs. No data is available for Dwangwa, although a crop presently in the ground shows excellent promise. Figures for Mauritius indicate a profitability of US\$250/ha with a labor cost of US\$370/ha and a sugar price of US\$88/ton at farm gate. Malawi, using a low export price of US\$70/ton might show a profitability of around US\$350/ha. Present transport costs from Sukoma are around K 18/ton for export and K 6 for internal consumption. Costs at Dwangwa would be similar or lower for internal consumption, but considerably higher for export. Thus the Dwangwa area is in a better position to provide sugar for domestic consumption while export production would be at a considerable

disadvantage. Also, the Dwangwa area is more fertile and suitable for alternative crops. It could be partially developed for settlement without any special difficulty.

Macadamia Nuts

3.15 The Government Research Service at Bvumbe has been investigating the possibilities of production of the macadamia nut. Besides the provision of grafted seedlings, yield and spacing trials have been instituted and advice given to tea estates around the Mulanje and Nkhata bay area which have devoted some 80 ha to this crop. Provision has been made for a further 400 ha, including a possible smallholder scheme. With potential yields at around 110 kg shelled nuts per ha per annum and a price around K 0.90 per kg, this tree may produce a potentially valuable export crop.

Livestock Products

3.16 The prices of beef, pork and milk are regulated by Government. As cattle are kept by only 10% of rural households, subsistence consumption of beef and milk is very small. The situation is somewhat better for poultry products, since an estimated 57% of farm households have some poultry. Urban demand is marginal (10% of total population). The price of beef is only half the price of poultry and is below export parity; this in turn has led to a scarcity of animals for fattening schemes. The price of poultry appears to be high in relation to the costs of production, which in turn reflect a lack of competition in production and deficiencies in the distribution network. Demand for livestock products can be expected to grow by at least 4% annually (assuming unchanged prices). The number of cattle slaughtered has only increased by about 2% annually over the last five years. Imports amounted to 391 MT of beef, 57 MT of pork and 70 MT of mutton in 1972. Beef imports more than quadrupled over the past five years, but they still amount to only 3% of domestic production. Through an increase in prices paid to farmers, imports of beef were slightly reduced in 1973.

3.17 Expanded livestock production has been encouraged for several reasons:

- (a) To promote mixed farming in order to introduce animal power and rotational cultivation and to utilize crop residues. This would allow an expansion of cultivated area through a reduction in the amount of fallow (See also Table 1);
- (b) To avoid further increases in imports and if possible exploit the favorable market prospects for beef; and
- (c) To improve protein consumption.

However, as in surrounding countries, cattle are regarded as a source of wealth and security and communal grazing patterns make it difficult to introduce improvements. Nevertheless, improvements in marketing and disease control have been achieved. An organized grazing area with voluntary stock registration and herd restriction will be initiated shortly in the Shire project. The introduction of cattle on stockless farms has been supported by the development of successful methods for pasture improvement. Through crossbreeding with Friesian a heavier animal producing 1,200-1,500 kg of milk per annum has been introduced. Small scale poultry units have been successfully established and could be multiplied. Swine fever reduces the possibilities for successful pig production.

3.18 The main restrictive factor in the promotion of mixed farming is the lack of available stock. The demand for feeder stock for stall fattening is already well above the 1,500 available per annum from the traditional herd. The Dzalanyama ranch was established to improve the production of stall feeders, but it has proven impossible thus far to stock it properly.

IV. DEVELOPMENT CONSTRAINTS

4.01 A number of constraints have restricted increased production in the agricultural sector. The most important of these are the lack of financial resources, trained manpower and agricultural credit, and problems associated with marketing, communication, land tenure and soil erosion. These constraints will continue to be limiting factors in the future, and the success of the major development projects has, to a great degree, depended on their successful removal. As such, these projects thus provide a guide for future development strategy.

Financial Resources

4.02 The Lilongwe experience indicates that about K 100 per family is required for physical investment in feeder roads, soil conservation, marketing centers, staff housing, etc. The recurrent costs can be estimated at about K 10 per family per year. The initial heavy input of extension staff would be reduced after a certain stage of development is reached, and the staff thus released could be used to carry out a gradual broadening of the rural development effort. Table 14 illustrates the financial implication if the Lilongwe method is adopted nationally; assuming that 65,000 families are added to the program annually, this would allow a total coverage of the country in twenty years.

Table 14: FINANCIAL IMPLICATIONS OF A NATIONAL RURAL DEVELOPMENT EFFORT OF THE LILONGWE TYPE (K Million)

<u>Year</u>	<u>Number of Farm Families Covered</u>	<u>Initial Capital Investment</u>	<u>Additional Credit Re-quirements</u>	<u>Recurrent Cost</u>	<u>Maint. & Extension of Original Investment</u>	<u>Total</u>
1973	100,000	6.0	-	2.0	-	8.0
1978	425,000	6.5	1.0	4.3	4.3	16.1
1983	750,000	6.5	1.0	7.5	7.5	22.5
1988	1,075,000	6.5	1.0	10.8	10.8	29.1
1993	1,400,000	6.5	1.0	14.0	14.0	35.5

Note: Assumptions K 100 per family for initial capital investment, K 15 per family for credit inputs, K 10 per annum per family for recurrent costs, and K 10 per annum per family for maintenance and extension of the initial investment (10% of the initial investment).

Source: Mission estimates.

The table implies an annual growth of expenditure in constant prices of 7.7%. The estimates presented are indicative only, however, and refer to the extension services and allied work. Additional Government funds and resources would be required for the research, settlement, irrigation, veterinary programs as well as for the promotion of high value crops such as sugar and flue-cured tobacco; expenditure for these programs presently exceeds K 5 million. Furthermore, the construction of primary and secondary roads would need to be accelerated; in 1973/74 K 4 million was spent in this area.

4.03 With agriculture already receiving 30% of the development budget, an expansion of the allocation by 7.7% annually in real terms may be considered unrealistic. The Government has two possible courses for future strategy. Either the Lilongwe type comprehensive development effort could be used - which with a 4% annual increase in the allocation of funds would allow total coverage of the country in about 40 years - or some less intensive, sequential development method could be adopted which would make it possible to accelerate the development process throughout the country in a considerably shorter period of time.

Manpower

4.04 The proportions of degree, diplomate and certificate level staff being trained is satisfactory (1:3:15). Under present staffing levels, the number of farming families per trained field extension staff is as follows:

Outside Major Projects	1:2,000
Lilongwe (target)	1:250 (initially)
Shire (target)	1:150

The ratio of field extension staff (trained and untrained) to farm families in 1971 was 1:470; this represents an average for all Malawi and includes all disciplines covered by the Ministry of Agriculture and National Resources. With the planned training capacity of the National Resources College, it would be possible to achieve a staffing ratio of one trained extension worker per 400 families by 1990 (assuming 1.4 million farm families). This staffing ratio would be sufficient if the Lilongwe approach is modified with respect to credit procedures (para 4.05), if initially only a few innovations are emphasized and if the extension effort is initially concentrated on part of the area. The model farmer approach, (i.e. requesting an elected village representative to assist in demonstration and credit activities) may also merit consideration. Overall, graduates from existing institutions appear well prepared for their future assignment, and manpower is unlikely to become a serious constraint. Provision must be made for in-service training in collaboration with major development projects and for training of specialized (tobacco and sugar) and management staff.

Agricultural Credit

4.05 Short and medium-term credit for smallholders is practically non-existent outside the major projects. The National Sample Survey of Agriculture in 1969 reports that 13% of the holdings use fertilizer, 2% insecticides and about 1-2% ox-drawn implements. Since that time fertilizer consumption outside major projects has increased from 10,000 to 20,000 MT. Experience has shown that credit will facilitate wide-spread adoption where recommended inputs are beyond the means of the farmers. In LLDP careful individual screening, supervision of borrowers and integration with marketing has given a recovery ratio in excess of 95%. The procedure is, however, very resource demanding and an alternative approach of extending credit to the village members as a group should be considered. The experiments with village group approaches in the Lilongwe and Mpenu areas should be extended and strengthened. It may in this connection be worth trying the security fund concept under which a certain percentage of the credit would be deposited into a fund with the understanding that this fund would be used to cover any shortfalls in credit repayment. The group would be free to evict any defaulting member but would be obliged in any event to replenish the security fund before new credit would be issued. Over the years the fund could be further built up for crop insurance purposes. The farmers could eventually form a cooperative society. Farmers' cooperatives should be the end product, following naturally the introduction of new technology by the extension service.

Marketing and Supply of Inputs

4.06 Malawi already possesses an impressive marketing structure. Within this framework, further encouragement should be given to consumer groups who undertake joint marketing operations or purchase inputs as a group.

The successful group purchasing of five ton lots of fertilizer has already been demonstrated and price incentives could be used to facilitate similar operations. Where private facilities are inadequate ADMARC should establish a shelling service to handle increased quantities of maize and groundnuts. Existing buying points should be converted into permanent buying and selling centers to assure timely input supply. ADMARC should also create a separate department to ensure the efficient handling of input supplies.

Transport and Communications

4.07 Since Independence, Malawi's inadequate transportation network has been considerably improved. A new rail link of 888 km has been opened to Nacala in Mozambique in addition to the existing line between Beira and Salima. The Class I highway linking Blantyre with Lilongwe is to be extended to the Zambia border near Chipata and to Kasungu. The new Lakeshore Road has opened up large tracts of farmland in the Middle Lakeshore area. The lake service transport system which carries 35,000 MT each year is being improved; this will particularly benefit the northern lakeshore. The lack of feeder and village to market roads has been a major constraint for individual farmers and construction of these has been a prominent feature of all the intensive rural development projects. For all future development areas it is essential that a skeletal plan of the ultimate road network be developed, with indications of immediate priorities and possibilities for self-help construction.

4.08 The export tonnage moved by rail and road has varied greatly over the past ten years, due largely to fluctuations in the export of surplus maize. The figures are reproduced below:

Table 15: EXPORT VOLUME OF MAIZE AND ALL CROPS, 1964-72
('000 Metric Tons)

	<u>1964</u>	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>
Maize	13.7	1.0	44.4	91.8	87.0	47.3	0.9	4.6	36.8
All Crops	90.8	88.8	140.6	229.8	212.1	163.2	102.7	118.8	180.9

Source: Malawi Government, Economic Report 1973.

Considerable additional strain is being placed on the transportation network by efforts to assist Zambia with transit trade after the closure of the Rhodesian border. However, this problem has been overcome.

Land Tenure

4.09 Customary rights given to farmers include that of usufruct, or the right to cultivate and harvest crops, but do not include the right of exclusive grazing, mortgaging or selling. The traditional authorities administer the land through either matrilinear or patrilinear systems. In

the former case, a young man moves into the village of his wife's family and is allocated the use of a piece of land by her maternal uncle, who is regarded as the protector of his sister and her children. It is thus the maternal uncle who passes the land upon his death not to his own children but to his nephews and nieces (the children of his sisters). Where there is land pressure, this tradition is undergoing radical changes, as more children inherit land from their parents. With the appearance of more individual interest in land, and with a more stable farming system, this tendency away from customary systems has been accelerated. The origin of land use rights is illustrated in Table 16.

Table 16: ALLOCATION OF LAND USE RIGHTS

Region	Relative by Birth		Relative by Marriage		Non-Relative		No Per- mission	Total
	Male	Female	Male	Female	Headman	Other		
North	56.2	7.4	4.6	0.7	29.6	0.5	1.0	100.0
Central	36.0	23.7	4.1	5.5	28.5	1.3	1.0	100.0
Southern	18.0	22.1	8.0	8.7	37.9	3.2	2.1	100.0
All Malawi	29.5	20.7	6.1	6.5	33.4	2.2	1.6	100.0

Source: National Statistical Office, National Sample Survey of Agriculture 1968/69.

Land registration is part of the Lilongwe development project. Thus far 108,000 acres have been demarcated and certificates for 36,000 acres were issued in 1972. Some 120,000 acres are due for registration in 1973. In almost each case, the land holding of a consanguineous family unit has been the unit of registration. Individuals are registered as a member of the family with rights to land within the unit. The cost of the demarcation and registration has been K 1.44/ha; this is high, and Government should examine the standards of survey and consider modification. Registered title is necessary for commercial farming, but it is not immediately essential for the development of smallholder farming. Demand for a registered title will arise during the later stages of development when more permanent inputs and systems of farming are introduced.

Soil Erosion

4.10 Malawi experiences rainfall of high intensity, it has a dissected topography with many steep slopes, and soils over large areas are light. These factors plus dense settlement, intensive cultivation and reduced fallow periods have resulted in considerable problems of erosion. The extension service is trying to promote contour ridging, which is slowly being adopted. In the area covered by the Lilongwe project a complete system of terraces and roads is being introduced. In order to minimize the requirements of funds and skills and maximize local participation in construction and maintenance, the conservation needs in various parts of the country should be identified and an optimal approach and phasing in each situation determined.

V. DEVELOPMENT STRATEGY

5.01 At Independence, the Government was able to finance only about half of its recurrent expenditures from local resources. The deficit was met by grants and loans from the U.K. Between 1964 and 1971, however, improvements in tax administration and some changes in the tax system caused domestic revenue to rise by 15% a year; the average annual increase in recurrent expenditure was only 7%. Even though agriculture was accorded priority and now receives one-third of all development funds available, agricultural development has had to proceed cautiously.

5.02 The emphasis in the traditional sub-sector was first on the production of export cash crops, secondly on import substitution, and finally on the production of local food crops. An extension service with a high standard of training and ability was created and the necessary infrastructure - communications, boreholes and markets - was slowly improved. The provision of inputs to agriculture has been gradually expanded. The major projects have simultaneously developed specific areas and crops and demonstrated the techniques of credit, input organization, yield increases and communication and marketing. Generally, this strategy has provided a sound basis for future development.

5.03 Estate production of flue-cured tobacco, tea and sugar has expanded rapidly since Independence; on the other hand, marketed smallholder production, with the exception of cotton and rice, has only expanded sufficiently to cover increases in local demand. The major projects have shown production increases, but these represent only a small proportion of smallholder production. Outside these projects, production has been severely hampered by the scarcity of trained staff, lack of credit and deficiencies in communication and in the supply of inputs. Opportunities for expanding production - particularly of flue-cured tobacco, groundnuts, sugar and beef - are, however, impressive; an effort should be made to exploit them by utilizing the experience gained while economizing on manpower and financial resources. Malawi must gradually transform smallholder production from extensive shifting cultivation with lowered fertility to intensive integrated permanent cropping and animal farming.

National Rural Development

5.04 Rural development must be regarded as a sequential process. An initial significant increase in income would generate both the resources and demand for further development. By concentrating on the elements necessary to achieve the initial income boost, it would be possible to cover the country in a reasonable period of time without placing too heavy a burden on the finances of the country. Through such an approach, it is also possible to avoid widening the income disparities between regions and to generate a maximum amount of self-help. The concentration of the development effort has three aspects: the commodities emphasized, the services extended, and the infrastructure required. These are discussed in turn below.

5.05 In any given geographical area efforts should be directed toward the increased sales of the commodity which offers the best technical and market opportunities. In order to release land and manpower for cash crop cultivation, it may in addition be necessary to enhance productivity in food crop cultivation. The approach should gradually be extended to other commodities and innovations and local testing of new techniques should be included in the initial effort.

5.06 The necessary public services will include demonstration and instruction in new techniques, supply of recommended inputs, provision of credit for their acquisition, and marketing of incremental production. In order to economize on resources and to encourage local participation, the existing village structure should be utilized in the extension work by giving credit to the village as a group and by encouraging joint marketing and acquisition of inputs. From these joint activities may ultimately emerge a sound cooperative base if training in management principles and accounting is provided. The public services should at a later stage be improved or extended with respect to home economics, education, health etc. The establishment of individual title to land would become an important consideration once adoption of durable inputs and land improvements become widespread. Workshops, mills and other small scale ventures could be promoted to exploit new opportunities.

5.07 As a basis for the planning of infrastructure, maps should be drawn up to indicate contours, land classes, cropping patterns and erosion damage. With the help of this map overall road, market, water and soil conservation needs could be defined, and construction then phased in conjunction with other development efforts. In the initial phase of development no farmer should be more than 5 km away from a dry weather road. At this stage, soil conservation measures would be designed to arrest erosion which would lead to permanent loss of arable land. Remedial measures may be delayed if the damage will not be irreversible and if discounted future costs are lower than the cost of immediate remedy. Self-help both in construction and maintenance should be promoted. Water development, an improved road network and additional soil conservation measures will follow in later stages of development.

5.08 Some experiments more or less along the lines recommended above have recently been introduced in the Mpeni and the Lilongwe projects. This approach, although less resource demanding than the existing major projects, cannot be implemented throughout the country immediately. It is probably feasible to aim at complete national coverage over a 20 year period. This would imply that, on average, areas with about 65,000 families should be added to the national rural development program annually. There is an immediate need to determine the priority areas for this expanded effort. In order to maximize the benefits derived from the available investment resources, high potential areas should be exploited first; this pattern may be modified, however, to give early attention to areas where incomes are particularly depressed or where special needs are identified. In any case, high-yielding and well tested innovations must be available.

5.09 The national rural development program should be managed by the Extension and Training Department and should be supported and supervised by specialist staff in Headquarters and in the regional and divisional offices. Existing extension staff in any one area should form the nucleus when the national rural development program is launched and increased resources should be reserved for the program areas. Until the area is incorporated in the national rural development program, the existing extension staff should continue present services and prepare the ground by local testing of innovations and surveys of prevailing farming conditions. Some smallholders (including about 4,000 Achikumbi) have already or are in the process of achieving a relatively advanced stage of farming including the use of ox-power and the integration of crop and livestock production. Farmers who have demonstrated their ability must be assisted in their further development irrespective of their being inside or outside a program area. There is an increasing need for medium-term credit for this purpose.

5.10 Two high value crops, flue-cured tobacco and sugar are of particular interest. Both can be grown efficiently by smallholders, but in view of the complex growing techniques, the farmers' lack of previous experience and the intimate relationship of cultivation to processing, areas emphasizing these crops will require special arrangements with respect to extension, credit, irrigation etc., and would be most suitably managed as semi-autonomous units.

Role of Major Projects

5.11 The major projects should continue to give maximum support to the regional development program. As an additional function they should provide a proving ground for innovations and techniques to be used in the national rural development program. In the case of existing activities, the projects can provide answers to questions such as, how livestock production can be further integrated, how new opportunities for small-scale industry should be exploited, and how and at what rate social amenities can be expanded. Further experimentation is required with levels of extension staff, extension methods, the credit approach and village cooperation, levels and phasing of investment in roads and soil conservation, means to organize self-help, and land tenure. Projects should be equipped to plan and evaluate such experience and to communicate the experience to staff elsewhere. A close cooperation between the spearhead efforts of the major projects and the national rural development program must be established. Where possible the projects should be allowed to expand their geographical coverage to allow full utilization of administrative and other overheads.

Settlements

5.12 The Technical Services Department of the Ministry of Agriculture and Natural Resources has the capacity to carry out a program for six settlement schemes per annum. One or two would be irrigated schemes of about 200 ha each, and the remainder would be dryland schemes of about

400 ha each. The settlers are recruited from Young Pioneers and local farmers, but the rate of desertion among the Malawi Young Pioneers in existing schemes is high. Credit repayments have been poor on some schemes. In view of the heavy costs of the settlements both in financial and manpower terms, a period of consolidation should be allowed. A one year moratorium on new schemes should be introduced to fill existing vacant plots. The program should then be continued on a scale which would allow solutions to be found for the training and credit problems and which would introduce more self-help in the establishment of the schemes. Areas suitable for settlement need to be identified more closely and ranked with respect to their potential.

Livestock Development

5.13 The productive capacity of the existing national cattle herd has increased significantly through improvements in disease control and marketing facilities. Further increases through controlled grazing are possible. The most important task to be completed lies however in the introduction of cattle on stockless farms. The main constraint is the lack of female breeding animals. Importation of stock appears to be the only solution for a rapid expansion of animal production. To allow for increased reproduction and a wider distribution of cattle it is suggested that additional breeding ranches be developed, and the breeding program of state ranches be adjusted to accomplish these ends. Distribution to individual farmers would have to be accompanied by the introduction of fodder crops and other means of supplementary feeding to replace maize bran, which will gradually diminish in importance with the introduction of mechanized milling. As soon as the stock situation allows, both the fattening and the work oxen schemes should be expanded. There is also scope for experimentation with a wider distribution of improved dairy stock to farmers who have expanded their crop production and thus their cash incomes; these farmers could use the milk for family consumption or for sale to neighbors. The breeding program on the proposed ranches should consider the need to develop a multipurpose animal for the development program. A welfare program to make milk available in schools and health centers may have considerable merit. Small scale poultry production ought to be actively promoted and credit made available for this purpose; with an expanded supply the price of poultry products will decrease and consumption expand. With efficient production methods it will, nevertheless, be possible to make an attractive profit.

Medium and Large-Scale Farming

5.14 The Government permits civil servants and other persons to take up large- and medium-scale farming and offers leases of land for this purpose. The soundness of this policy is contingent upon experience and efficient management. In such allocation of public land careful consideration should be given to efficiency as well as employment and income distribution criteria. Many of the medium and large-scale farmers have managerial problems. The establishment of a "Farm Management Service" (FMS) within the

Department of Extension and Training would help in preparing farm investment plans and assist in their implementation. This service should be commercially oriented and at least partly able to recover its costs. The training of competent managers should also be contemplated. A source of medium and long-term credit for efficient commercial farming enterprises is also required if further development is to take place (Annex 1).

Organization and Administration

5.15 The organizational structure of the Ministry of Agriculture has proved successful and needs no major changes (Chart 1). Some flexibility in the application of civil service regulations is however desirable to permit the Ministry to recruit, dismiss, train and promote staff in a more expeditious manner. The Ministry of Agriculture and Natural Resources expects its Planning Unit to carry out project preparation and evaluation; the accounting system should be designed to provide managerial guidance and data for evaluation. Close integration and coordination of the extension activities with ADMARC and the organizations overseeing credit and road construction as well as with the local administrations must be assured both at the field level and on a regional and national basis.

Credit and Inputs

5.16 There is a need for close coordination between extension, marketing, supply of inputs and credit. This does not mean, however, that these services must be provided by one single organization. Various arrangements are feasible and each may have its own advantages. The Malawi Government proposes that the services would be provided by both new and existing institutions, as shown in Table 17. The outstanding features of these proposals are that:

- (a) An Agricultural Supply and Credit Organization (ASCOM) would be created as a subsidiary to ADMARC to provide inputs and short-term credit to small farmers within project areas.
- (b) An Agricultural Bank (ABM) would be created to provide short and medium-term credit to medium-sized farmers.
- (c) Medium and long term credit to small farmers would continue to be provided by the Central Farmers Loan Board (CFLB) and in the case of major projects by the project authority.

Table 17: CREDIT ARRANGEMENTS PROPOSED BY GOVERNMENT

<u>Service</u>	<u>Major Projects</u>	<u>Proposed Rural Development Areas</u>	<u>Outside Project Areas</u>	<u>Medium Sized Farms</u>
Extension	Project Auth.	Ext. Dept.	Ext. Dept.	Ext. Dept.
Input Supplies	ASCOM	ASCOM	ASCOM	Commercial
Short-Term Credit	ASCOM	ASCOM	-	ABM + Com. Banks
Med. & Long-Term Credit	Project Auth.	CFLB	CFLB	ABM
Marketing	ADMARC	ADMARC	ADMARC	Commercial

5.17 These arrangements appear to be unsuitable for the following reasons:

- (a) Two new credit institutions would be established but neither would provide medium-term credit to small-holders, a service for which demand is increasing.
- (b) No new arrangements are foreseen which would improve or replace the unsatisfactory credit operations of CFLB.
- (c) It would be more appropriate to retain all credit operations in one institution.
- (d) Input supplies would continue to be better provided in combination with marketing services (as is presently done by ADMARC).
- (e) Some inputs cannot be supplied by ASCOM e.g. dairy cows, draft oxen, and these would need special credit arrangements.
- (f) As the proposed ABM would have a small volume of loans and a large overhead, its financial viability would be very doubtful.
- (g) The establishment of two new credit institutions (ABM and ASCOM) in addition to those already existing would aggravate the problem of scarce agricultural credit expertise.

5.18 For these reasons the creation of one single agricultural credit institution "The Rural Development Bank of Malawi" (RDBM) to supply short, medium and long-term credit to both small and medium-sized farmers seems more advantageous. This would enable the small farmer who has successfully utilized short-term credit to stay with the same credit institution when he moves to medium-term investment (e.g. dairy cows, curing barns, draft oxen, technical equipment). An alternative institutional arrangement is shown in Table 18. RDBM would provide all credit services and ADMARC would provide the input supply and marketing services as at present. ADMARC should, however, strengthen its input supply services and convert its temporary buying stations into more permanent centers.

Table 18: ALTERNATIVE CREDIT ARRANGEMENTS

<u>Service</u>	<u>Project Areas</u>	<u>Proposed Rural Development Areas</u>	<u>Outside Project Areas</u>	<u>Medium Sized Farms</u>
Extension	Project Auth.	Ext. Dept.	Ext. Dept.	FMS + Ext. Dept.
Input Supplies	ADMARC	ADMARC	ADMARC	Commercial
Short-Term Credit	RDBM	RDBM	-	RDBM + Com. Banks
Medium & Long-Term Credit	RDBM	RDBM	RDBM	RDBM
Marketing	ADMARC	ADMARC	ADMARC	Commercial
<u>Research</u>				

5.19 There has been excellent coordination between various research institutions in Malawi, which have made good use of funds and their specialized research staff. Continuity of staff and research results are among the best in Eastern Africa. The Budget for the Research Department in the Ministry of Agriculture and Natural Resources is being increased to allow for the phasing out of British aid for capital and recurrent costs. The budget will be maintained at a level sufficient to allow the essential research programs to be carried out. There is also a recurrent problem of replacing expatriate research staff with fully-trained and experienced Malawians. A review of present arrangements for training of staff is thus urgently needed.

5.20 The present work on biological control of insect pests in cotton should be expanded, with facilities allowing larger field and district trials. In view of the crop's regional importance there is a strong case for outside financial aid. Government should consider expanding the excellent research on other crops, especially high value tree crops such as macadamia and cashew nuts. The development of a mechanical shelling device for the Chalimbana confectionary groundnuts should receive highest priority. It would also be useful in view of the present level of exports to examine cassava husbandry and to continue rice research at Dwangwa.

Land Planning

5.21 In view of the proposals for rural development, development of smallholder flue-cured tobacco, dairy, beef and ranching as well as developments in irrigation and settlement, it is recommended that a short-term land utilization survey be mounted to identify the most suitable areas for development. To achieve early results, it is recommended that the first phase of the present 5-year land utilization survey be a 12-18 month interim survey to identify immediate development areas. The physical planning and survey staff should be strengthened by an experienced agriculturalist and a farm management economist. Information identified should include:

- (a) Production potential, existing population density, size of holdings, livestock and farming systems;
- (b) Water availability for domestic, livestock and irrigation use;
- (c) Areas with urgent conservation problems; and
- (d) Existing communications and services.

The siting of all new rural agricultural development projects should be reconciled within the framework of this new land use plan.

Price Policy

5.22 ADMARC has proved to be a comparatively efficient marketing organization; farmers have been offered relatively attractive prices and the Corporation has been able at the same time to accumulate substantial profits over the last five years, particularly from tobacco and groundnuts. There is, however, an obvious conflict of goals in the price policy between the maximization and stabilization of smallholder income and the accumulation and investment of development finance. This conflict may become more pronounced in the future and jeopardize farmers' incentives. The Government may thus want to consider a separation of the two functions by using alternative means of obtaining development finance. Stabilization tends to be interpreted to mean that no price adjustments downward would be tolerated, and consequently there is a reluctance to make upward adjustments; more flexibility is thus desirable.

5.23 The recent reduction of the subsidy on sulphate of ammonia coincided with a substantial increase in world fertilizer prices, and this contributed to an overall reduction in the amounts utilized. Although the use of fertilizers remains profitable, it is recommended that the remaining subsidy (20-20 compound) should be continued to prevent a further drop in sales. Consideration should be given to the use of the large profits derived by ADMARC from tobacco production to encourage the use of improved inputs.

VI. INVESTMENT PROGRAM

6.01 It is estimated that ongoing projects would require K 21.5 million in the period 1974/75 - 1978/79. Certain adjustments in the settlement program and the transfer of the fertilizer subsidy program to ARMARC will save K 2.2 million. The investment proposals which are outlined below will require about K 25.4 million during this five-year period while further investment in research, animal health, the Salima project etc., would require an additional K 10 million. Total requirements for the five year period would therefore be K 54.7 million. This represents a 3% annual compound rate of growth of the agricultural development budget.

Table 19: PROPOSED INVESTMENT PROGRAM 1974/75 - 1978/79
(Million K)

<u>Project</u>	<u>Start- ing Year</u>	<u>Number of Years</u>	<u>Total Invest- ment</u>	<u>Investment 1974/75 to 1978/79</u>
Lilongwe Phase III	1975	4	10.0	10.0
Flue-cured Tobacco	1976	5	4.2	3.0
National Rural Development	1977	5	17.0	5.0
Livestock Development	1976	4	3.0	2.0
Sugar (excl. nucleus estate and factory)	1977	5	6.0	2.4
Karonga Phase II	1977	5	5.0	1.0
Shire Phase III	1978	5	15.0	2.0
Subtotal			60.2	25.4
Ongoing Projects				21.5
Adjustments in present program				- 2.2
Subtotal				19.3
Unscheduled investments				10.0
Total Investments				<u>54.7</u>

National Rural Development Project

6.02 A rural development program which would cover the country within a period of 20 years is recommended. This would initially involve the development of 2-3 new areas annually, each containing about 15,000 farms. Emphasis would be given to an integrated effort including extension, credit, marketing, agricultural inputs, the construction of feeder roads and soil conservation works. The program is expected to be accelerated as more experience is gained. The project would fund the first five years of the development program. The project areas would be selected on the basis of their production potential from the land use plan (para 5.21). Development in each area would be coordinated by a development officer (area supervisor) who would be supported by the divisional, regional and central staff of the Extension and Training Department. The program would aim at raising farmers' cash income by increasing yields of selected cash and food crops. The major cost items of the project would be farm inputs, construction material and equipment, transport equipment, staff salaries and operating costs. In preparation, particular attention would be given to the institutional credit arrangements. To allow farmers to realize their full potential the project would also provide credit for long and medium-term investment to progressive smallholders and medium sized farms. A survey of the number of farms in those categories is required. The project should be ready for implementation in early 1977 and the cost is tentatively estimated at K 17 million.

Lilongwe Phase III Project

6.03 The second phase of the Lilongwe project should be completed in April 1975 and preparation of a Phase III project has commenced. Phase II objectives should now be augmented to allow the project to give maximum support to the national rural development effort. Training and evaluation facilities should be extended beyond the project's immediate needs. Phase III would essentially be an extension of Phase II and would utilize the full administrative capacity and central facilities of the existing project. The project would remain as a semi-autonomous entity but would liase closely with the Extension and Training Department. The cost is estimated at about K 10.0 million for a four year period.

Karonga Phase II Project

6.04 Phase I of this project will be completed in 1977 and Phase II would perform the same functions for the Karonga and Chitipa Districts. It is expected that the project would gradually assume the same spearhead function as the Lilongwe project performs for the Central Region. The project would cover five years, and would be ready for implementation in late 1977 at a cost of K 5.0 million.

Livestock Production Project

6.05 The main purpose of this project would be to increase the national breeding herd (para 5.13). About 2,000 cows would be imported annually for four years (from Botswana or elsewhere) for stocking existing Government land holdings or for sale to private large-scale breeding ranches. The project would begin in 1976 and be completed by 1980 at a total cost of about K 3 million. It is also important that the Dzalanyama Ranch (Lilongwe project) be fully stocked without delay.

Smallholder Flue-Cured Tobacco Project

6.06 The Kasungu smallholder scheme involving about 50 growers is financially successful and has achieved high yields of quality tobacco. This will be expanded to include 600 growers by 1973. It is recommended that Government establish a further four schemes of 600 growers each, thus adding about 1,500 hectares of flue-cured tobacco. The project would be developed over four to five years depending on the availability of suitable land; it would commence in early 1976 and would cost about K 4.2 million. The project would be operated by an expanded Kasungu tobacco authority. Development of this project should proceed in close conjunction with CDC.

Smallholder Sugar Project

6.07 A survey is required to determine the feasibility of expanding sugar production in Malawi. Such a survey should consider marketing prospects, the Dwangwa and Kasinthula sites, the basis for production (smallholder, estate or both) and engineering and agronomic aspects. A pre-feasibility study of the prospects for sugar production at Dwangwa is now underway, and a report was expected in November 1973. In spite of organizational and administrative difficulties, a smallholder nucleus estate approach is recommended for the following reasons:

- (a) A smallholder scheme is more flexible than a single crop estate; it allows crop diversification and livestock production and a more complete use of the available land.
- (b) Estate sugar production although achieving production targets would have little income distribution effects and less efficient use of by-products.

Project preparation should be completed within 2 years and the project should start in 1977. The cost of developing a 4,000 hectare scheme over a five year period would be about K 6.0 million, excluding the cost for the factory. In the meantime, sugar experimentation should be intensified at Dwangwa.

Shire Phase III Project

6.08 By 1978 the third phase of the Shire Valley Agricultural Development Project would have been financed. It is anticipated that this phase would include a large-scale irrigation project based on a major canal from the falls of the Shire River. Farming systems which could use this water profitably are being sought as part of the Phase II project. The total cost of the project is roughly estimated at about K 15 million, of which about K 2 million would be required in 1978/79.

VII. PRODUCTION ESTIMATES

7.01 Estimates of marketed production of major export crops in 1980 were given by the Malawi Government in the "Statement of Development Policies", 1971; these estimates have been recently revised in the light of experience. Present production levels as well as the two forecasts are presented in Table 20. An index comparing the level of production during the last 4-5 years with the level of marketed production during the four years immediately after Independence is also included.

Table 20: PRODUCTION ESTIMATES ('000 MT)

<u>Crop</u>	Marketed Production Index. Average 1968- 71 (Average 1964-67 = 100) ^{1/}	Actual			Marketed Production	
		1970	1971	1972	Dev. Pol. Estimates for 1980	Revised Estimates for 1980
Maize	91	8.1	34.8	66.7	182.9	182.5
Groundnuts	98	26.4	36.7	39.2	90.9	71.7
Pulses	54	7.3	17.5	16.2	27.3	-
Seed Cotton	124	21.6	22.2	21.8	57.3	-
Paddy	222	9.3	18.7	19.8	109.1	55.3
Tobacco fire	71	10.0	12.1	14.5	19.0	22.2
flue	320	4.7	6.4	8.6	9.1	15.6
burley	190	5.7	5.7	5.5	9.1	9.4
Tea	122	18.7	18.6	20.7	26.0	27.1

^{1/} Some variation in periods occur.

Sources: Malawi Government, Statement of Development Policies.
National Statistical Office, Compendium of Agriculture.
Ministry of Agriculture, Working Document.

7.02 The production of export crops such as tobacco and tea has expanded beyond expectation and the targets have been revised upward. There should be no difficulty in achieving these adjusted targets. Production of flue-cured tobacco has been particularly successful. If market conditions continue to be favorable it should also be possible to reach the target level for fire-cured tobacco. While in the long run the prospects for expanding other small-holder production appear favorable, the targets for 1980 may be overambitious. In view of population increases, the marginal character of new land, and price increases for fertilizers, only very limited growth of marketed production can be expected from outside the development projects and settlements.

7.03 The maximum quantity of maize thus far sold to ADMARC was 91,000 MT in 1967. The 1980 target is twice this amount. Over the past eight years total marketed production has exhibited a downward trend, indicating that the growth of total production has been below the rate of population growth. Attempts to reverse this trend through the Lilongwe, Mpenu and other projects are not likely in a normal year to result in the surpluses predicted in Table 20 unless relative prices are changed in favor of maize. Efforts under the proposed national rural development projects are unlikely to yield any significant production increases in the period in question. The actual marketed production by 1980 is thus likely to fall about 100,000 MT short of the target.

7.04 Groundnut production appears to have kept pace with population growth and, except for the shelling difficulties with the Chalimbana variety, is an attractive crop for farmers. The revised target represents a doubling of the 1971 cash sales, but is 20% lower than the original forecast. Some switch from cotton to groundnuts has been reported. The Lilongwe project represents the main development effort aimed at increasing production of groundnuts. Even the revised target appears to be optimistic, however, and sales may fall slightly short.

7.05 Sales of pulses have decreased significantly since Independence, and production for the market is not very attractive to the farmers. No particular efforts to increase production are in progress. Prices for most pulses have recently been increased significantly, and as a result it is expected that producers will increase their future surplus production.

7.06 The production of cotton has expanded primarily through the Shire and Salima projects. The new Lake Shore road may also open up new areas with a potential for cotton growing and the prospects for further growth of production are thus encouraging. The estimated production is about 2.5 times the present production and would imply a compound growth rate of about 11% per year, which is more than double the rate by which production has expanded in the past. A forecast of about 40,000 MT appears more realistic than the "DevPol" target of 57,300 MT. However, if the rapid growth of domestic demand results in prices above export parity and a change in the relative price structure, the estimate may then become more realistic.

7.07 Paddy production has grown rapidly through the expansion of both irrigated settlements and rainfed cultivation, although there have been marketing constraints as well as technical difficulties. The further expansion of rice production at Dwangwa may be limited by plans for sugar production in the same area. The target production has recently been reduced by one-half, but it is still about triple the present production (13% annual growth assumed). Although growth in the past has been even higher (starting as it did from a very low basis), the constraints and the recommended decreased emphasis on settlements during the next five-year period make it unlikely that the estimate will be reached. With increased irrigation potential, the development of more suitable varieties, and with improved settlement methods, production of rice could in the future be of considerable interest, however.

7.08 Sugar production is expected to expand rapidly. It is estimated that beef production will reach 12,000 MT in 1980 (present level, 7,600 MT). This represents a growth rate of more than 6% annually; actual growth in the past has been slightly more than 2%. In spite of considerable efforts to increase production, however, the estimate is likely to prove over-optimistic.

Statistical Annex
Table 1

MALAWI
AGRICULTURAL SECTOR REVIEW

Population by Regions, Age and Sex, 1966 a/

	Under 5 Years	5 to 14 Years	15 to 44 Years	45 to 64 Years	65 Years and Over	All Ages	Persons Per Square Kilo- meter b/
<u>Malawi, Total</u>	<u>748.2</u>	<u>1026.5</u>	<u>1645.7</u>	<u>457.6</u>	<u>161.4</u>	<u>4039.6</u>	<u>43</u>
Male	366.1	513.2	732.5	219.5	81.9	1913.3	20
Female	382.1	513.4	913.2	238.1	79.5	2126.3	23
<u>Southern Region</u>							
<u>Total</u>	372.8	517.8	856.7	241.9	78.1	2067.1	65
Male	182.3	259.6	387.4	121.6	41.8	992.6	31
Female	190.4	258.2	469.3	120.3	36.3	1074.5	34
<u>Central Region</u>							
<u>Total</u>	282.7	375.6	598.1	155.7	62.8	1475.0	41
Male	138.3	187.6	263.2	71.9	30.6	691.6	19
Female	144.4	188.0	334.9	83.8	32.2	783.4	22
<u>Northern Region</u>							
<u>Total</u>	92.8	133.2	190.9	60.1	20.5	497.5	18
Male	45.5	66.0	81.9	26.1	9.5	229.0	8
Female	47.3	67.2	109.0	34.0	11.0	268.4	10

a/ In thousands of persons except where otherwise specified.

b/ Land area only, i.e excluding all lakes.

Source: Malawi Population Census, 1966.

December 4, 1973

MALAWI
AGRICULTURAL SECTOR REVIEW
Farm Population, 1969 ('000)

<u>Region</u>	<u>Non Working</u>	<u>Working</u>	<u>Total</u>
Northern Region	184.0	314.6	498.6
Central Region	581.6	907.9	1489.5
Southern Region	798.1	1285.3	2083.4
All Malawi	1563.7	2507.8	4071.4

Source: National Statistical Office, National
Sample Survey of Agriculture, 1968/69.

December 4, 1973

MALAWI
AGRICULTURAL SECTOR REVIEW

African Population 5 Years and Over by School Attendance

<u>Region</u>	<u>Total</u>	<u>Had Attended School</u>		<u>Higher</u>	<u>University</u>
		<u>Total</u>	<u>%</u>		
Northern Region	404,000	223,000	55.1	19,000	73
Central Region	1,189,000	417,000	35.0	23,500	119
Southern Region	1,682,000	531,000	31.5	38,000	273
All Malawi	3,275,000	1,171,000	35.7	81,500	465

Source: Malawi Population Census, 1966.

May 30, 1973.

MALAWI
AGRICULTURAL SECTOR REVIEW

Gross Domestic Product at Factor Cost (Current Prices K'000)

	<u>1964</u>	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>Est.</u> <u>1971</u>	<u>Est.</u> <u>1972</u>
Agriculture, Forestry, Fishing									
Smallholders Non-Monetary	62,946	71,059	78,748	78,380	79,038	80,691	87,916	102,000	104,700
Monetary	15,910	21,756	21,858	24,294	21,940	26,036	25,511	40,200	44,600
Estates and Government	5,942	6,412	7,038	7,332	9,038	11,116	11,402	17,100	19,700
Total Agriculture	84,798	99,227	107,644	110,006	110,016	117,843	124,829	159,300	169,000
Estate as % of Total Agriculture	7.0	6.5	6.5	6.7	8.2	9.4	9.1	10.7	11.7
Total GDP	148,074	173,483	194,534	204,560	214,442	233,309	258,059	309,400	333,300
of which Agriculture (%)	57	57	55	54	51	51	48	51	51
Net Indirect Taxes	4,864	6,854	9,928	10,926	11,142	13,297	15,533	21,600	23,600
Total GDP at Market Prices	152,938	180,337	204,462	215,486	225,584	246,606	273,592	331,000	356,900
Total GDP at Market Prices in 1964 Prices	152,900	180,700	198,500	221,700	208,400	215,300	222,700	255,800	n.a.
Index Agriculture (1964 = 100)									
Smallholder Non-Monetary	100	113	125	125	126	128	140	162	166
Monetary	100	137	137	153	138	164	160	253	280
Estates and Government	100	108	118	123	152	187	192	288	332
Total	100	117	127	130	130	139	147	188	199

Statistical Annex
Table 4

Source: National Statistical Office, National Accounts Report, November 1972.

May 30, 1973.

MALAWI
AGRICULTURAL SECTOR REVIEW

Exports of Main Agricultural Products (Metric Tons)

	<u>1964</u>	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>
Smallholder Crops:									
Tobacco (fired)	9,812	14,069	12,476	11,372	13,518	9,457	10,621	11,936	13,556
Groundnuts	15,761	18,939	14,851	51,046	29,996	34,260	22,511	29,186	35,697
Cotton fibre	4,235	4,648	4,838	3,149	2,488	3,815	5,859	4,819	4,786
Pulses	24,693	25,150	17,389	27,364	10,392	15,851	9,991	8,568	15,670
Maize	13,684	1,016	44,358	91,445	86,974	47,305	-	4,601	36,831
Cassava	4,080	5,277	24,934	21,341	47,693	21,964	22,208	20,161	28,168
Rice	1,256	1,053	1,390	1,518	893	1,678	2,828	5,171	7,148
Sunflower	31	50	192	354	659	2,870	1,395	2,712	3,687
Coffee	174	29	132	169	198	180	137	204	156
Estate Crops:									
Tobacco (burley, flue cured)	3,493	3,575	3,564	3,422	4,588	5,124	6,762	8,977	11,023
Tea	12,235	13,198	15,223	16,840	15,792	17,248	17,709	18,157	19,851
Tung Oil	1,301	1,843	1,246	1,761	940	1,141	1,139	858	539
Sugar	-	-	-	-	5	2,274	1,545	3,439	3,762
Total	90,755	88,847	140,593	229,781	212,136	163,167	102,705	118,776	180,874

Source: Malawi Government, Economic Report, 1973.

December 4, 1973.

MALAWI
AGRICULTURAL SECTOR REVIEW

Statistical Annex
Table 6

Exports by Main Commodities, Current Prices (K'000)

	<u>1964</u>	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>Annual Growth Rate 1964-1972</u>
Smallholder Crops:										
Tobacco a/	5,754	7,878	6,372	5,139	5,984	6,424	8,413	11,671	11,708	
Groundnuts	2,226	3,278	2,574	6,868	4,616	5,590	4,241	5,883	7,123	
Cotton	1,934	2,158	2,168	1,384	1,274	1,730	2,777	2,547	2,567	
Beans, peas, etc.	1,526	1,858	1,248	1,528	862	1,022	1,038	1,227	1,218	
Maize	476	34	1,570	3,278	3,008	2,132	-	411	1,302	
Cassava	122	136	692	532	1,384	638	724	545	825	
Sunflower seed	2	2	10	22	58	172	92	317	359	
Rice	130	122	142	158	94	274	556	956	1,092	
Coffee	78	16	40	102	112	100	102	161	84	
Total	12,248	15,482	14,816	19,011	17,392	18,082	17,943	23,718	26,278	11.0
Estate Crops:										
Tobacco b/	2,682	2,382	2,670	3,312	4,586	6,223	8,179	10,395	13,260	
Tea	6,676	7,536	8,898	8,982	9,700	9,526	10,916	11,905	12,022	
Tung Oil	432	606	344	410	246	306	411	239	127	
Sisal	104	54	52	36	14	2	-	-	-	
Sugar	-	-	2	220	-	154	158	314	360	
Total	9,894	10,578	11,966	12,960	14,546	16,211	19,664	22,853	25,769	11.7
Grand Total Agric.	22,142	26,060	26,782	31,971	31,938	34,293	37,607	46,571	52,047	11.3
Main Manufacturers:										
Cattle Cake	134	188	128	224	288	360	343	360	408	
Cement	-	60	112	68	178	-	-	-	1	
Wooden boxes	142	166	58	108	26	54	84	76	107	
Clothing and footwear	-	8	46	44	164	467	524	388	295	
Other c/	52	54	94	118	212	186	260	273	185	
Total	328	476	438	562	868	1,067	1,211	1,097	996	
Other miscellaneous commodities d/	538	548	450	571	752	1,228	1,759	1,909	1,099	
Total Exports	23,008	27,084	27,670	33,104	33,558	36,588	40,577	49,577	55,142	
Agriculture as % of										
Total	96	96	97	97	95	94	93	94	94	

a/Dark-fired, fire-cured, sun/air-cured and oriental tobacco.

b/Flue-cured and burley tobacco.

c/Glycerol, paper products, holloware, fishing nets.

d/Mainly: fish, hides and skins, precious stones and migrants effects.

Source: National Statistical Office, Annual Statement of External Trade for 1964 to 1971.
1972 figures provisional estimates from NSO and commodity organizations.

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Exports of Main Agricultural Products at Constant
1964 Prices (Sugar 1969 Prices; K'000)

	<u>1964</u>	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>Est.</u> <u>1972</u>
Smallholder Crops:									
Tobacco	5,750	8,244	7,311	6,664	6,750	5,542	6,224	6,994	7,823
Groundnuts	2,222	2,670	2,095	7,197	4,229	4,831	3,174	4,116	4,797
Cotton fibre	1,935	2,124	2,211	1,439	1,137	1,743	2,678	2,203	2,289
Pulses	1,531	1,559	1,078	1,697	644	983	619	531	945
Maize	479	36	1,552	3,201	3,044	1,656	-	161	1,242
Cassava	122	158	748	640	1,431	659	666	605	878
Rice	131	110	145	158	93	175	294	538	1,297
Sunflower	2	3	12	23	43	187	91	176	251
Coffee	78	13	59	76	89	81	61	92	53
	<u>12,250</u>	<u>14,917</u>	<u>15,211</u>	<u>21,095</u>	<u>17,460</u>	<u>15,857</u>	<u>13,807</u>	<u>15,416</u>	<u>19,575</u>
Estate Crops:									
Tobacco	2,683	2,746	2,737	2,628	3,524	3,935	5,193	6,894	8,350
Tea	6,680	7,206	8,312	9,195	8,622	9,417	9,669	9,914	10,872
Tung Oil	432	612	414	585	312	379	378	285	157
Sugar	-	-	-	-	0	155	105	213	247
Total	<u>9,795</u>	<u>10,564</u>	<u>11,463</u>	<u>12,408</u>	<u>12,458</u>	<u>13,886</u>	<u>15,345</u>	<u>17,306</u>	<u>19,626</u>
Grand Total	<u>22,045</u>	<u>25,481</u>	<u>26,674</u>	<u>33,503</u>	<u>29,918</u>	<u>29,743</u>	<u>29,152</u>	<u>32,722</u>	<u>39,201</u>

Source: Malawi Government, Economic Report, 1973.

May 30, 1973.

Statistical Annex
Table 8

MALAWI
AGRICULTURAL SECTOR REVIEW

Imports of Meat (MT)

<u>Year</u>	<u>Beef</u>	<u>Pork</u>	<u>Mutton and Lamb</u>
1968	86	19	49
1969	167	103	71
1970	161	112	101
1971	225	97	72
1972	391	57	70

Source: Department of Veterinary Services.

December 4, 1973.

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AGRICULTURAL SECTOR REVIEW

Statistical Annex
Table 9

Land Use

	'000 Hectares	%
A. <u>Arable land</u>		
1. Dry land cultivation in current use	1,774	18.9
2. Cropped dambo, dimba and flood-plain cultivation	66	0.7
3. Estates and plantations	92	1.0
4. Recent fallow	1,437	15.3
5. Longer fallow (4-20 years)	<u>1,458</u>	<u>15.5</u>
Sub-total	<u>4,827</u>	<u>51.4</u>
B. <u>Suitable for grazing only</u>		
6. Very long fallow	1,710	18.2
7. Dambo grassland, drainage lines	282	3.0
8. Soil and topographic problems	<u>1,287</u>	<u>13.7</u>
Sub-total	<u>3,279</u>	<u>34.9</u>
C. <u>Other land</u>		
9. Swamps and marshes	221	2.4
10. Steep rugged country	733	7.8
11. Water surfaces	168	1.8
12. Towns, villages, etc.	159	1.7
13. Severe erosion	<u>13</u>	<u>0.1</u>
Sub-total	<u>1,294</u>	<u>13.8</u>

Total land area is 9.4 million hectares.

Source: Ministry of Agriculture and Natural Resources; Stobbs unpublished Report, "Malawi National Land Use Summary."

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AGRICULTURAL SECTOR REVIEW

Acreeage under Cultivation by Pure and Mixed Stand (1000 hectares)

	All Malawi	Northern	Central	Southern
Pure and Mixed Stand, Total	1,362.0	166.9	609.4	585.7
of which:				
Maize	1,068.5	110.2	463.4	494.9
Groundnuts	449.5	35.8	216.5	197.2
Pulses	841.5	71.7	352.9	416.9
Cassava	298.7	37.3	89.5	171.9
Millet/Sorghum	496.4	29.9	177.2	289.3
Potatoes (a)	180.6	8.0	93.9	78.7
Other	..	..	..	..
Pure Stand, Total	218.6	51.2	110.5	56.9
of which:				
Maize	68.6	11.6	42.2	15.0
Groundnuts	43.5	5.3	33.1	5.1
Pulses	8.1	1.7	5.8	0.6
Cassava	32.5	15.2	4.5	12.8
Millet/Sorghum	14.4	9.6	1.4	3.4
Potatoes (a)	9.0	1.1	6.6	1.5
Other	42.1	6.7	16.9	18.5
Mixed Stand, Total	1,143.4	115.7	498.9	528.8
of which:				
Maize	999.8	98.6	421.1	480.1
Groundnuts	405.9	30.4	183.4	192.1
Pulses	833.4	70.1	347.1	416.3
Cassava	266.2	22.1	85.0	159.1
Millet/Sorghum	805.9	20.3	175.7	285.9
Potatoes (a)	171.5	7.0	87.3	77.2
Other	9.3	..	..	..
Mixed With Maize, Total	999.7	98.6	421.1	480.0
of which:				
Groundnuts	343.2	27.5	131.1	184.6
Pulses	768.6	66.5	307.2	394.9
Cassava	239.1	16.7	74.6	147.8
Millet/Sorghum	434.0	12.1	162.7	259.2
Potatoes (a)	151.9	5.7	75.4	70.8
Other	..	..	..	..
Not Mixed With Maize, Total	143.7	17.2	77.8	48.7
of which:				
Groundnuts	62.7	2.9	52.4	7.4
Pulses	64.8	3.5	39.9	21.4
Cassava	27.0	5.3	10.4	11.3
Millet/Sorghum	47.9	8.2	13.0	26.7
Potatoes (a)	19.6	1.3	11.9	6.4
Other	..	..	..	..

(a) Irish and sweet potatoes. .. not available

Note: Area under mixed stand are included for each crop in the mixture but only once in the totals. Totals also include areas under crops not listed above.

Source: National Statistical Office, National Sample Survey of Agriculture, 1968/69.

MALAWI
AGRICULTURAL SECTOR REVIEW

Farm Size Distribution and Fragmentation

Region	Size of Holdings Hectares					Total all holdings
	under 0.8	0.8-1.59	1.6-2.39	2.4-4.8	above 4.8	
<u>A. Percentage of holdings</u>						
North. Reg.	31.9	34.6	17.6	14.4	1.5	100 (117100)
Central Reg.	17.8	30.4	22.3	25.4	4.1	100 (316900)
Southern Reg.	35.6	36.5	15.9	11.2	0.9	100 (451000)
All Malawi	28.7	34.1	18.4	16.7	2.1	10 (885000)
<u>B. Average number of acres per holding</u>						
North. Reg.	1.0	2.8	4.8	8.0	14.1	3.5
Central Reg.	1.2	2.9	4.8	7.6	15.3	4.7
Southern Reg.	1.1	2.8	4.8	7.9	14.1	3.2
All Malawi	1.2	2.9	4.8	7.8	14.9	3.8
<u>C. Average number of fields per holding</u>						
North. Reg.	3.2	4.2	4.3	5.0	5.9	4.0
Central Reg.	1.9	2.1	2.6	3.1	3.9	2.5
Southern Reg.	2.3	3.3	4.4	4.7	4.4	3.3
All Malawi	2.4	3.0	3.6	3.9	4.2	3.1

Source: National Statistical Office, National Sample Survey of Agriculture, 1968/69.

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MALAWI
AGRICULTURAL SECTOR REVIEW

Production and Disposition of Agricultural Products 1970
(Metric Tons)

CROPS	TOTAL PRODUCTION	WASTAGE AND LOSSES	NET PRODUCTION	DISPOSITION OF NET PRODUCTION										
				Own Consumption at the Farm					Change in stocks at the Farm (b)	Sales to		Total Sales		
				Human Consumption			Animal Feed	Total Own Consumption		(c)	(d)	Total	Of which exported	
				Direct	With further Processing	Seed for Replanting								
I	Food Crops													
	1. Maize	1,057,763	40,683	1,017,080	44,405	843,675	23,582	45	911,679	-	8,066	97,335	105,401	1
	2. Millet and Sorghum	71,823	711	71,112	-	53,627	10,725	-	64,353	-	9	6,750	6,759	52
	3. Cassava	81,176	-	81,176	3,903	55,797	-	-	58,063	-	-	22,475	22,475	22,194
	4. Wheat (a)	868	-	868	-	-	-	-	-	-	868	-	868	-
	5. Paddy	21,851	724	21,128	-	7,407	1,680	-	9,079	-	9,343	2,697	12,040	2,779
	6. Groundnuts (shelled)	101,990	152	101,838	43,314	1,348	23,811	-	46,476	-	26,827	6,071	32,899	22,503
II	Vegetables and Fruit													
	7. Mixed beans and peas	123,591	2,540	121,052	80,438	-	23,193	-	103,631	-	7,040	10,381	17,421	9,986
	8. Onions	8,514	8	8,506	7,249	-	-	-	7,249	-	-	1,257	1,257	13
	9. Cabbages	10,773	11	10,762	9,091	-	-	-	9,091	-	-	1,672	1,672	-
	10. Tomatoes	19,055	-	19,055	16,289	-	-	-	16,289	-	-	2,766	2,766	-
	11. Potatoes	86,258	9	85,248	75,359	-	-	-	75,359	-	-	10,889	10,889	30
	12. Other vegetable leaves	98,809	-	98,809	96,809	-	-	-	98,809	-	-	9,981	9,982	25
	13. Fruit	171,842	17	171,825	151,951	-	-	-	151,951	-	-	19,221	19,221	29
III	Other Crops													(e)
	14. Tobacco	24,139	-	24,139	-	-	-	-	-	-	11,876	12,263	24,139	16,175
	15. Tea	18,728	-	18,728	-	-	-	-	-	-	-	18,728	18,728	17,706
	16. Cotton Seed	24,183	-	22,815	-	1,369	-	1,369	-	22,815	-	22,815	22,815	8,597
	17. Tung Oil Nut	2,600	-	2,600	-	-	-	-	-	-	-	2,600	2,600	-
	18. Sunflower seed	1,395	-	1,395	-	-	-	-	-	-	2	1,393	1,395	1,395
	19. Sugar cane	288,106	-	288,106	-	-	-	-	-	-	-	288,106	288,106	-
	20. Coffee	262	-	262	-	-	-	-	-	262	-	262	262	136
	21. Spices (a)	23	-	23	-	-	-	-	-	-	-	23	23	23

(a) No estimates were made of production for own account consumption.

(b) No estimates were made for changes in stocks at the farm as basic statistics were not available. This item is therefore assumed to be nil.

(c) Agricultural Development and Marketing Corporation.

(d) Includes direct retail sales by farmers in rural and urban areas as well as purchase for export and further processing by organizations other than ADMARC.

(e) Excludes 40 tons of manufactured tobacco exports.

Source: National Statistical Office, National Accounts Report, November 1972.

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MALAWI
AGRICULTURAL SECTOR REVIEW

Smallholder Cotton and Tobacco Production 1950-72

	UNITS	1950	1955	1960	1965	1966	1967	1968	1969	1970	1971	1972	Annual Average Yield Range
1. COTTON													
Hectares planted	'000 has	n/a	21	21	41	53	56	45	37	48	53	50	150
No. of growers	'000 farmers	41	45	35	54	69	73	57	46	56	61	62	to
Crop purchase	'000 metric tons	5	8	11	21	13	12	12	18	23	22	22	350 kgs/ha
2. FIRE-CURED TOBACCO													
Hectares planted	'000 has	n/a	30	84	50	42	38	27	20	26	30	34	240
No. of growers	'000 farmers	95	47	51	83	59	49	46	38	48	50	53	to
Crop purchases	'000 metric tons	9	5	7	14	12	14	8	6	10	12	15	360 kgs/ha
3. SUN/AIR-CURED TOBACCO													
Hectares planted	'000 has	n/a	1.5	4	11	11	3	4	5	5	7	8	120
No. of growers	'000 farmers	8	4	8	24	15	5	6	6	8	12	10	to
Crop purchases	'000 metric tons	0.4	0.3	2	3.0	2.6	1.2	1.1	0.9	1.8	2.4	3.0	325 kgs/ha
4. ORIENTAL TOBACCO													
Hectares planted	has	nil	nil	38	269	239	n/a	90	194	198	304	374	300 to
No. of growers	farmers	nil	nil	906	4,018	3,690	2,168	1,750	2,827	3,443	2,710	3,700	470 kgs/ha
Crop purchases	metric tons	nil	nil	15	96	91	58	45	89	74	131	183	

Source: National Statistical Office Compendium of Agricultural Statistics, 1971; Annual Reports.

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AGRICULTURAL SECTOR REVIEW

Purchase by FMB/ADMARC of Major Crops Grown by Smallholders - 1950-1972 (Metric Tons)

Year	Maize	Groundnuts	Pulses	Sorghum Millet	Wheat	Rice	Cassava ^{a/}	Cotton	Tobacco	Coffee	Sunflower
1950	9,453	8	1,468	2	486	1,579	-	5,209	10,235	3	-
1955	40,604	9,363	5,758	1,050	602	6,534	-	7,793	5,575	12	-
1960	15,071	18,777	5,734	NA	407	6,482	-	11,354	9,204	107	-
1965	21,915	22,855	27,272	3,100	500	5,053	5,262	20,577	18,409	128	-
1966	56,890	42,158	18,426	883	611	4,047	24,948	13,246	14,560	166	-
1967	90,743	43,180	21,179	2,983	764	4,627	21,272	11,839	15,892	151	-
1968	83,686	22,773	3,459	85	629	2,052	47,719	11,609	8,796	145	-
1969	52,819	37,065	16,378	6	665	8,470	21,954	18,328	5,842	156	-
1970	8,068	26,419	7,271	140	868	9,345	22,226	21,559	11,957	269	2
1971	34,845	36,722	17,480	67	485	18,710	20,866	22,192	14,239	231	3,379
1972	66,700	39,181	16,190	34	854	19,827	27,443	21,823	16,692	189	3,574

^{a/}1965-1970 show cassava export figures purchased by traders for 1971/72 - actual purchase figures by NOIL Industries are given.

Source: National Statistical Office, Malawi Statistical Yearbook and Compendium of Agricultural Statistics.

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AGRICULTURAL SECTOR REVIEW

Crop Production from the Estate Sector, 1950 - 1972

CROP	UNITS	1950	1955	1960	1965	1966	1967	1968	1969	1970	1971	1972
1. Tea												
Hectares producing	'000 has	9	11	12	14	14	14	15	15	15	16	16
Total Production	MT	6800	7700	11800	13150	15400	16800	15900	16800	18600	18600	20900
Value of exports	Million kwacha	3.4	6.3	7.6	7.6	8.9	9.0	9.7	9.5	10.9	11.9	12.2
2. Sugar												
Hectares harvested	'000 has	nil	nil	nil	nil	0.5	1.7	2.2	2.2	2.6	2.6	
Total production	MT	nil	nil	nil	nil	4	16	20	27	33	33	38
Value of exports	Million kwacha	nil	nil	nil	nil	n.a.	0.2	n.a.	0.2	0.2	0.3	0.4
3. Flue-Cured Tobacco												
Hectares planted	'000 has	n.a.	2.8	1.3	1.1	1.2	1.6	2.2	2.8	4.0	5.8	7.1
Purchases	MT	1180	1680	1315	1225	1225	1810	2770	2770	4670	6400	8664
Average price	K/MT	534	498	604	600	694	952	791	869	838	908	891 ^{a/}
Total value at auction	Million kwacha	0.6	0.8	0.8	0.7	0.9	1.7	2.2	2.4	3.9	5.8	7.7
4. Burley Tobacco												
Hectares planted	'000 has		2.2	2.4	3.6	3.2	3.7	3.1	4.1	5.6	7.3	6.5
Purchases	MT	360	900	1315	2600	2400	2680	3040	3450	5670	5670	5440
Average price	K/MT	452	496	602	430	450	344	553	816	626	527	556
Total value at auction	Million kwacha	0.2	0.5	0.8	1.1	1.1	0.9	1.7	2.8	3.6	3.0	3.0
5. Tung Oil												
Hectares bearing	'000 has	4.6	6.2	6.1	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total oil production	Metric tons	352	882	1111	1511	1652	1910	1018	1141	1156	885	925
Value of exports	Million kwacha	n.a.	n.a.	n.a.	0.6	0.3	0.4	0.2	0.3	0.4	0.2	0.1

a/ The average price paid at start of sales in 1973 was 1500 K/MT

Source: National Statistical Office, Compendium of Agricultural Statistics, 1971;
Ministry of Agriculture and Natural Resources, Annual Reports.

December 4, 1973

MALAWI
AGRICULTURAL SECTOR REVIEW
Livestock and Livestock Production ^{a/}

Statistical Annex
Table 16

Year	Cattle		Goats		Pigs		Sheep	
	Number	Recorded Slaughterings						
1960	356,677	29,440	442,622	15,773	72,470	7,390	69,098	3,067
61	374,762	32,766	529,458	18,656	100,479	7,947	82,223	3,192
62	380,387	35,853	493,184	18,323	105,166	8,521	77,757	2,833
63	396,145	40,350	438,488	18,103	127,897	8,695	81,918	2,452
64	411,419	39,613	480,295	22,535	135,395	10,557	74,139	2,355
65	432,293	39,676	464,548	24,886	123,773	11,936	71,337	2,091
66	450,128	42,459	626,121	28,121	142,666	12,273	88,820	1,923
67	464,006	51,190	668,007	34,454	149,276	12,902	81,277	3,027
68	479,816	54,372	616,961	36,465	180,234	10,338	90,280	2,367
69	491,459	55,816	599,393	41,408	149,772	12,930	81,136	3,203
1970	491,517	56,187	639,079	44,006	146,344	14,837	121,979	4,574
71	540,865	55,603	629,901	44,529	172,441	12,986	179,469	4,019
72	572,905	55,248	565,580	n/a	172,333	n/a	88,516	n/a

a/ Excluding most home slaughterings.

Source: National Statistical Office, Compendium of Agriculture, 1971, Statistical Yearbook 1971 and Malawi Government Economic Report, 1973.

December 4, 1973.

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AGRICULTURAL SECTOR REVIEW

Number of Holdings with Livestock and Number of
Livestock Owned 1969 a/
('000)

Region	Cattle		Sheep		Goats		Pigs		Chicken	
	Holdings	No. Owned	Holdings	No. Owned	Holdings	No. Owned	Holdings	No. Owned	Holdings	No. Owned
North. Reg.	28.7	181.8	1.8	9.5	8.9	31.0	5.5	12.6	87.1	696.7
Central Reg.	52.0	434.3	7.8	27.9	134.0	689.5	40.4	181.7	189.9	1515.1
Southern Reg.	13.6	106.4	5.6	28.1	64.9	309.4	36.8	144.6	229.0	1474.4
All Malawi	94.3	722.5	15.2	65.5	207.8	1029.9	82.7	338.9	506.0	3686.3
% of total no. of holdings	11	-	2	-	23	-	9	-	57	-

a/ Note that the total number of livestock in this survey is considerably higher than the estimates by the Department of Animal Health and Industry.

Source: National Statistical Office, National Sample Survey, 1968/69.

May 30, 1973.

Statistical Annex
Table 18

MALAWI
AGRICULTURAL SECTOR REVIEW

Number of Work Oxen and Implements Owned, 1969 ('000)

<u>Region</u>	<u>Work Oxen</u>	<u>Ox Carts</u>	<u>Ploughs</u>	<u>Sprayers</u>	<u>Hoes</u>
Northern Reg.	10.4	1.1	7.9	0.5	278.8
Central Reg.	30.4	10.4	6.7	2.3	924.7
Southern Reg.	0.4	0.1	0.3	7.8	1269.9
All Malawi	41.2	11.6	14.9	10.6	2473.4

Source: National Statistical Office, National
Sample Survey of Agriculture, 1968/69.

May 30, 1973.

MALAWI
AGRICULTURAL SECTOR SURVEY

Percentage of Farmers Using Modern Inputs and Employing Hired
Labor 1969

Region	Applying			Fumigating Store	Employing Labor
	Fertilizer	Insecticide	Manure		
Northern Reg.	15.1	2.4	2.9	3.6	38.1
Central Reg.	15.5	1.5	2.7	2.2	25.9
Southern Reg.	10.5	1.5	0.1	4.9	28.0
All Malawi	12.9	1.6	1.4	3.8	28.6

Source: National Statistical Office, National
Sample Survey of Agriculture, 1968/69.

May 30, 1973.

MALAWI
AGRICULTURAL SECTOR REVIEW

Expenditures on Development Account ('000 K)

Project	Total Cost	Exp. before May 31, 1972	Revised Est. 1972/73	Estimate 1973/74	Balance
1. Extension & Training					
Animal husbandry	808	264	112	139	293
Farmer training	1,031	374	126	185	346
Housing	905	329	97	170	309
Home economic training	76	43	17	6	10
Nat. resources Coll. (planning)	34	4	2	28	-
Fertilizer subsidy	1,009	606	207	196	-
Seed production	217	174	43	-	-
Cotton dev.	476	373	103	-	-
Tobacco dev.	567	160	91	110	206
Mpemu	249	-	-	172	77
Mzimba	185	24	32	32	97
Phalombe	69	-	-	51	18
Total	<u>5,626</u>	<u>2,351</u>	<u>830</u>	<u>1,089</u>	<u>1,356</u>
2. Research					
Agr. Res. services	1,226	591	133	181	321
Agr. Res. council	202	70	28	68	36
Hydrological studies (tea)	38	13	7	9	9
Village grain storage	50	38	12	-	-
Farm Mach. workshop	6	6	-	-	-
Total	<u>1,522</u>	<u>718</u>	<u>180</u>	<u>258</u>	<u>366</u>
3. Animal Health & Industries					
Livestock marketing	655	334	96	77	148
Disease control	1,238	554	93	241	349
Staff training	63	49	13	1	-
Poultry improvement	278	80	29	67	102
Cattle breeding improvement	647	161	98	160	228
Dairy development	383	96	91	79	117
Veterinary Laboratory	520	4	15	165	336
UNICEF Pilot dairy	63	22	10	31	-
New capital dairy	659	-	340	279	40
Cattle survey	17	3	3	11	-
UNDP Livestock/dairy (local cost)	349	52	13	146	138
Bwenbwa resettlement	18	-	18	-	-
Total	<u>4,890</u>	<u>1,355</u>	<u>819</u>	<u>1,257</u>	<u>1,458</u>
4. Technical Services					
Rural water supplies	145	139	6	-	-
Conservation branch	639	596	43	-	-
Irrigation branch	873	873	-	-	-
Settlement branch	1,164	942	89	109	24
Technical services (Integr.)	4,829	-	722	1,265	2,842
Land & water resources	286	286	-	-	-
Kasinthula	395	4	155	120	116
Rice (Dwangwa)	755	390	61	157	147
Total	<u>9,086</u>	<u>3,230</u>	<u>1,076</u>	<u>1,651</u>	<u>3,129</u>
5. Planning Unit					
Agro-econ. survey	143	79	54	10	-
Mapping Dwangwa	4	-	-	4	-
Planning major projects	102	22	40	40	-
Total	<u>249</u>	<u>101</u>	<u>94</u>	<u>54</u>	<u>-</u>
6. Major Projects					
Salima	3,310	1,413	818	524	555
Lilongwe	12,756	6,791	1,658	1,522	2,785
Shire	11,126	2,809	1,023	2,300	7,994
Karonga	4,966	-	380	1,020	3,566
Total	<u>35,158</u>	<u>11,013</u>	<u>3,879</u>	<u>5,366</u>	<u>14,900</u>
7. Other					
Smallholder tea	411	153	84	60	114
Smallholder coffee	287	85	53	62	87
Miscellaneous	95	78	17	-	-
Total	<u>793</u>	<u>316</u>	<u>154</u>	<u>122</u>	<u>201</u>
GRAND TOTAL	57,324	19,084	7,032	9,797	21,410
- of which external resources	46,865	15,341	5,587	7,899	18,038
- of which domestic resources	10,459	3,743	1,445	1,898	3,372
- of which domestic resources	18%	20%	21%	19%	16%

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AGRICULTURAL SECTOR REVIEW

Settlements, 1973

Scheme	Total Has	No. of Settlers			Vacant Plots	% Credit Re-payment	Area Cultivated by Crop (ha)							
		MYP	Local	Total			Rice	Maize	Cotton	Burley Tobacco	Other Tobacco	Ground-nuts	Beans	Other
Hara	223	63	232	295	-	82%	150	-	-	-	-	-	-	-
Limphasa	243	88	111	199	77	45%	109	-	-	-	-	-	-	-
Nkhozo	1012	75	42	117	38	62%	-	181	-	33	-	12	10	-
Kaporo	45	-	88	88	-	100%	44	-	-	-	-	-	-	-
Wowwe	116	90	92	182	4	75%	74	-	-	-	-	-	-	-
Thulwe	608	90	5	95	77	70%	-	92	-	31	-	9	8	-
Mubangwe	2430	77	4	81	166	n/a	-	43	-	-	7	11	2	-
Limphasa(2)	101	61	114	175	25	n/a	40	-	-	-	-	-	-	-
Salima	1620	83	69	152	157	n/a	-	149	126	-	-	66	-	-
Namitete	1215	167	5	172	35	93%	-	213	-	126	-	35	-	-
Mpamantha	20	28	-	28	2	100%	17	-	-	-	-	-	-	-
Kaombe	200	-	304	204	1	100%	182	-	-	-	-	-	-	-
BIRP	24	22	62	84	-	100%	23	-	-	-	-	-	-	-
Rusa	810	113	-	113	140	46%	-	57	-	-	45	34	-	-
Mangulenge	1012	128	53	181	125	n/a	-	10	291	-	-	2	-	17
Rivi Rivi	1823	45	62	107	28	21%	-	114	72	-	-	4	-	17
Chikonje	101	17	-	17	6	29%	-	23	14	-	-	-	-	4
Likangala	405	51	519	570	-	77%	174	1	-	-	-	-	-	-
Mlomba	405	-	81	81	6	56%	-	112	-	-	29	10	-	3
Khanda	68	-	91	91	2	98%	67	-	-	-	-	-	-	-
Nthawira	57	7	-	7	3	61%	-	6	-	-	-	2	6	-
Ngopani	1012	71	-	71	19	n/a	-	64	-	-	-	-	-	-
	13550	1276	1934	3110	911	a/	880	1065	503	190	81	185	26	41

a/ 300 plots have not yet been allocated.

Source: Ministry of Agriculture and Natural Resources, Working Paper, 1973.

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Field Contact Staff in Relation to Population
Served (as at 31st December 1971)

	Population Served ('000s)	Trained Staff	People per Trained Staff Member	Semi-Trained Staff	Total Field Contact Staff	People per Field Contact Staff Member
A. MAJOR PROJECTS						
Lilongwe	130	147	885	69	216	600
Salima	154	38	4,050	91	129	1,195
Shire	106	34	3,120	140	174	610
Total Major Projects	390	219	1,760	300	519	750
B. SETTLEMENT SCHEMES (NOTE 3)						
NR	3	11	272	38	49	62
CR	1	6	333	26	32	63
SR	4	7	573	36	43	92
Total Settlement Schemes	8	24	330	110	124	6
C. EXTENSION & TRAINING DEPARTMENT						
NR	489	98	5,000	97	195	2,520
CR	1,235	149	8,300	232	381	5,330
SR	1,903	143	13,300	327	470	4,050
Total	3,627	390	9,300	656	1,046	3,480
All Malawi	4,025	633	6,380	1,066	1,689	2,380

Source: Ministry of Agriculture and Natural Resources, Working Paper: Allocation of Human Resources to Agriculture Development in Malawi, 1971.

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Allocation on Newly Trained Field Assistants from Colby College, 1967-1972

Department or Section	Y e a r						Six Year Total
	1967	1968	1969	1970	1971	1972	
<u>EXTENSION DEPT.</u>							
NR	6	8	3	11	13	23	64
CR	7	24	14	19	16	29	109
SR	16	22	17	20	23	27	125
Extension Aids	2	2	1	-	-	-	5
Colby College	2	3	3	-	3	-	11
Total Extension	33	59	38	50	55	79	314
<u>MAJOR PROJECTS</u>							
Shire	-	7	-	10	7	4	28
Salima	3	-	9	9	11	-	32
Lilongwe	12	11	31	29	36	38	155
Karonga	-	-	-	-	-	7	7
Total Major Projects	15	18	40	48	54	49	222
<u>OTHER SECTIONS</u>							
Research Department	2	14	4	4	5	2	31
Settlement	-	-	8	4	7	8	27
Agro Economic Survey	-	3	2	-	-	-	5
Land Husbandry	-	-	-	-	-	3	3
Tea Authority	-	2	2	3	3	1	11
Total Other Sections	2	19	16	11	15	14	77
Total New Staff	50	96	94	109	124	142	613
Wastage During Year	11	31	31	32	8	NA	113
Size of Cadres at 31st December	349	413	477	556	674	NA	-

Source: Ministry of Agriculture and Natural Resources, Working Paper:
Allocation of Human Resources to Agriculture Development in
Malawi, 1971.

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Extension and Training Department Senior Staffing Situation

	<u>YEAR END</u>	<u>ESTABLISHMENT</u>	<u>MALAWIAN</u>	<u>EXPATRIATE</u>	<u>VACANCIES</u>
<u>Professional Officers</u>	1966	29	5	24	Nil
	1967	33	6	25	2
	1968	30	8	15	7
	1969	37	13	18	6
	1970	38	14	14	10
<u>Technical Officers</u>	1966	71	48	20	3
	1967	83	51	21	11
	1968	94	53	16	25
	1969	101	65	21	17
	1970	109	72	18	19

Source: Ministry of Agriculture and Natural Resources, Working Paper:
Allocation of Human Resources to Agriculture Development in
Malawi, 1971.

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AGRICULTURAL SECTOR REVIEW

Total Recorded Cash Receipts in Smallholder
Agriculture, September 1968 - August 1969 ('000 K)

	<u>Malawi</u>	<u>Northern</u> <u>Region</u>	<u>Central</u> <u>Region</u>	<u>Southern</u> <u>Region</u>
Current Farm Cash Receipts				
Maize	962	129	269	563
Groundnuts	2,473	225	1,931	317
Pulses	519	66	202	251
Cotton	1,477	66	147	1,263
Tobacco	1,282	79	1,137	66
Rice/Coffee/Tea	432	281	46	105
Cassava/Millet/Sorghum	479	161	37	281
Other Crops/Fruit/Wood	1,277	187	409	681
Livestock/Poultry	2,281	347	1,235	699
Gross Agricultural Receipts	11,182	1,541	5,413	4,226
Less Farm Expenditure ^{a/}	- 2,913	- 251	- 861	- 1,800
Net Agricultural Receipts	8,269	1,290	4,552	2,426
Per Capita K	2.03	2.59	3.06	1.16
Other Current Cash Income ^{b/}	21,506	2,730	5,286	13,490
Cash Transfers ^{c/}	3,265	675	936	1,654
Credit Received	788	99	218	472
Withdrawal of Savings	1,456	247	643	567
Other Income	27,015	3,751	7,083	16,183
Per Capita K	6.64	7.52	4.75	7.77
Total Cash Receipts	35,284	5,041	11,635	18,609
Per Capita K	8.67	10.11	7.81	8.93

^{a/} For tools, insecticides, fertilizer, seeds,
hired labor and transport.

^{b/} Wage income plus forestry, fishing, brewing,
carpentry, weaving, retail and wholesale activities, etc..

^{c/} Including transfers from abroad.

Source: National Statistical Office, National Sample Survey
of Agriculture, 1968/69.

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AGRICULTURAL SECTOR REVIEW

Realised Average Export Prices (K/MT)

	<u>1964</u>	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>
Smallholder Crops:									
Tobacco	586	560	511	452	520	679	792	978	864
Groundnuts	141	173	173	135	154	163	188	202	200
Cotton fibre	457	464	448	440	512	453	474	528	536
Pulses	62	74	72	56	83	64	104	143	78
Maize	35	33	35	36	35	45	-	89	35
Cassava	30	26	28	25	29	29	33	27	29
Rice	104	116	102	104	105	163	197	185	153
Sunflower	65	40	52	62	88	60	66	117	100
Coffee	448	552	303	604	566	556	744	785	444
Estate Crops:									
Tobacco	768	666	749	929	1,000	1,214	1,210	1,158	1,203
Tea	546	571	585	533	614	552	616	656	606
Tung Oil	332	329	276	233	262	268	361	279	236
Sugar					-	68	102	100	96

Source: Malawi Government, Economic Report, 1973.

December 4, 1973.

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Producer Prices for Major Crops

CROP	UNIT	1950	1955	1960	1965	1966	1967	1968	1969	1970	1971	1972	1973	Advance 1974
Maize	K200 lb bag	-	-	1.88	1.88	1.88	2.10	2.10	2.00	1.75	2.50	2.50	2.50	2.50
Groundnuts Con- fectionary	t/lb	-	2.92	4.58	4.17	5.0	5.0	5.0	5.0	5.0	6.0	6.0	6.5	7.5
Groundnut-Oil	"	-	-	-	-	-	-	-	-	-	5.0	5.0	5.0	5.5
Rice (Paddy)	" Gd I	1.25	2.08	1.67	1.88	1.88	1.88	1.88	2.5	3.3	3.3	3.3	3.3	3.3
Cassava	"	-	-	-	-	-	-	0.75	0.75	0.75	0.75	0.75	0.75	-
Mixed beans	"	-	-	-	-	2.5	2.5	-	3.3	-	3.25	3.25	3.75	4.75
Wheat	"	-	-	-	-	2.5	2.08	1.67	2.5	2.5	2.5	2.5	2.5	3.5
Flue-cured	"	24	23	27	27	31	43	36	39	38	41	40		
Fire-cured	"	7	8	5	10	9	10	6	7	9	10	10		
Sun-cured	"	7	9	8	9	8	6	5	8	8	10	10		
Oriental	"	n.a.	n.a.	25	20	17	16	24	19	18	19	20		
Burley	"	21	23	27	20	20	16	25	37	28	24	25		
Cotton (Seed)	"	2.5	4.17	5.0	5.42	5.0	5.0	5.0	5.0	5.0	5.0	5.5	6.0	7.0
Tea	"	32	36	31	27	26	24	28	25	28	36	34 <u>a/</u>		
Coffee	"	n.a.	n.a.	n.a.	14	16	14	13	19	13	13	14	17	-

a/ Free on rail price at Blantyre/Luchenga.

December 4, 1973.

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AGRICULTURAL SECTOR REVIEW

Producer Prices for Livestock Products (K/Kg)

	<u>Cold Storage Company</u> ^{a/}		<u>Butcher Prices at Auction</u>
	<u>Pre-1973</u>	<u>After 2/1-1973</u>	
Prime	1.79	-	
Standard	1.46	1.95	Up to 2.64
Commercial	1.19	1.26	Up to 1.98
Cows	-	-	1.76
Feeder A ^{b/}	1.49	((
Feeder B ^{b/}	1.33	(1.87	(1.54
Inferior	0.45	0.66	-

	<u>Producer Price</u>	<u>Town Retail</u>	<u>Countryside</u>
<u>Mutton</u>	-	0.88	0.33
<u>Goat meat</u>	-	-	0.33
<u>Poultry meat</u>	0.62 - 0.73	0.73 - 0.84	0.33
<u>Eggs (K/dozen)</u>	0.33 - 0.38	0.38 - 0.43	0.24
<u>Milk</u>	11	21	6-13

^{a/}The old market prices were subject to small seasonal fluctuations which have now been abandoned.

^{b/}Minimum live weight 450 lbs.

Source: Cold Storage Company, Department of Animal Health and Industry.

May 30, 1973.

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Fertilizer Prices to Farmers (K/MT)

	<u>Sulphate of Ammonia</u>	<u>20-20 Compound</u>
1967/1968	28	-
1968/1969	28	-
1969/1970	33	40
1970/1971	33	33
1971/1972	44	55
1972/1973	55	69
1973/1974	55	69

December 4, 1973.

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AGRICULTURAL SECTOR REVIEW

Transport Charges, 1972

A. Internal Costs

1. <u>Road</u>	Gravel/earth roads	0.05 K/MT km.
	Bitumen roads	0.04 K/MT km.
2. <u>Rail</u>	Short distance	0.02 K/MT km.
	Long distance	0.015 K/MT km.

3. <u>Lake</u>		<u>Class 11/12</u>	<u>Class 13/14</u>
	Long distance (500 km)	0.03 K/MT km.	0.015 K/MT km.
	Short distance (160 km)	0.10 K/MT km.	0.04 K/MT km.

B. External Costs (K/MT)

<u>Crop</u>	<u>Rail-Border to Port Beira</u>	<u>Nacala</u>	<u>Insurance</u>	<u>Port Handling</u>	<u>Freight to Europe</u>
Maize	2.32	3.10	0.17	4.18	12.00
Tobacco	17.60	21.78	NA	NA	57.10
Tea	16.28	20.24	NA	NA	24.80/cu.m.
Groundnuts	4.29	5.10	2.34	11.22	22.90/cu.m.
Cotton	7.22	8.91	2.18	8.87	22.30/cu.m.
Cassava	NA	NA	0.25	6.05	17.80

Source: Ministry of Transport and Communications, ADMARC and NOIL, Working Papers, 1973.

May 30, 1973.

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AGRICULTURAL SECTOR REVIEW

Blantyre Retail Price Index (1970 = 100)

	Low Income Index			<u>High Income Index</u>
	<u>All Items</u>	<u>Food</u>	<u>Non-Food</u>	
1968	90	85	N/A	90
1969	91	86	97	95
1970	100	100	100	100
1971	107	109	105	108
1972	112	116	109	111

Source: National Statistical Office, Monthly
Statistical Bulletin, March 1973.

May 30, 1973.

MALAWI SECTOR REVIEW

INSTITUTIONAL ARRANGEMENTS FOR THE EXPANSION
OF AGRICULTURAL CREDIT OPERATIONS

A. Introduction

1. In connection with the agricultural sector review the Government of Malawi requested the mission to give special attention to the institutional arrangements that will be required for expanding agricultural credit operations in the country, and to consider in particular the proposed establishment of an Agricultural Bank of Malawi (ABM) for which the Government would seek financial assistance from Bank/IDA. In fact, the Government had hopes that the mission would assist in drafting a loan request for this purpose, but this was not possible for various reasons:

- (a) The proposal for setting up ABM (which is supposed to serve exclusively medium-sized and larger farms) could not be considered in isolation. It had to be viewed in the broader context of the credit needs of the whole agricultural sector, a subject on which little information is available at present.
- (b) Even the credit needs of medium-sized farms (with respect to type of investment, number of prospective borrowers, etc.) had not been surveyed or analysed, and these would certainly need to be verified before a loan request could be drafted.
- (c) Also to be taken into account was the fact that Government intends to establish an Agricultural Supply and Credit Organization (ASCOM) which would supply farm inputs on short-term credit. Although this institution is supposed to serve primarily small farms, its role and function could not be isolated from the ABM proposal.

2. For these reasons the mission tried first of all to collect more background information on the credit needs and the existing sources of credit within the agricultural sector, and then tried to relate this information to the institutional proposals outlined above. The mission also considered the findings and recommendations of a previous agricultural credit survey carried out by a Bank mission under Mr. A. Stoneham in September/October 1970. The mission eventually determined that it was not able to support the Government's current proposals. It appears that different institutional arrangements would serve Malawi's agricultural development

plans in a more effective way; this would be particularly true if a rural development program as suggested by the mission is implemented.

3. The mission discussed its views with senior Government officials and agreed with them that more information would need to be collected before definite proposals as to the establishment of one or two agricultural credit institutions could be formulated. Thus, the views expressed below are purely of a tentative nature, and are intended primarily to serve as a basis for further discussions.

B. Background

Present Sources of Farm Credit

4. In the absence of a central agricultural credit institution almost all institutional farm credit operations in Malawi are at present carried out by special development agencies or commercial banks. These include:

- (a) Integrated regional development projects (such as Lilongwe, Salima, Lower Shire and Karonga).
- (b) Technical Services Department (Settlements).
- (c) Crop development authorities.
- (d) Central Farmers Loans Board (CFLB).
- (e) Agricultural Development and Marketing Corporation (ADMARC).
- (f) Investment and Development Bank of Malawi Ltd. (INDEBANK).
- (g) Commercial banks.

5. The integrated regional development projects include the IDA financed projects at Lilongwe, Chikwawa (Lower Shire Valley) and Karonga and a German foreign aid project at Salima. Each of these projects has its own credit section which extends short and medium-term credit to participating farmers. The bulk of the credit operations is for short-term inputs such as seeds, fertilizers and insecticides. Medium-term loans are primarily made for the purchase of draft oxen, ox-drawn implements and ox carts. Since the credit operations are strictly supervised and properly supported by extension, input supply and marketing services, the repayment rates are above 90 percent.

6. Under the Government settlement program about twenty schemes have been initiated; these were primarily intended for Malawi Young Pioneers (MYP) but have increasingly taken in local farmers. Credit for short and

medium-term inputs is made available through the Settlement Credit Fund. Due to lack of proper management and supervision, repayment records are unsatisfactory in many schemes.

7. Crop development authorities have been established for smallholder tea, coffee and flue-cured tobacco development. The Kasungu Flue-Cured Tobacco Authority also trains, settles and finances medium size growers with 20 acres of tobacco each. Credit operations are for short and medium-term inputs, and due largely to good management and the full control of market outlets repayment records are satisfactory.

8. The Central Farmers Loans Board (CFLB) is part of the Government Loans Board - which also includes a Central Business Loans Board - and is under the supervision of the Ministry of Trade and Industry. Field work such as the preparation of loan applications and loan supervision is carried out by extension staff of the Ministry of Agriculture and Natural Resources. The original intention was to provide progressive small farmers outside the project areas with medium-term credit, especially for the purchase of draft oxen, implements and ox carts. At present, however, K 153,000 of the loan portfolio of about K 201,000 is tied up in six loans to large enterprises, and some funds are also being used for short-term credit in two extensive development zones under the regular extension services. The total capital funding of CFLB is small (about K 242,000) and approximately 60 percent of the loan portfolio is in arrears; 40 percent of this is considered to be uncollectable.

9. The Agricultural Development and Marketing Corporation (ADMARC) extends credit for cotton insecticides in non-project areas since no other agency is available for this operation. Other inputs distributed by ADMARC, in particular seeds and fertilizers, are not available on credit outside established project areas. The corporation has also been required to extend a number of unsecured loans from its profits to certain larger estates.

10. The Investment and Development Bank of Malawi Ltd. (INDEBANK) was established at the end of 1972 with an authorized share capital of K 2.5 million; K 750,000 has been subscribed equally by ADMARC, CDC and a Dutch development finance corporation. A German development finance corporation is also expected to participate. No loans have been made as yet, but among other requests, loan applications have been received from larger farms and estates for medium and long-term investments. Most of these applications, which were primarily for the refinancing of short-term loans (previously made by commercial banks for long-term investments), will probably not be considered by INDEBANK. Loans for new investments in agriculture combined with modest refinancing are, however, expected to form an important part of INDEBANK's future credit operations.

11. Commercial banks are extending considerable amounts of short-term credit to larger farms and commercial estates. The National Bank of Malawi, for example, estimates that about one-quarter of its loan portfolio of K 25 million is being used for agricultural purposes and that K 3-4 million have

been lent to larger farming enterprises. A great portion of these short-term loans have been used for medium and long-term investments, and therefore need to be renewed every year. It is expected that ABM would refinance such loans on more appropriate terms.

Demand for Farm Credit

12. The mission was not able to collect complete statistical information on the present volume of farm credit operations or to make projections of future demand. The Economic Planning Division of the President's Office has undertaken, however, to up-date the statistical information contained in Mr. Stoneham's report and to reconcile this with projections made by the Government as to the expected credit operations of ABM and ASCOM.

13. Small Farms. In the proposal for establishing ASCOM, the Government estimates that the demand for credit by small farms (including some 20 acre tobacco farms) will develop as shown in Table 1. This projection shows that

Table 1: PROJECTED CREDIT DEMAND OF SMALL FARMS (K'000)

	<u>Actual</u> <u>1971/72</u>	<u>-----Projected-----</u>		
		<u>1974/75</u>	<u>1977/78</u>	<u>1980/81</u>
Regional development projects	710	1,820	2,550	3,120
Settlement projects	72	197	330	460
New and other projects	<u>-</u>	<u>20</u>	<u>620</u>	<u>1,520</u>
Subtotal	782	2,037	3,500	5,100
ADMARC	72	106	154	225
CFLB	<u>35</u>	<u>52</u>	<u>76</u>	<u>111</u>
Subtotal	107	158	230	336
Crop development authorities	<u>235</u>	<u>347</u>	<u>454</u>	<u>529</u>
Total	<u>1,124</u>	<u>2,542</u>	<u>4,184</u>	<u>5,965</u>

Source: "The Future Supply of Farm Inputs and Credit in Malawi",
Draft Paper, Economic Planning Division, May 1972.

the major expansion of small farm credit is expected to originate from ongoing and new development projects. It is anticipated that one new regional development project a year will be initiated from 1975/76 onwards. This may be modified by the mission's proposal of initiating a rural development program

which would most likely result in larger credit needs. Government anticipates that the credit amounts shown in Table 1, except for the loans made by the crop development authorities, will be financed by ASCOM and that 15 percent of these amounts will be for medium-term credit. It is also estimated that the total value of inputs supplied by ASCOM will be about twice the credit amounts - or, in other words, that about 50 percent of future farm inputs will be supplied on credit. If the Government accepts the mission's proposal to initiate a smallholder flue-cured tobacco development project (which would be on a much larger scale than the project presently envisaged) the credit amounts projected for the crop development authorities would increase considerably. This and other proposals put forward by the mission will need to be quantified in the course of project preparation.

14. Medium and Large-scale Individually-Owned Farms. No information was available as to the number of existing medium and large-scale, individually-owned farms, their present credit demand and type of production. There are indications, however, that the number of these farms is very small, and that they are involved primarily in burley and flue-cured tobacco production. Most of these farms are owned by high ranking civil servants who do not reside on the farms. Some owners employ farm managers, but since there is a great shortage of experienced managers, the standard of management on these farms is generally poor. As mentioned before, many of these farms have used short-term credit for financing medium and long-term investments and are now in a tight liquidity position. Government intends to further expand the number of these individually-owned farms by offering Government land to civil servants under long-term leasehold arrangements. The proposed Agricultural Bank would be established with the specific purpose of helping to finance such new farms and of refinancing existing ones. The ABM proposal estimates of new capital and refinancing requirements are shown in Table 2.

Table 2: ESTIMATED NEW CAPITAL AND REFINANCING REQUIREMENTS OF MEDIUM AND LARGE-SCALE FARMS (K'000)

	<u>New Capital</u>	<u>Refinancing</u>	<u>Total</u>
Year 1	1,200	2,000	3,200
Cumulative repayment	120	400	520
Year 2	2,280	1,600	3,880
Cumulative repayment	540	800	1,340
Year 3	3,060	1,200	4,260
Cumulative repayment	960	1,200	2,160
Year 4	3,540	800	4,340
Cumulative repayment	1,080	1,600	2,680
Year 5	4,020	400	4,420
Cumulative repayment	1,200	2,000	3,200
Year 6	4,500	-	4,500

Source: Treasury/EFPD, "The Establishment in Malawi of an Agricultural Bank," January 1973.

15. Large-Scale Corporate Farming Enterprises. This group includes tea estates, a sugar estate and large-scale tobacco producing enterprises. They are mainly owned by companies with a high proportion of non-resident shareholders, but more recently also include enterprises with prominent individuals in Malawi and ADMARC as shareholders. The credit requirements of these companies are properly covered by existing institutional arrangements. The largest enterprises in this group are able to obtain capital from abroad. INDEBANK will soon become a local source for medium and long-term capital, and short-term capital is supplied by commercial banks. This group of farming enterprises can therefore be excluded from the following considerations.

C. Proposed Institutional Arrangements

The Stoneham Report

16. After a survey of the agricultural credit situation in 1970, Mr. Stoneham concluded that an agricultural bank should be created. As a first step, this bank would take over and revive the functions of CFLB in supplying individual farmers with medium and long-term credit, and in addition would also extend short-term credit. Although not clearly expressed in the reports it can be assumed that medium size and larger individually-owned farms would not have been excluded from these operations. Together with the small staff and assets of CFLB, the bank would have taken over the credit staff of about 50 people from the Ministry of Agriculture. As a second step the new bank would have gradually taken over the credit operations of regional development and settlement projects. This would have taken place at the latest when the existing project administrations were disbanded or moved to other areas. During an interim period it was envisaged that the bank "would maintain close liaison with the development projects and settlement schemes and in due course, by negotiation with each separately, participate in them, lending either direct to the project authority or to farmers and groups of farmers".

The ABM Proposal

17. Under the assumption that ASCOM would meet the credit needs of small farmers, Government proposes to set up ABM exclusively for the purpose of supporting medium size and large individually-owned farming enterprises. ABM would in the first instance provide medium and long-term capital but would not exclude making short-term loans if necessary. The expected volume of operation and its breakdown into new capital and refinancing was shown in Table 2.

18. The Government's proposal is not very specific as to the staffing of ABM and in particular does not explain how ABM will solve the problem of improving the management of existing farms and also of providing trained managers to new farms. If farms in this size group are properly managed

and need in the first instance capital for new investments, the mission was assured by INDEBANK's management that they could also be financed by INDEBANK. Therefore, it appears that the most urgent need is to create a farm management service for this group of farms and that ABM is needed primarily for solving the refinancing problems.

The ASCOM Proposal

19. As a means of improving assistance to small farmers on customary land, the Government proposes to combine input supply operations presently handled by ADMARC, with short-term credit operations presently handled by development and settlement projects (including ADMARC's credit for cotton insecticides). These operations would be allocated to a new institution called ASCOM, which would be a subsidiary of ADMARC. Credit schemes carried out by crop development authorities would not be incorporated because these schemes are specially tailored to meet the needs of their own particular crop. With respect to medium-term credit it is undecided thus far whether CFLB will be incorporated in ASCOM, but it has been assumed that development and settlement projects "will continue to be the main suppliers of medium-term credit". No explanation is given how the projects would split their credit staff and organization into short-term operations to be handed over to ASCOM, and medium-term operations which would be retained by the projects.

20. Somewhat unclear is also the prepared separation of input supply operations from ADMARC. At present ADMARC does not maintain any specialist staff for input supplies. Procurement, storage and distribution of seeds, fertilizers, insecticides, etc. is handled by the same staff which is in charge of produce marketing. This is convenient because these operations take place at different seasons of the year and are therefore ideally matched with each other. Part of the transport and storage facilities are also used for both purposes. Therefore, the physical separation of ASCOM's input supplies from ADMARC's marketing operations would create considerable dis-economies and is certainly not envisaged. A separation could be carried out on paper by a complex accounting system, but it cannot be seen what advantages this would have.

Assessment of Current Proposals

21. In assessing the ABM and ASCOM proposals it has to be kept in mind that any farm development program needs a minimum of four basic services:

- (a) Extension (for technical advice);
- (b) Input supplies (for the application of modern technology);
- (c) Credit (for financing these inputs):
 - (i) short-term (production credit);
 - (ii) medium and long-term (development credit); and

(d) Marketing (for selling the additional produce generated).

These services are supported by the Government's price policy and need to be closely coordinated, but this does not mean that they must be provided by one single institution. Various organizational arrangements and combinations are feasible and each may have its own advantages under given circumstances.

22. The current proposals envisage that the above services would be provided as shown in Table 3 by both new and existing institutions. The outstanding features of these proposals are that:

- (a) ASCOM would provide input supplies countrywide, and short-term credit to small farmers inside major projects and proposed rural development areas;
- (b) ABM would supply short, medium and long-term credit to medium sized farms; and
- (c) Existing institutions such as project authorities and CFLB would continue to supply medium-term credit to small farmers inside and outside project areas.

Table 3: INSTITUTIONAL ARRANGEMENTS PROPOSED BY GOVERNMENT

Service	Small Farms			Medium Sized Farms
	Inside Major Project Areas	Inside Proposed Rural Development Areas	Outside Project Areas	
Extension	Project Authority	Ext. Dept.	Ext. Dept.	Ext. Dept.
Input Supplies	ASCOM	ASCOM	ASCOM	Commercial
Short-Term Credit	ASCOM	ASCOM	-	ABM & Commercial Banks
Medium and Long-Term Credit	Project Authority	CFLB	CFLB	ABM
Marketing	ADMARC	ADMARC	ADMARC	Commercial

23. The mission does not consider these arrangements to be the most appropriate ones for the following reasons:

- (a) Two new credit institutions would be established, but neither of these would provide for medium-term credit to smallholders, a service for which demand is considerably increasing in the course of rural development;

- (b) There is in particular no new arrangement which would improve or replace the unsatisfactory credit operations of CFLB;
- (c) At Malawi's stage of development, it appears more appropriate to combine short and medium-term credit operations in one institution rather than to combine input supplies and short-term credit as envisaged under the ASCOM proposal;
- (d) Input supplies would better continue to be provided in combination with marketing services as is presently done by ADMARC (para 20);
- (e) Some inputs cannot be supplied by ASCOM, e.g. dairy cows, draft oxen etc., and need special credit arrangements;
- (f) As the proposed ABM will in all likelihood have rather limited operations and large overhead, its financial viability is very doubtful; and
- (g) The establishment of two new credit institutions (ABM and ASCOM) in addition to existing ones will certainly aggravate the problem of scarce agricultural credit expertise in the country.

Alternative Proposals

24. For the above reasons the mission believes it would be better to create one single agricultural credit institution, known as the Rural Development Bank of Malawi (RDBM), which would supply short-term credit as well as medium and long-term credit to both small and medium sized farms. This would enable the small farmer who has successfully introduced new technology with the help of short-term credit (for purchasing improved seeds, fertilizers and insecticides) to stay with the same credit institution when he moves to medium-term investments (e.g. dairy cows, curing barns, draft oxen, technical equipment, etc.) in the next phase of farm development. A broad based agricultural bank should also be able to accept deposits from small farmers (a service for which great demand exists in most countries) and thus increase local capital supplies.

25. To facilitate service of medium sized farms, RDBM needs to be assisted by a special farm management service (FMS) which would help in preparing and implementing farm investment plans. In some cases FMS may even need to provide farm managers for the rehabilitation of mismanaged farms. It can not be expected that such services could be provided by the Extension Department of the Ministry of Agriculture. As a matter of policy the FMS should be a commercially oriented service exclusively serving commercial farms; it should, therefore, charge fees to its clients which would at least partially recover its costs. Institutionally it could be set up as a subsidiary of the RDBM.

26. The new institutional arrangements proposed by the mission are shown in Table 4. RDBM provides all credit services, and as at present ADMARC provides the input supply and marketing services to small farms. ADMARC should, however, strengthen its input supply services and convert the temporary buying stations into more permanent centers for this purpose.

Table 4: INSTITUTIONAL ARRANGEMENTS PROPOSED BY THE MISSION

<u>Service</u>	<u>Small Farms</u>			<u>Medium Sized Farms</u>
	<u>Inside Project Areas</u>	<u>Inside Proposed Rural Development Areas</u>	<u>Outside Project Areas</u>	
Extension	Project Authorities	Ext. Dept.	Ext. Dept.	FMS and Ext. Dept.
Input Supplies	ADMARC	ADMARC	ADMARC	Commercial
Short-Term Credit	RDBM	RDBM	-	RDBM and Commercial Banks
Medium and Long-Term Credit	RDBM	RDBM	RDBM	RDBM
Marketing	ADMARC	ADMARC	ADMARC	Commercial

Securing Credit Repayments

27. It may be argued that the ASCOM proposal (in particular since ASCOM is to be a subsidiary of ADMARC) provides a close linkage between input supplies, credit and marketing and thus would secure good credit repayments by controlling the market outlets. This may be true for cash crops such as tobacco and cotton where ADMARC fully controls the market. However, under the mission's alternative proposal a simple agreement between RDBM and ADMARC would serve the same purpose. For food crops such as maize, sorghum and groundnuts which have local markets everywhere in the country and which cannot be controlled by ADMARC, another mechanism for securing credit repayments would have to be found in any case.

28. The integrated regional development projects such as Lilongwe, Lower Shire and Salima secure credit repayments through careful screening of credit applicants (technically through extension officers and socially through village committees) and close supervision of participating farmers. Under the extensive rural development program proposed by the mission such intensive dealing with individual farmers would probably not be possible. A group approach and the establishment of a security fund will therefore probably be necessary. Under this approach farmers selected by a village committee would order and receive inputs on credit as a group and would, instead of making a downpayment, prepay a certain percentage of the credit (say 20 percent) into a security fund with the understanding that this security fund would be used to cover any short-falls in credit repayments. The group would be free to evict any defaulting member, but would be obliged

in any event to replenish the security fund to a predetermined level before new credit would be issued. Over the years the security fund could be further built up so that eventually it could be used in case of crop failure; the grouping of farmers could be transferred into a cooperative system. In any event, farmer's cooperatives should be the end product of the development effort and not the starting point.

D. Conclusions and Recommendations

29. The mission concluded that current Government proposals for the establishment of two new credit institutions do not appear to be the most appropriate measures for solving Malawi's farm credit problems. As an alternative to these proposals, the mission recommends consideration of the following institutional arrangements.

- (a) Establishment of a Rural Development Bank of Malawi (RDBM) which would supply short-term credit as well as medium and long-term credit to both small and medium sized farms;
- (b) Transfer of CFLE and credit sections of development and settlement projects to RDBM;
- (c) Close coordination of RDBM with ADMARC's input supply and marketing services;
- (d) Strengthening of ADMARC's input supply services;
- (e) Establishment of a commercial farm management service (FMS) to meet the needs of medium sized and larger, individually-owned farms and to assist RDBM in extending credit to these farms;
- (f) Close cooperation by RDBM with the extension services inside and outside project areas; and
- (g) Introduction of the group approach and establishment of a security fund in the proposed extensive rural development areas.

30. Before taking any steps in this direction Government should undertake a more detailed survey of the country's farm credit needs, giving special attention to the prospective number of borrowers, as well as the farming systems and investment requirements of the following groups of farmers:

- (a) Medium sized and larger farmers who were supposed to be served by ABM; and

- (b) Small, progressive farmers inside and outside established project areas who were potential clients of CFLB and who should in future be served by RDBM.

Credit needs and the proposed institutional arrangements would also have to be further assessed in the course of preparing the proposed rural development program.

MALAWI SECTOR REVIEW

SMALLHOLDER VIRGINIA FLUE-CURED TOBACCO PRODUCTION

A. Background

Present Status of Flue-Cured Tobacco Industry

1. In the past eight years there has been a spectacular sevenfold increase in flue-cured tobacco production from 1.2 million kgs in 1965 to 8.6 million kgs in 1972 (Table 1).

Table 1: FLUE-CURED TOBACCO PRODUCTION, 1955-1972

<u>Year</u>	<u>Hectares Planted</u> ('000 ha)	<u>Tobacco Sold</u> (million kg)	<u>Average Price</u> (tambala/kg)	<u>Total Value</u> <u>at Auction</u> (million Kwacha)
1955	2.8	1.7	49.8	0.8
1960	1.3	1.3	60.4	0.8
1965	1.1	1.2	59.9	0.7
1967	1.6	1.8	95.2	1.7
1969	2.8	2.8	87.0	2.4
1970	4.0	4.7	83.7	3.9
1971	5.8	6.4	90.8	5.8
1972	7.1	8.6	89.2	7.7

Estimated production for 1973 is 10 million kgs, and during the first week of sales the average price paid was 150 tambala per kilogram. In 1972, the value of total exports was K 55.1 million, with flue-cured tobacco accounting for almost 15%. The increase in production has been mainly due to an increase in acreage, but yields have also risen. Average yields have risen from 600 kgs/ha in the 50's to 1,200 kgs/ha in the period 1967-72.

2. Almost all production comes at present from the estate sector, and over 70 new estates have been opened in Central Region over the past six years. There were 206 estates in 1972, and 104 registered growers. The Government is also fostering the growth of medium-scale tobacco growers through the Kasungu Flue-Cured Tobacco Authority (KFCTA), which will train and settle 120 farmers by 1975/76 on 60-75 ha holdings, each with 8 ha of tobacco.

Existing Smallholder Production in Malawi

3. Until very recently smallholder tobacco production in Malawi was almost entirely confined to the production of darkfired, sun/air cured and oriental tobaccos; because of higher production costs, flue-cured and burley tobacco were almost completely the preserve of the estate sector. However, a successful pilot scheme for smallholder production has been set up under KFCTA at Kasungu.

4. Under expert supervision and guidance the initial settlers have achieved excellent results. Despite a late start in 1971, the 37 farmers achieved an average yield of 1,090 kg/ha of tobacco with an average price of 98.5 tambala/kg; in 1972, 50 farmers obtained yields of 1,548 kg/ha at about the same price. These results were well above the Malawi average. When viewed in conjunction with the low production costs of less capital intensive methods and the direct benefits to be gained from wider income distribution, these results favor the continued encouragement of smallholder production. Consequently, Government in conjunction with the Commonwealth Development Corporation (CDC) is embarking on a project to settle a further 600 smallholders on 8 hectare holdings; each would initially grow 0.6 ha of tobacco, with possible expansion up to 0.8 hectares over a five year period. However, in view of the benefits to be gained, it is recommended that, if land can be made available, some 2,400 smallholders should be induced to grow flue-cured tobacco over the next five years. In conjunction with the Malawi Government and CDC, IDA would be willing to assist in the preparation of such a project, the prospects for which are reviewed below.

B. The Case for an Expanded Smallholder Project

5. Further expansion of production of Virginia flue-cured tobacco is encouraged by the continuing buoyant demand, local expertise in tobacco growing, Malawi's established position on the world market, and the expectation of considerable foreign exchange earnings from this high value/low weight ratio crop. The early success in pilot smallholder production as well as the income distribution effects, favor the expansion of smallholder tobacco. The importance of increased emphasis on the smallholder sector is underlined by the following arguments:

- (a) As capital represents a major constraint in Malawi, smallholder production should be encouraged as it is less capital intensive.
- (b) Due to the use of family labor, production costs are lower for smallholders than on estates, and consequently, given comparable yields and quality this sector would enjoy a real advantage if prices dropped or if estate costs rose with increased labor costs.

- (c) Smallholder cash incomes now averaging K 40 to K 60 would rise over three years to K 210 even under the present CDC expansion proposal. This income would compare most favorably with an annual income of K 72, the present minimum agricultural wage rate (24 tambala per day).

For these reasons, it is felt that present CDC proposals to settle a further 600 smallholders over a five-year period should be expanded to include 2,400 settlers over the same period.

6. There are two major constraints involved with this more intensive development, but with correct planning these can be overcome. The first would be the identification of suitable areas with both sufficient land and the required soil and water potential for new smallholder production schemes. Tobacco rotation plus woodlots would necessitate holdings of about 8 hectares, which would inevitably mean some resettlement. Also, not all farmers or subsistence cultivators in an area would wish to or be suitable to become Virginia tobacco growers. The second constraint would be that a selective recruitment plus an extensive training program would be essential to provide the various categories of extension officers to guide the new growers. Expanded facilities could best be made available at Kasungu for the training of staff.

C. Proposed Scale of Operation and Phasing

7. It is proposed that the settlement organization be based on sub-units of 50 growers, each sub-unit having one tobacco supervisor and one assistant (two in the first year of operation). Four of these sub-units totaling 200 growers would comprise a section under a Section Manager and a Deputy, and three sections would comprise a unit (600 growers). In order to settle 2,400 growers over a five-year period, it is suggested that two 600 grower schemes be started in year one and two in year two. Within each unit two sub-units (100 growers) would be started in year one, three (150 growers) in year two, and three with the balance in year four. The settlement of the growers would thus be phased as follows:

Table 2: GROWERS ENTERING PROJECT

<u>Year</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>Total</u>
Unit 1	100	150	150	200		600
Unit 2	100	150	150	200		600
Unit 3		100	150	150	200	600
Unit 4		100	150	150	200	600
Total	200	500	600	700	400	2,400

8. As each farmer would have a holding of 8 hectares, each section would require an area of 1,600 hectares, and each 600 grower unit some 4,800 hectares; additional land would also be needed for roads and service centers, as well as for grazing land in areas where oxen are available for draught power. The four schemes will thus require a total area of 19,200 ha. The first 9,600 ha should be available at the outset, and two other areas of 4,800 ha each each years 1 and 2; planning and development would be carried out in the following year and settlement the year after.

9. A recruitment program for more senior field staff plus a comprehensive training program to ensure the availability of the more junior extension staff will need to be initiated. Funds for the required facilities and training staff (probably at Kasungu), as well as funds to pay for trainees will also be needed. In addition to the field staff, the project will require a Project Manager and a Project Accountant with assistants, land planners and other support staff. Administrative staff will also be required at headquarters and unit level.

D. Estimates of Costs and Benefits

10. Project Costs. Using the CDC Report 1/ as a guideline some indication of approximate costs of settling 2,400 growers under the project can be estimated.

AT	<u>Capital Costs</u>	<u>K</u>
	Preliminary Surveys and Layout	350,000
	Development (roads, water supplies, compensation)	600,000
	Buildings (smallholder barns & shed; central service buildings; staff housing; training facilities; machinery repair & workshops)	1,500,000
	Tractors & implements, vehicles & cycles	400,000
	Smallholder & grading shed equipment, office and house furniture	200,000
	5% Contingency	150,000
		<hr/>
		K3,200,000

1/ CDC Report on Smallholder Flue-Cured Tobacco Project, 1972.

B. <u>Operating Costs</u> (per year at maturity)	<u>K</u>
Staff Salaries	60,000
Operating and maintenance costs of central services	90,000
Interest on seasonal finance	36,000
Tractor hire charges	145,000
Depreciation on central services	172,000
5% Contingency	27,000
	<hr/>
	K630,000
	<hr/>

Operating costs will be covered by a charge on the grower which would average K 250 per grower. The figure for staff salaries is lower than envisaged by CDC, but is more in line with Bank smallholder tobacco schemes in neighboring countries. Only seasonal funds will thus be required for operating the project, as the growers will pay for all operating costs annually. However, in early years some of the operating costs will have to be capitalized into the loan so that the charge does not exceed K 250 per grower per year. At the peak capitalized operating costs would amount to K 1,000,000 which, together with the capital costs detailed above, would result in a total project cost of K 4.2 million or US\$5.2 million.

11. Farm Costs. The cropping pattern for the 8 ha farm envisages 0.6 ha of Virginia tobacco, 0.4 ha of maize and 0.2 ha groundnuts; 1.8 ha would be fallow, 2.4 ha fuel wood plantation and 2.6 ha undeveloped (permitting an expanded cropping program for more successful and progressive farmers). Tobacco yields are estimated at 1,060 kgs per ha in year 1, 1,120 in year 2, and 1,180 in year 3. Maize, with yields at 3,350 kgs per ha, would be used to meet subsistence needs; groundnut yields of 1,120 kgs per ha would allow one-third of the output for subsistence needs and about 160 kgs for sale. A farm family could carry out this program without recourse to hired labor. Costs and returns from year 5 onwards are estimated below.

<u>Income from Sale of Crops</u>	<u>K</u>
Tobacco at 88 tambala per kg	630
Groundnuts at 11 tambala per kg	<u>18</u>
Total	<u>648</u>

Costs

Direct crop costs	82
Selling expenses	24
Auction floor charges	13
Depreciation of barns and shed	55
Establishment of fuelwood plantation	8
Central Service operating costs	<u>250</u>
Total	<u>432</u>
Family Income	<u>216</u>
Family Income (with tobacco at 77 t per kg)	<u>140</u>
Family Income (with tobacco at 99 t per kg)	<u>292</u>

12. Farmer Benefits. The basic farm model gives a net income to the farmer of K 216 with tobacco at 88 tambala per kg, but the latitude allowed for increased cultivation, higher yields and the possible use of oxen rather than tractors could permit 100% higher returns to progressive farmers.

13. Benefits to Malawi. The project's major benefits will be the increased production of Virginia flue-cured tobacco and groundnuts. Total sales at full development would be:

Tobacco	1,700,000 kgs	valued at K 1,496,000 to the grower
Groundnuts	324,000 kgs	valued at K 35,640 to the grower

The internal rate of return to the project as a whole on the basis proposed will be in excess of 40 per cent. The program provides an increased livelihood for some 2,400 farm families, and average net family income would be increased by K 170 per year without impairing subsistence production.

E. Project Preparation

14. It is suggested that preliminary survey work should be commenced as soon as funds are available and that, depending on progress in this field, a project preparation group should be set up early in the new year, with, if possible, RMEA and CDC participation.

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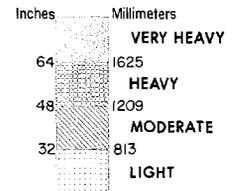
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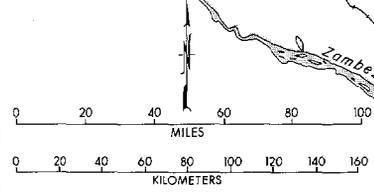
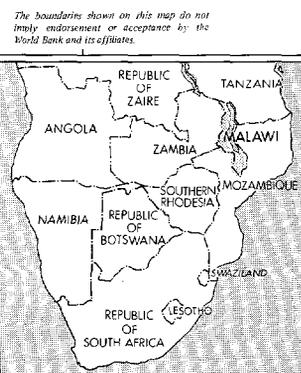
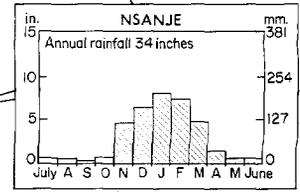
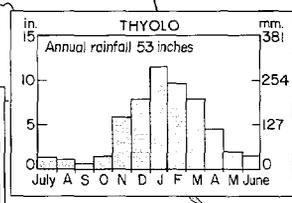
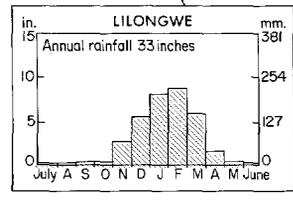
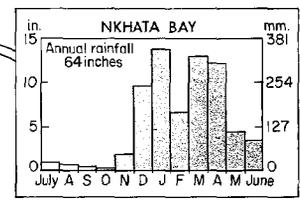
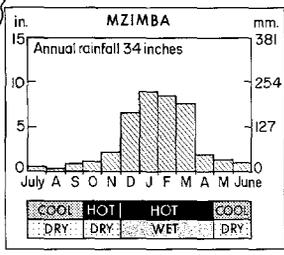
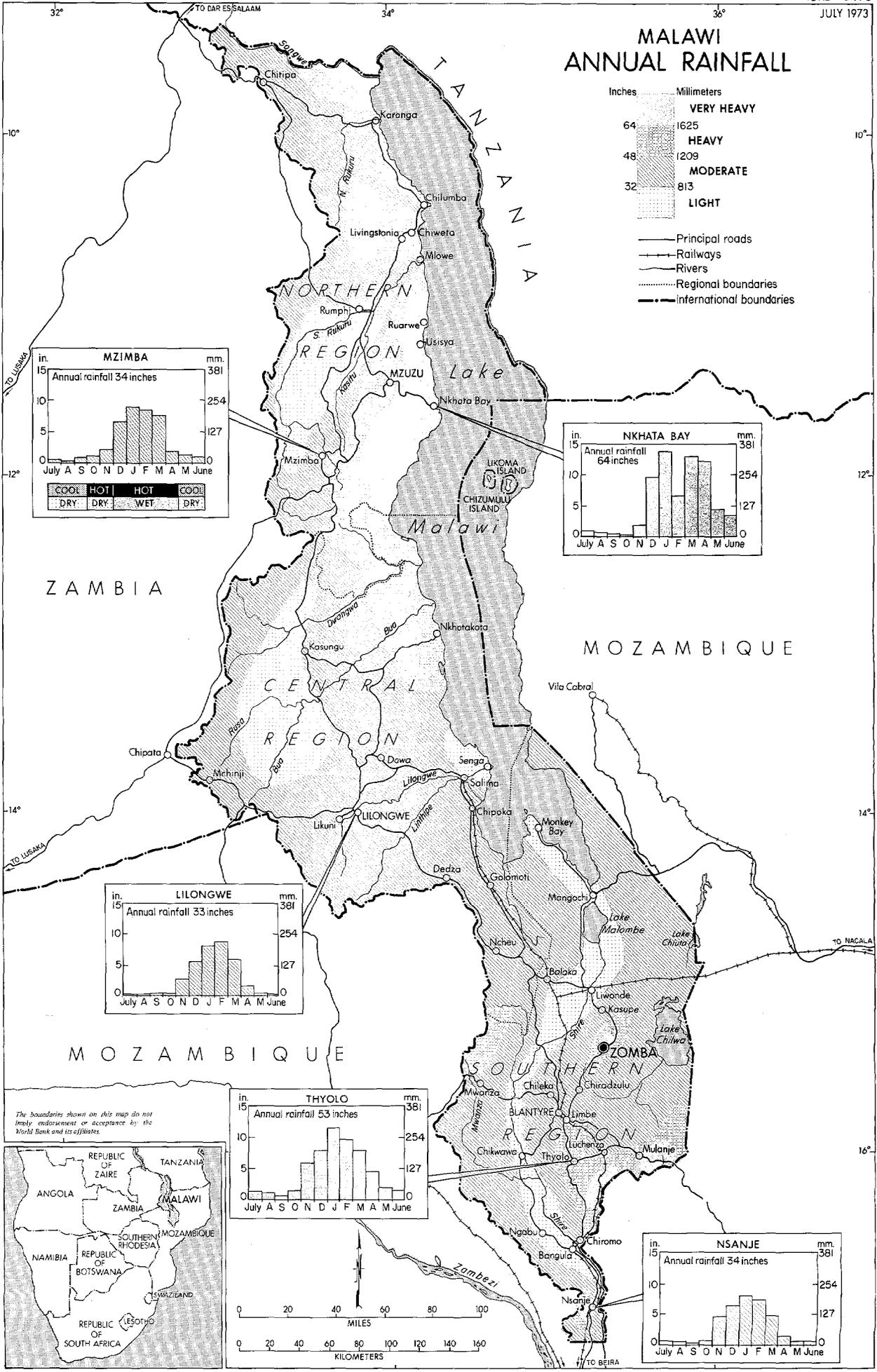
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MALAWI ANNUAL RAINFALL

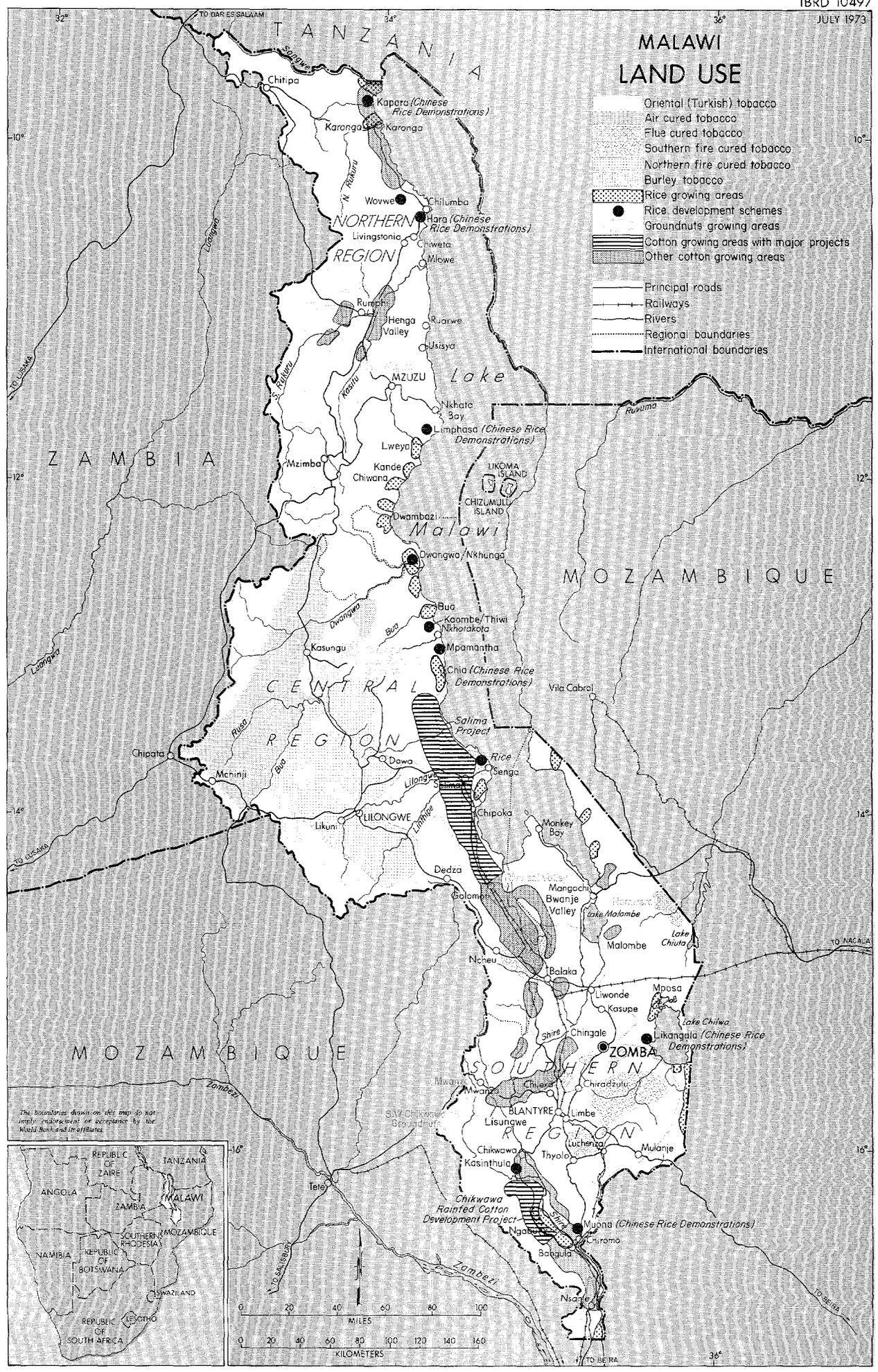


- Principal roads
- Railways
- Rivers
- Regional boundaries
- International boundaries

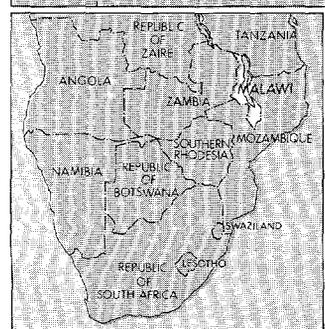


MALAWI LAND USE

- Oriental (Turkish) tobacco
- Air cured tobacco
- Flue cured tobacco
- Southern fire cured tobacco
- Northern fire cured tobacco
- Burley tobacco
- Rice growing areas
- Rice development schemes
- Groundnuts growing areas
- Cotton growing areas with major projects
- Other cotton growing areas
- Principal roads
- Railways
- Rivers
- Regional boundaries
- International boundaries

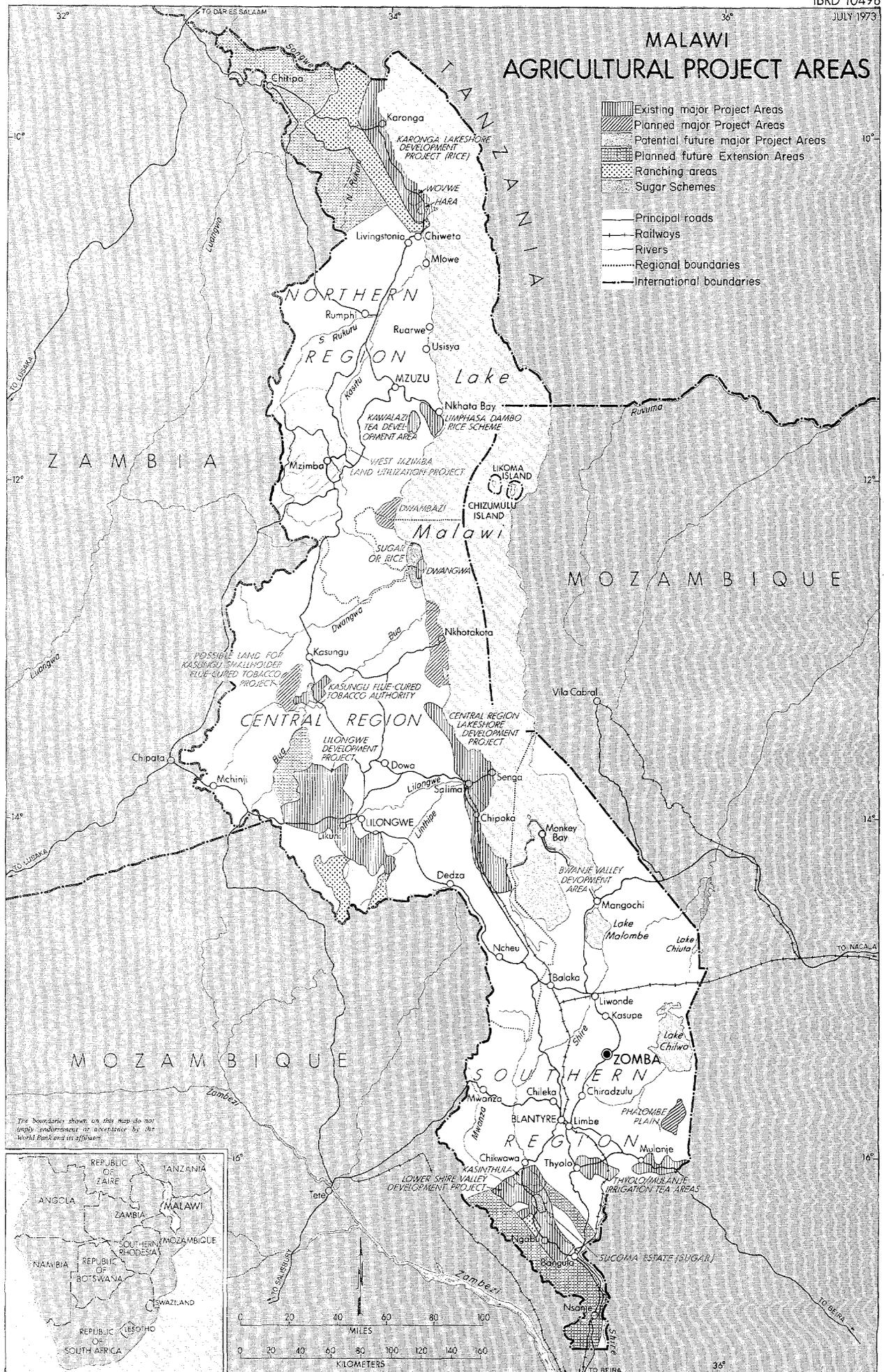


The boundaries drawn on this map do not imply agreement or acceptance by the World Bank and its affiliates.

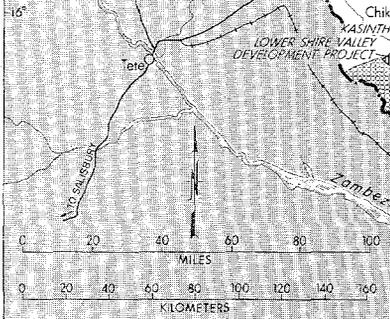
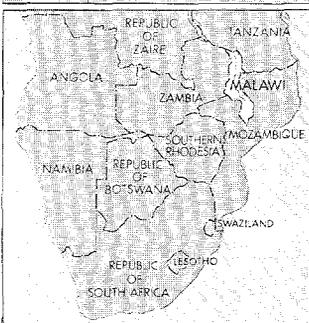


MALAWI AGRICULTURAL PROJECT AREAS

-  Existing major Project Areas
-  Planned major Project Areas
-  Potential future major Project Areas
-  Planned future Extension Areas
-  Ranching areas
-  Sugar Schemes
-  Principal roads
-  Railways
-  Rivers
-  Regional boundaries
-  International boundaries



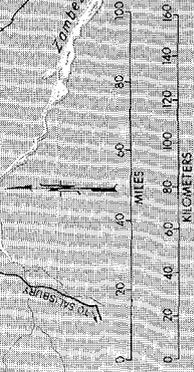
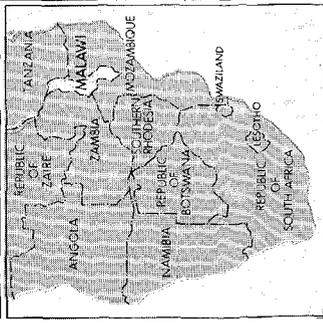
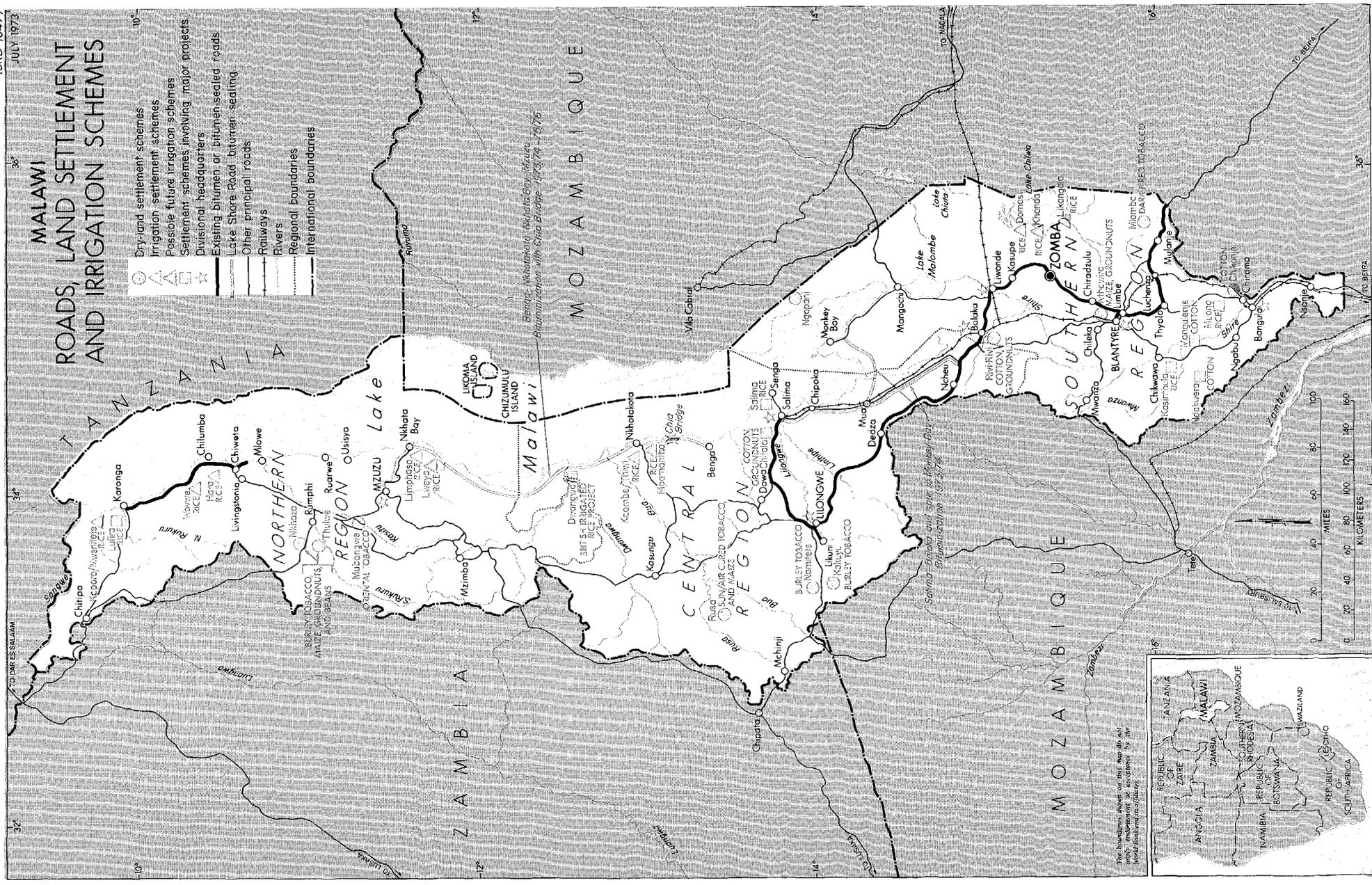
The boundaries shown on this map do not imply endorsement or acceptance by the World Bank and its affiliates.



MALAWI ROADS, LAND SETTLEMENT AND IRRIGATION SCHEMES

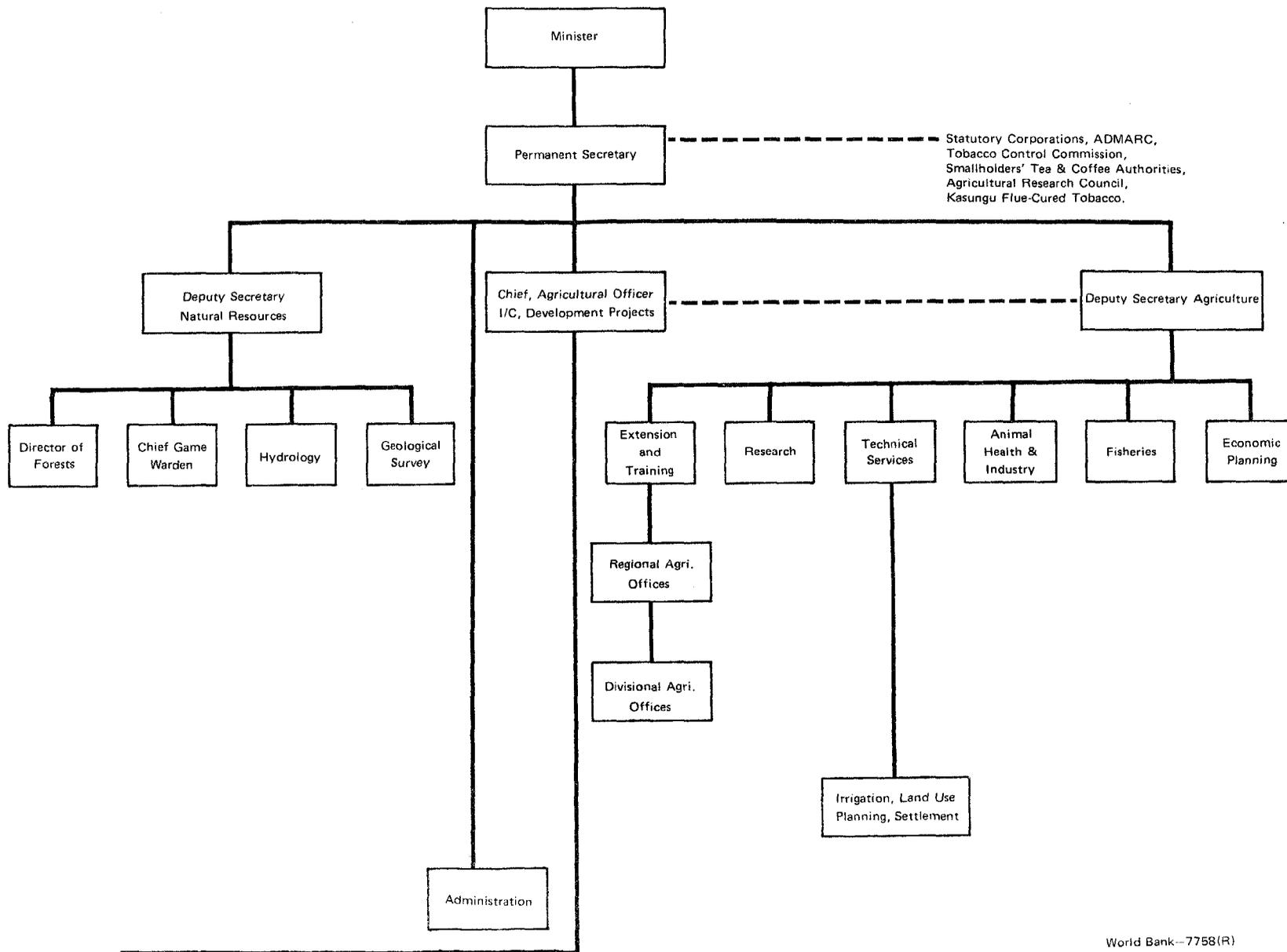
Legend:

- Dry-land settlement schemes
- Irrigation settlement schemes
- Possible future irrigation schemes
- Settlement schemes involving major projects
- Divisional headquarters
- Existing bitumen or bitumen-sealed roads
- Lake Shore Road bitumen-sealed
- Other principal roads
- Railways
- Rivers
- Regional boundaries
- International boundaries



The boundaries shown on this map do not imply endorsement by the World Bank of these boundaries.

MALAWI AGRICULTURE SECTOR REVIEW
 MINISTRY OF AGRICULTURE AND NATURAL RESOURCES

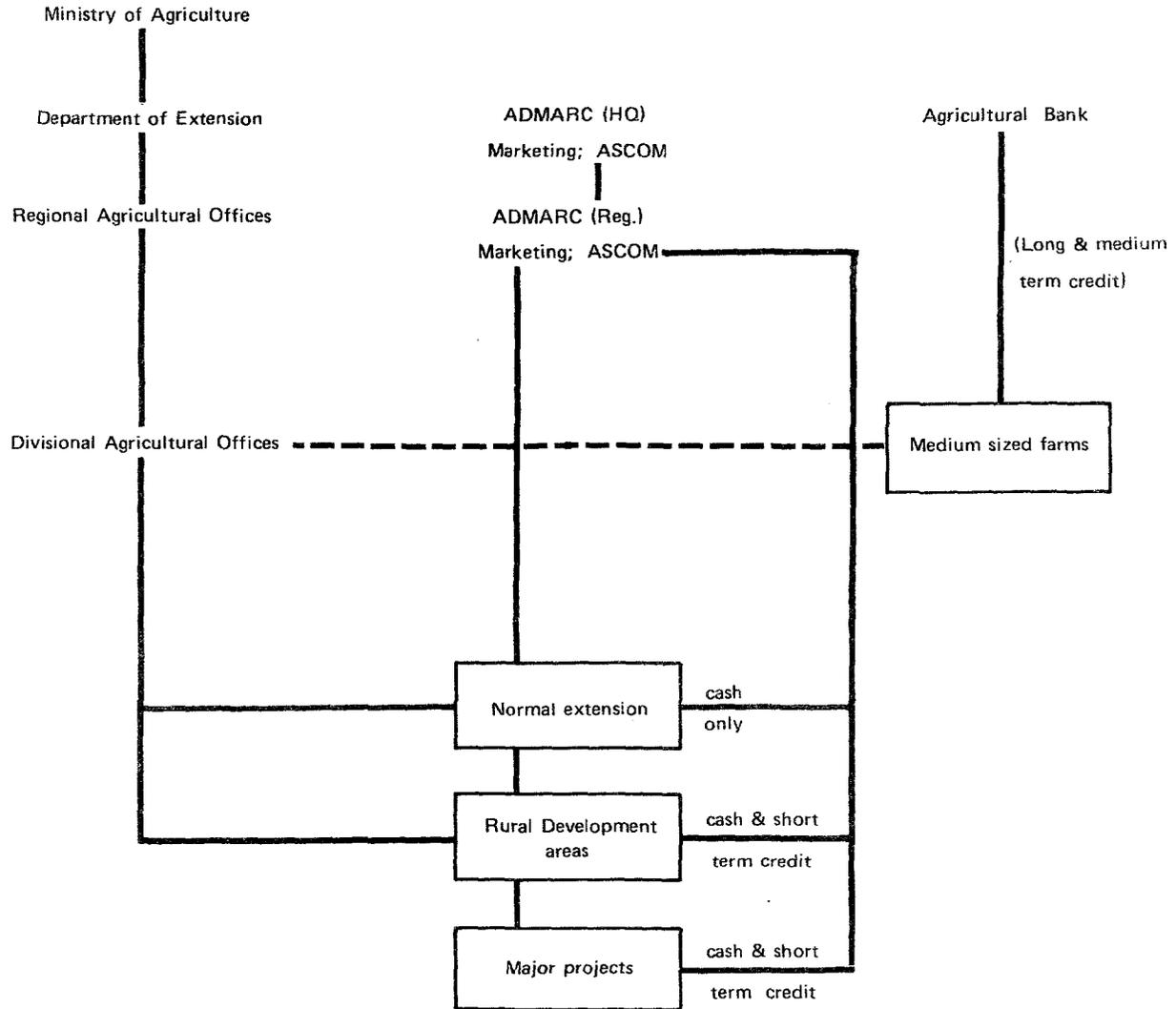


Project Managers

Lilongwe Land Development Project
 Shire Valley Rural Development Project
 Karonga Rural Development Project
 Salima Cotton, Rice and Land Development Project

World Bank-7758(R)

**MALAWI AGRICULTURE SECTOR REVIEW
CREDIT INSTITUTIONS
EXISTING PROPOSALS**



**MALAWI AGRICULTURE SECTOR REVIEW
CREDIT INSTITUTIONS
ALTERNATIVE PROPOSALS**

