

PN-ABD-759

63895

December 1980

Malawi's Agricultural and Rural Development:
An Assessment of Priorities for AID Assistance

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I. Geography, Resources, and Development Administration

I.1. The Country and Its Geographic Setting

Independent Malawi was created from colonial Nyasaland in 1964. Dr. H. Kamuzu Banda, leader of the Malawi Congress Party (MPC) since 1959, was Prime Minister. In 1966, the Republic of Malawi was instituted, with Dr. Banda as its first President and the MPC as the dominant political organization. In 1970, Dr. Banda was named President-for-Life, under a one-party system.

Landlocked Malawi is bordered on the East, South, and Southwest by Mozambique, on the West by Zambia, and on the North by Tanzania. It extends north to south for 830 km (52 miles) with width varying from 80 to 160 km (50 to 100 miles). Its total area is 118,484 km² (45,747 sq. miles) of which 24,000 km² (9,300 sq. miles) are lakes and 94,484 km² (36,447 sq. miles) are land area.

Lake Malawi, occupying the eastern side of the country, is an important geographic and economic feature. The lake, 400 miles long and an average 50 miles wide, lies mostly within the Malawian territorial limits. Rivers and streams in the North flow towards the lake. Those in the South flow to the Shire River, the major river that drains the lake and flows south to join the Zambezi River in Mozambique.

Much of the country consist of plateaus with valleys and rolling hills interspersed with mountain ranges. The Nyika Plateau in the North covers about 9,000 square miles at elevations ranging from 7,000 to 8,000 feet and is sparsely populated. The central plateau, known as Lilongwe Plain,

also covers about 9,000 square miles at altitudes between 2,500 and 4,000 feet. It is intensively cultivated. The lowest area, about 200 feet above sea level, is in the densely populated lower Shire Valley in the South.

Malawi has a marked rainy season from November to April and a prolonged dry season the rest of the year. Average rainfall generally varies from 750 to 1,600 mm, except for a few rainshadow areas that receive much less. The lower Shire Valley and the central lakeshore area are hot and dry. Higher rainfall makes the northern lakeshore hot and humid. Lower plateaus are warm and relatively dry, while the higher plateaus are cooler but receive more abundant rainfall.

Soil types and qualities are varied; much of the arable area is moderately fertile. Agroclimatic factors, in conjunction with soil quality, permit the production of a wide variety of crops.

Without significant mineral resources, Malawi's main natural resources can truly be said to be its lakes, its arable land, fertile soils, adequate rainfall, and climatic conditions suitable for the growth of a wide range of crops.

1.2. Population

According to the 1977 Population Census, the total population was 5.6 million, an increase of 1.5 million from the 1966 census (Table 1). This intercensal increase is equivalent to an annual growth rate of 2.9 percent (Table 1).

Table 1. Population and Annual Growth Rate, 1945-77

Census Year	Population ^a	Average Annual Inter-censal Growth Rate
1931	1,573,454	
1945	2,049,914	1.9
1966	4,039,583	3.3
1977	5,547,460	2.9

SOURCE: Malawi Statistical Yearbook, 1979

^aPopulation data refer to the de facto population, defined as the total number of persons physically in Malawi at the time of the census. The 1966-77 increase was affected by the large number of male migrant workers that returned from neighboring countries after 1974. The estimated annual rate of increase in the de jure population--including Malawians living abroad--between 1966 and 1977 was 2.6 percent.

Administratively, the country is divided into three regions: Northern, Central and Southern. The heaviest concentration of population is in the Southern Region, but the rate of growth in the Central Region was significantly higher during 1966-77 (Table 2). This region gained about two percentage points while the other two lost about one point each in the interregional distribution of population during the intercensal period. In part, this differential population growth by region is a response to government policies and programs, including the move of national capital to Lilongwe in the Central Region.

In 1977, 8 percent of the population was classified as urban, compared to 5 percent in 1966 (Table 3). Blantyre still accounts for almost 50 percent of the urban population. Lilongwe has emerged as the other major urban concentration, registering a five-fold increase in population

Table 2. Population and Annual Growth Rate, by Region

Region	Population		Population		Growth Rate 1966/77 (% per year)
	1966	%	1977	%	
Northern	497,491	12	648,853	11	2.4
Central	1,474,952	37	2,143,716	39	3.4
Southern	2,067,140	51	2,754,891	50	2.6
Malawi	4,039,583	100	5,547,460	100	2.9

SOURCE: Malawi Statistical Yearbook, 1979

Table 3. Rural-Urban Population and Rate of Growth, 1966-77

Population	1966		1977	
	No. of persons	%	No. of persons	%
Rural	3,836,280	95	5,076,802	92
Urban Total ^a	202,067	5	470,658	8
Blantyre	109,461		219,011	
Zomba	19,666		24,234	
Lilongwe	19,425		98,718	
Other	53,515		128,695	
Malawi Total	4,039,583	100	5,547,460	100

SOURCE: Population Census, 1977

^aAll towns with administrative and commercial services and market facilities

between the two census years. Rural-urban migration has not been as heavy in Malawi as in other developing countries. This is partially a response to the Government wage policies and partially a reflection of limited industrial/commercial growth.

Overall population density is among the highest in Africa (Table 4). However, density varies both between and within regions. Of course, these overall densities do not show the degree of population pressure on arable land, an important point that is pursued in a later section.

The rate of natural increase in the population is moderately high when compared to other countries. While birth rates are relatively high, death rates are also quite high. It is likely that both infant mortality and the crude death rate will fall due to improving health and nutrition conditions. As a result the rate of natural increase can be expected to rise. The resulting higher rate of population increase will be elevated even more by the current high (43 percent) proportion of females in their fertile years and the increased survival of infant girls into their fertile years. This built-in momentum will result in increasing rates of population growth, unless steps are taken to lower the birth rate.

The population can be expected to total about 6 million by the end of 1980. At the rate of growth presently used for planning--2.6 percent per year^{1/}--the population will reach 10 million in 2000 and double to 12 million by 2007. If health and nutritional investments began to pay off and birth rates remain high, population doubling-time is bound to be

^{1/}This rate is lower than the rate indicated by the preliminary results of the 1977 census, but before adjustments were made for returned migrants. The final results of the 1977 census, expected to be available early in 1981, should provide a better picture of 1966-77 growth.

Table 4. Land Area, Population and Density by Regions and District 1966 and 1977

Area	Land Area Sq. Kilometers	Population		Population Density Persons Per Sq. Kilometer	
		1966	1977	1966	1977
Northern Region	26,931	497,491	648,853	18	24
Chitipa	4,289	59,521	72,316	14	17
Karonga	3,354	77,687	106,923	23	32
Nkhata Bay	4,090	83,911	105,803	21	26
Rumphu	4,768	46,636	62,450	10	13
Mzimba	10,430	229,736	301,361	22	29
Central Region	35,592	1,474,952	2,143,716	41	60
Kasungu	7,879	97,472	194,436	12	25
Nhota-Kota	4,258	62,918	94,370	15	22
Ntchisi	1,655	66,762	87,437	40	53
Dowa	3,041	182,000	247,603	60	81
Salima	2,196	86,552	132,276	39	60
Lilongwe	6,159	498,524	704,117	81	114
Mchinji	3,357	85,324	158,833	25	47
Dedza	3,623	230,715	298,190	64	82
Mtcheu	3,424	164,685	266,454	48	66
Southern Region	31,753	2,067,140	2,754,891	65	87
Mangochi	6,273	232,692	302,341	37	48
Machinga	5,965	226,506	341,836	38	57
Zomba	2,580	282,391	352,334	109	137
Chiradzulu	767	142,197	176,184	185	230
Blantyre	2,012	237,289	408,062	118	203
Mwanza	2,295	41,981	71,405	18	31
Thyolo	1,714	256,605	322,000	150	188
Mulanje	3,450	398,881	477,546	116	138
Chikwawa	4,755	147,364	194,425	31	41
Nsanje	1,942	101,234	108,758	52	56
Malawi	94,276	4,039,583	5,547,460	43	59

SOURCE: Population Census 1979

reduced from 27 years, with consequent increased pressure on natural resources and social services. As a result, all goals for productivity, income and basic needs satisfaction would be more difficult to reach. In particular, population growth will impact on the country's capacity to maintain self-sufficiency in food production (see Part V).

The Government considers a larger population an asset for the country's agricultural and overall economy. If expansion of arable land under cultivation or increases in productivity due to improved production practices are possible, a larger population is, indeed, a means of economic growth. But where land is scarce, a continued high rate of population growth intensifies needs for a wide variety of programs required for increased productivity, employment, land conservation, and other services.

In spite of the seriousness of this situation, the Government has formulated no population targets. The official policy with respect to fertility is non-interference with individuals' decision about family size. No program or form of family planning or birth control is encouraged. Contraceptives are available only by prescription from a physician, which effectively eliminates access by the poor majority of the population. As a result, most individuals in Malawi are denied the knowledge and means to make family-size decision consistent with their best interests and the general well-being of the country.

I.3. Land, Land Utilization, and Land Tenure

I.3.1. Land Area and Utilization

Of the total land area of 9.4 million ha, 36 percent--or 3.2 million ha--is considered to be arable. At best, this is a guess based on the few surveys that have been done. There is need for a more systematic and complete inventory of land resources and assessment of their productive potential.

The Ministry of Agriculture and Natural Resources has recently completed an estimate of land utilization (Table 5). These estimates are considered to be an optimistic assessment of the land situation. They show that for every hectare cropped in 1979, there were two hectares of fallow and cultivable but unused land. Considerable differences existed in this ratio among the three regions, as shown by the following figures:

<u>Region</u>	<u>Fallow and cultivable but unused land as percent of cropped land</u>
Northern	352 percent
Central	224 percent
Southern	147 percent
National	208 percent

These data are consistent with the generally-held belief that land pressure is heaviest in the South and least in the North. The districts of greatest land scarcity are Zomba, Chiradzulu, Blantyre, Thyolo, Mulanje and Nsanje in the Southern Region, and Lilongwe, Dedza, Ntcheu and Dowa districts of the Central Region.

Table 5. Land Utilization in 1979

	Northern Region	Central Region	Southern Region	Total
	(Million Ha)			
Total Land Area	2.69	3.56	3.16	9.41
<u>Non-Agricultural Areas:</u>				
Parks	0.40	0.39	0.25	1.04
Forests/Reserves	0.30	0.29	0.28	0.87
Urban and Infra- structure	0.08	0.14	0.13	0.35
Total	<u>0.78</u>	<u>0.72</u>	<u>0.66</u>	<u>7.26</u>
<u>Land Available for Agriculture</u>				
Agricultural estates	0.11	0.25	0.13	0.49
Non-cultivable	0.76	0.22	0.57	1.55
<u>Land Available for Small holders</u>				
Currently cropped	0.23	0.70	0.70	1.66
Fallow, previously cropped	0.25	0.52	0.43	1.20
Cultivable but unused	0.56	1.05	0.64	2.25

SOURCE: MANR, 1980

These data raise as many or more questions than they answer. How much of the land in estates is currently used for production? What are the criteria for land to be classified as cultivable? What investments in land improvements and infrastructure would be needed to extend small-holder cultivation on the "cultivable but unused" land?

It is undoubtedly true that in some areas there is still unused land, or underutilized fallow land by which annual cropped acreage can be increased. The main areas with potential for increased cropping are in the North and some districts of the Central Region. In other areas, smallholder cultivation has already been extended to marginal and erosion-prone land, and fallow reduced below the level required to maintain soil fertility levels. In these region, production is already at the maximum possible given current techniques of production. Without change in production practices, future production in these areas may well fall due to lower yields in response to large soil losses and depleted fertility.

Given soil quality and climatic conditions, output in a given year depends on the area cropped and yields per unit-area. In Part V below, the relationship between future population growth and agricultural output is analyzed. The approach taken is to compare future rural population to the expected availability of cultivable land in order to see what output levels per family and overall for the country might be expected at existing average yields. Then, implications for yield improvements necessary to achieve specified national production targets or output levels per farm family are assessed.

I.3.2. Land Tenure

Under the traditional African concept, land is held by the local chief for the communal use of the people. The chief allocated land to users in accordance with their needs for farming and livestock grazing, free of charge. The allocation was considered temporary, conferring no

ownership rights nor could the land be sold, although usufruct rights could be held for a lifetime and passed on from one generation to another. The chief would reallocate land as needs and conditions changed. The principles of temporary use and reallocation were closely related to slash-and-burn patterns of cultivation, soil depletion, tribal migration, and changing ecological conditions. The system evolved in a situation of land abundance.

Early European settlers also acquired land from chiefs but in the belief that they were obtaining titles under the conventional English concept of private ownership. Generally, land best suited for tea and tobacco as well as township sites for Blantyre and Limbe was obtained by settlers, a process that continued (particularly in the Southern Region) through the 1880's. When what is now Malawi became a British protectorate, the authorities confirmed freehold titles and designated additional land for towns, social uses, forest reserves, etc. (Crown Land).

Remaining land was called African Trust Land, some of which the government controlled for leasing but the majority of which chiefs continued to allocate in the traditional way. This historical merging of freehold and traditional systems gave rise to land tenure institutions as they exist today. At independence, freehold land-ownership rights were incorporated into law, including the right to lease or sell freehold land. The sole restriction, in effect since 1974, is that notice of sale must be given to the Government which can block the sale. Crown

Land became public land owned by the new government, African Trust Land controlled by chiefs became "customary" land to be allocated without rent in the traditional way. The Government retained the right to lease public and customary land, such leased land considered to be private.

No definitive statistics on land tenure exist. However, it is generally believed that land is held according to the following pattern:

<u>Tenure Type</u>	<u>Percent</u>
Public Land	15
Leasehold Land	3
Freehold Land	2
Customary Land	<u>80</u>
	100

Freehold land is concentrated in the southern region, especially the tea estates around Mulanje and the commercial center of Limbe. Other freehold land exists in Blantyre, some tobacco estates in the southern and central regions, and the new capital area in Lilongwe, which is held entirely in freehold by the Capital City Development Corporation. Also, Malawi Housing Corporation owns some freehold land which it develops and is permitted to sell. It is believed that the total amount of freehold land has diminished slightly since independence, due to government purchases of some large estates.

The amount of land under leasehold is not known precisely, and the Lands Department has recently begun compiling a nationwide register of leases. However, in recent years there has been considerable expansion in the amount of land which the Government has made available for lease-

hold, especially for tobacco cultivation. Nonetheless, the amount of rent received by the Government from the leasing of public and customary land has been very small, rising from K150,000 in 1970 to K304,000 in 1977. As discussed earlier, in the Southern Region, almost all arable land is presently in use, and cultivation has been extended to less suitable marginal land. Significant arable customary land is still available for further extension of agriculture in the other regions.

A survey of land values was completed in 1978 by the Lands Department^{1/}. Its purpose was to provide guidelines for government leasing of land, since it was felt that current rents were considerably lower than the profits received under the lease. The survey concluded that rents were well below their true economic value and recommended increases. For agricultural land, annual rents are to be increased from 10 tambala per acre to Kwacha 1.00 per acre as leases came up for their seven-year review. Leased estate lands will be reviewed individually so that rents for some estates may well be higher. The survey also recommended that leases be granted for a minimum of 21 years and up to 99 years, as a means of encouraging capital improvements and facilitating private financing. This is undoubtedly true from the viewpoint of the lessees, but places great importance on the periodic rent reviews as a means of mobilizing a part of the benefits of land use for the public good.

^{1/} Land Tenure in Malawi, 1978. Land Department Office of the President and Cabinet

I.4. Development Planning and Administration

Malawi entered independence with handicaps of many kinds--few mineral resources, a large subsistence agriculture sector, a minimal infrastructure concentrated in the South, a primitive transportation network, a very limited educational system, few qualified citizens to take charge of the economy, and inadequate public revenue to finance public sector activities.

In the face of acute underdevelopment, Government policy has been one of fiscal and monetary restraint, a deliberately slow process of "Africanization", investment to favor growth, avoidance of capital-intensive and prestige-oriented industrial projects, and incentives for private investment and economic activity, including foreign capital.

I.4.1. The Development Plan, 1965-69

The Plan established four major objectives:

- The development of natural resources, concentrating on the expansion of agricultural production to provide for increased domestic consumption and for greatly increased exports;
- The improvement of road transportation;
- The expansion of facilities for secondary and post-secondary education;
- The promotion of industrial development.

The social services sector was assigned low priority. Total government investment, which was to amount to K 89.2 million (about 20 percent of GDP), was growth-oriented.

The Plan was not successfully implemented due to difficulties inherent in the newness of the administration and to delays in procurement. Expenditures lagged behind budgetary allocations in 1965, 1966 and 1967, and an interim program for 1968-70 was launched, maintaining the original order of priorities. This program was successful in achieving a higher level of expenditures by the Central Government.

Domestic financing of this plan was minimal since the capacity of the government to generate revenue was still limited. Domestic revenue covered only the cost of small projects and the government's counterpart contributions to foreign assistance. British budgetary grants-in-aid were necessary throughout the period, although their amounts diminished steadily.

I.4.2. The Statement of Development Policies, 1971-1980

The general development strategy of the first plan was maintained. Recognizing that the country has a favorable endowment of land and labor, while facing scarcity of capital, high level skills and extractive resources, economic policy was to aim at self-sufficiency in food supplies as well as production of selected crops for export. The assumption was made that land productivity in subsistence agriculture would increase proportionately with population, and that sufficient land could be brought into production for export. The Agricultural Development and Marketing Corporation was to maintain price stability and provide small-holder agriculture with improved inputs (at cost or subsidized prices), processing, research, and marketing.

Industrial policy was designed to promote the processing of local raw materials by labor-intensive industries, as long as they paid export-parity prices for their primary inputs. Capital-intensive industry was of no priority, unless it fulfilled an essential function and there was no choice of technology.

Given the extension of transport infrastructure prior to 1971, the new priority was to insure its optimal use and the operation of least-cost services linked to expected developments in the directly productive sectors (e.g., servicing agricultural project areas).

Social services were again assigned a relatively low priority. The principal aim of educational policy was to increase the number of qualified technical, administrative and professional workers. That of health policy was to maintain existing treatment facilities, a relatively low level of expenditure on preventive measures, and a substantial increase of low cost housing, which was expected to contribute to disease prevention.

Recognition of the effects of uneven development by region and by sector was the basis for the establishment of an incomes policy of keeping wage increases in line with increases in productivity, and avoiding actions that could widen urban/rural income differentials. The transfer of the capital city from Zomba, in the south, to Lilongwe, in the Central Region was expected to spur development away from the south.

It was expected that as a result of the plan, real GDP would increase from K254 million in 1970 to K 359 million in 1975 and K 541 million in

1980. Given the expectation of a continued growth of population at 2.6 percent per annum, total population would rise from 4.4 million in 1970 to 5.0 million in 1975 and 5.7 million 1980, thus resulting in per capita GDP growth from K57 to K78 and K 95 per annum, respectively (in constant prices).

The Plan was not a conventional one, with specific targets. Its projections only indicated possible orders of magnitude. Public investment was to be planned in detail on a three-year rolling basis. Thus, within the present plan the first three-year program was for 1970/71-1972/73, followed by another for 1971/72-1973/74, and so on. In each three-year program, the first year is revised annually on the basis of previous years' performance and available financing. Therefore, only the first year of the three-year program is operational.

Achievements have been substantial. The rate of growth^{1/} between 1964 and 1979 compares favorably to that in countries at a similar stage of development, which generally averaged lower than 4 percent per year. This growth was accompanied by the balancing of the revenue account of the national budget in 1972/73, which permitted the elimination of British budgetary support.

I.4.3. The New Plan, 1981-85

This plan, currently under preparation, will be the first to contain quantitative targets for a 5-year period at the national and sectoral levels. Its overall strategy is to achieve a high and sustainable rate of growth while maintaining self-sufficiency in foodstuffs. Emphasis will

^{1/} Reviewed in Part II below.

be on directly productive private and public investment and labor-intensive methods of production to implement this strategy. Foreign assistance will be used in the first instance to bridge the gap between local resources and those needed to achieve the production targets. As available, additional resources will be allocated to increased investment in social services.

II. Macroeconomic Structure and Performance of the Economy

II.1.1 Growth and Industrial Origin of GDP

Since independence real Malawian GDP has consistently grown at a rate in excess of population growth (Table 6). The average annual rate of growth for the 1967-1979 period was 6.7 percent, a rate that compares favorably to many poorer less-developed countries. Even given the existing high rate of population growth, GDP per capita has grown on the average of about 4 percent per year. If growth is maintained at that rate in the future, per capita GDP will double by the year 2000.

The growth rate in GDP accelerated after 1970 and was especially high in 1976 and 1977. Real growth in 1978 was estimated to have declined to 5.4 percent, recovering slightly to 6.2 percent in 1979. Present indications are that there will be little or no growth in the economy during 1980. The slowdown in economic activity was particularly pronounced in the last two months of 1979, when the land transport routes through Mozambique were closed so that all external trade was limited to air-freight. Activity remained depressed during the first part of 1980 due to these disruptions in transport. Higher oil prices, international interest rates, and falling export prices have all combined to create downward pressures on the economy. Recent experience, therefore has demonstrated the extreme vulnerability of the economy to weather, regional political problems, and the international economic situation. As a result forecasts of future growth are even more difficult than

Table 6. Gross Domestic Product by Industrial Origin, Constant 1973 Prices, 1967-79

	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Agriculture, Forestry & Fisheries:	155.8	145.9	152.0	150.0	175.3	192.1	180.0	186.5	187.2	200.5	216.3	224.4	230.7
Monetary	44.8	41.1	48.1	45.1	51.5	61.1	55.7	57.7	54.7	65.0	77.3	81.8	84.4
Subsistence	111.0	104.8	103.9	104.9	123.8	131.0	124.3	128.8	132.5	135.5	139.0	142.6	146.3
Manufacturing:													
Monetary	24.1	25.2	26.7	30.0	30.2	36.7	37.5	39.3	45.8	44.4	49.8	54.5	58.4
Subsistence	9.2	8.8	8.4	7.7	7.7	7.7	7.5	7.8	8.0	8.2	8.4	8.6	8.8
Construction:													
Monetary	7.5	9.0	10.6	10.1	12.5	16.1	14.4	15.0	16.9	16.7	17.5	23.8	25.6
Subsistence	4.7	4.5	4.5	4.3	3.9	3.8	3.8	3.9	4.0	4.1	4.2	4.3	4.4
Electricity & Water	2.8	3.0	3.2	3.5	4.0	4.2	4.6	5.0	6.0	6.4	6.7	7.0	7.8
Wholesale & Retail	22.0	25.6	29.3	29.1	42.7	43.6	46.9	51.4	51.4	55.0	57.8	64.5	68.1
Transport, Storage & Communication:													
Monetary	14.0	12.9	12.8	11.3	16.8	9.0	19.8	21.8	23.5	23.7	24.9	25.2	27.4
Subsistence	1.0	0.9	0.9	0.8	0.8	0.8	0.8	0.8	0.9	0.9	1.0	1.0	1.0
Financial Services & Real Estate:													
Monetary	5.2	6.9	6.7	7.3	6.8	9.5	15.5	21.2	24.2	25.8	27.1	30.8	34.0
Subsistence	4.0	3.8	3.8	3.6	3.3	3.4	3.7	3.8	4.0	4.1	4.2	4.3	4.4
Community, Social & Personal Services:													
Publ. Admin. & Defense	24.4	23.5	23.3	21.3	23.2	21.5	24.1	24.6	25.8	27.0	29.3	35.5	42.5
Education	6.1	6.8	6.9	6.5	6.4	7.1	7.2	7.3	9.4	9.9	11.0	12.8	15.0
Health	2.2	2.2	2.3	3.2	3.3	3.5	3.3	3.4	2.8	2.9	3.4	4.7	5.8
Other Services & Unallocable	6.8	5.2	7.3	7.9	7.2	7.3	7.5	7.7	16.2	12.6	22.7	8.2	7.3

Table 6. (continued)

	1967	1968	1968	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Gross Domestic Product													
at Factor Cost:													
Monetary	159.9	161.4	177.2	172.5	204.6	219.6	236.5	254.4	269.3	295.5	326.9	348.8	376.3
Subsistence	129.9	122.8	121.5	121.3	139.5	146.7	140.1	145.1	149.0	152.8	156.8	160.8	164.9
Total	289.8	284.2	298.7	296.8	344.1	366.3	376.6	399.5	418.3	448.3	483.7	509.6	541.2
Plus Net Indirect Taxes ^a	15.0	14.7	17.8	21.2	25.5	26.1	25.0	26.7	25.7	21.6	28.8	38.7	42.6
Gross Domestic Product at Constant Market Prices:													
Monetary	174.9	176.1	195.0	196.7	230.1	245.7	261.5	281.1	295.0	317.1	355.7	387.5	418.9
Subsistence	129.9	122.8	121.5	121.3	139.5	146.7	140.1	145.1	149.0	152.8	156.8	160.8	164.9
Total	304.8	298.9	316.5	318.0	369.6	392.6	401.6	426.2	444.0	469.9	512.5	548.3	583.8

SOURCE: World Bank, Malawi: Basic Economic Report, Statistical Appendix. July 25, 1980.

^aAdjusted using GDP Deflator.

usual. At a minimum, good economic management--and some luck--will be required to return the economy to--or near--its trend growth path of the 70s in the 80s.

Little change in sector of origin of GDP has occurred in recent years, or since independence for that matter (Table 7). Agricultural output contributed a constant 45 percent of GDP from 1975 to 1977, but declined to 44 percent in 1978 and 43 percent in 1979 as a result of poor weather and low prices. The share of manufacturing output has remained constant at 12 percent since 1976, showing that this sector closely follows overall changes in the economy. Construction is somewhat more erratic, both because of the multiplier effects of growth in other sectors on that sector and the lumpiness of large-scale public investment projects. Services show a very modest but persistent tendency to increase as a proportion of total GDP.

II.1.2. Investment and Its Financing^{1/}

The total supply of domestic resources grew rapidly in 1978 and 1979, due to a sharp increase in the import surplus in both years (Table 8). In 1978 the expansion of total domestic expenditure reflected mainly investment activity. Buoyant private sector expectations, which were created by the expansion of agricultural incomes and the favorable balance of payments situation in 1977, encouraged investment activity in the agricultural estate sector and in urban real estate. Public sector investment increased sharply, as the Government embarked upon an expanded program of development projects. Large stocks were built up throughout the economy,

^{1/}Based on Int. Monetary Fund, Malawi: Recent Economic Developments, 1980.

Table 7. Sectoral Composition of GDP

	1975	1976	1977	1978	1979
Agriculture, forestry and fishing as a percentage of Gross Domestic Product at constant factor cost	45	45	45	44	43
Manufacturing as a percentage of Gross Domestic Product at constant factor cost	13	12	12	12	12
Construction as a percentage of Gross Domestic Product at constant factor cost	5	5	4	6	6
Services and other as a percentage of GDP at constant factor cost . .	37	38	38	38	39
Monetary GDP at constant factor cost as a percentage of total GDP at constant factor cost	64	66	68	68	70
Non-monetary GDP at constant factor cost as a percentage of total GDP at constant factor cost	36	34	32	32	30

SOURCE: Economic Report, 1980. Economic Planning Division, Office of the President and Cabinet.

partly as a precautionary measure as the lag between ordering and receiving imports lengthened and partly as deteriorating world market conditions caused increased involuntary accumulation of agricultural export crops. In addition, record maize production allowed a substantial surplus to be added to the country's strategic stocks. Consumption expenditure are derived as a residual in the national accounts, and the slow growth indicated for 1978 is probably an under-estimate in view of the sharp rise in incomes in that year (particularly for public sector employees).

Table 8. Malawi: Gross Domestic Product and Expenditure at Current Prices, 1975-79
(In Millions of Malawi Kwacha)

	1975	1976	1977	1978	1979
GDP at current market prices	<u>565.7</u>	<u>640.4</u>	<u>762.1</u>	<u>853.4</u>	<u>1065.7</u>
Import surplus	<u>87.9</u>	<u>37.1</u>	<u>33.4</u>	<u>139.5</u>	<u>163.0</u>
Imports of goods and nonfactor services	246.0	222.7	252.0	326.9	382.8
Exports of goods and nonfactor services	158.1	185.6	218.6	187.4	219.8
Total supply of resources	<u>653.6</u>	<u>677.5</u>	<u>795.5</u>	<u>992.9</u>	<u>1228.7</u>
Consumption	<u>492.0</u>	<u>570.5</u>	<u>633.9</u>	<u>674.9</u>	<u>926.4</u>
Private	423.1	496.6	550.4	555.5	795.7
Public	68.9	73.9	83.5	119.4	130.7
Gross capital formation	<u>161.6</u>	<u>107.0</u>	<u>161.6</u>	<u>318.0</u>	<u>302.3</u>
Gross fixed investment	145.6	135.0	151.5	265.8	234.5
Private	56.5	55.7	56.3	102.6	89.3
Public	89.1	79.3	95.2	163.2	145.2
Change in stocks	16.0	-28.0	10.1	52.2	67.8
Total domestic expenditure	<u>653.6</u>	<u>677.5</u>	<u>795.5</u>	<u>992.9</u>	<u>1228.7</u>

SOURCE: International Monetary Fund

In 1979 total investment fell and consumption spending provided the main impetus to aggregate demand, although inventory accumulation remained high. Some disinvestment is thought to have occurred in the tobacco estate sector as a result of a second disappointing production and marketing season, especially for the less well-established estates set up since 1977. Investment was restricted in other sectors of the economy as a result of shortages of inputs caused by the deteriorating external transportation situation. In particular, the public sector investment program was held back. However, the transportation bottleneck continued to encourage precautionary stockbuilding, particularly of imported intermediate inputs and capital goods, and large stocks of agricultural export crops once again remained unsold at the end of the year due to the difficulties in shipping them to the coastal ports. The increase in public consumption expenditure reflected a shift in emphasis from development to recurrent expenditure in the Government budget. (Private consumption growth, again derived as a residual, may be overstated for 1979.)

The higher rates of economic growth achieved in the 70's were generated by total investment that increased markedly as a percent of GDP after 1967. While erratic from year to year, the overall investment rate has exceeded 20 percent in most years and 25 percent in three of the last five years. Public investment accounted for about half of total investment in 1978 and 1979, down from 60-80 percent in earlier years (Table 8).

Domestic savings have varied between 10-20 percent of GDP in the 70's (Table 9).^{1/} Since net factor income has been negative in most years, domestic savings available to finance investment have been somewhat lower. The net result has been that domestic financing as a proportion of total investment has been as low as 40 percent and never higher than two-thirds. The proportion of total investment expenditures financed from foreign sources (donor and grants) increased markedly in 1979 to an estimated 63 percent (Table 10).

On a net basis, income has flowed out of the economy during the last four years, reflecting in large part the declining importance of remitted earnings from Malawians working abroad. In 1979, however, the net outflow increased sharply with higher interest payments made on foreign firms operating in Malawi.

II.1.3. The Public Sector

II.1.3.1. Role in Consumption and Investment

The public sector comprises the Central Government, local authorities and public enterprises. It is of relatively moderate size in the economy, but plays an important role in the mobilization of domestic resources for investment. In terms of the national accounting framework, the public sector accounted for 23 percent of gross domestic expenditure in 1976-78, up slightly from the 20 percent recorded during the 1967-69 period (Table 8). This growth is due to the sector's increasing share of gross domestic investment, which rose from about 50 percent to over 60 percent during the twelve years 1967-78. In contrast, the public

^{1/}It seems likely that methods of national accounting overstate the fluctuations in savings and consumption.

Table 9. Savings and Investment, 1967-79

	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
	(K Million)												
1 Total Investment, of which Fixed Investment	29.4 (25.4)	36.7 (37.4)	45.5 (47.7)	69.6 (61.1)	65.0 (54.4)	88.8 (72.4)	91.1 (76.7)	116.7 (105.9)	161.6 (145.6)	107.0 (135.0)	168.5 (158.4)	318.0 (265.8)	306.2 (238.4)
2 Domestic Savings	9.5	6.2	13.1	35.6	31.3	43.9	54.9	66.3	57.4	69.9	135.4	178.5	143.4
3 Resource Gap (1) - (2)	19.9	30.5	32.4	34.0	33.7	44.9	36.2	50.4	104.2	37.1	33.1	139.5	162.8
4 Net Factor Income	-7.7	-7.0	-5.7	-6.1	-3.2	-3.7	0.8	12.4	8.0	-18.0	-23.0	-4.0	-30.8
5 National Savings (2) + (4)	1.8	-0.8	7.4	29.5	28.1	40.2	55.7	78.7	65.4	51.9	112.4	174.5	112.6
<u>Ratios</u>													
Percent of GDP at Market Prices													
Total Investment	13.6	16.3	18.6	26.1	19.4	24.7	22.7	24.0	28.4	16.4	21.9	37.3	28.7
Fixed Investment	11.8	16.6	19.5	22.9	16.2	20.2	19.1	21.7	25.7	20.7	20.6	31.2	22.4
Domestic Savings	4.5	2.8	5.4	13.3	9.3	12.2	13.7	13.6	10.1	10.7	17.6	20.9	13.5
Resource Gap	9.4	13.5	13.3	12.7	10.1	12.5	9.0	10.3	18.4	5.7	4.3	16.4	15.3
National Savings as % of GNP at Current Market Prices	0.9	-0.4	3.1	11.3	8.5	12.0	13.4	15.8	11.4	8.2	15.1	20.5	10.9
Resource Gap as % of Total Investment	67.7	83.1	71.2	48.8	51.8	50.6	39.7	43.2	64.5	34.7	19.6	43.9	53.2

SOURCE: World Bank

Table 10. Gross Domestic Investment and its Financing, 1967-79

	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
	(K Million)												
I Total Domestic Investment	29.4	36.7	45.5	69.6	65.0	88.8	91.1	116.7	161.6	107.0	168.5	318.0	306.2
II Financing													
A. Foreign Financing													
1. Net Foreign Capital Inflow	13.1	20.9	21.2	34.0	26.5	41.0	48.9	41.1	61.6	7.6	85.4	90.4	161.0
2. Net Transfers from Abroad	17.9	16.6	15.7	12.9	.0.5	10.8	13.6	10.7	21.0	16.0	23.0	37.8	29.0
3. Gross Financing from Abroad (1 - 2)	31.0	37.5	36.9	46.9	37.0	51.8	62.5	51.8	82.6	23.6	108.4	128.2	190.0
4. Increase in Net Official External Reserves	3.4	--	-1.2	6.8	0.1	3.2	27.1	13.8	-13.4	-31.5	52.3	-15.3	-3.8
5. Net Foreign Financing (3 - 5)	27.6	37.5	38.1	40.1	36.9	48.6	35.4	38.0	96.0	55.1	56.1	143.5	193.8
B. Domestic Financing													
1. Gross National Savings (I - II A5)	1.8	-0.8	7.4	29.5	28.1	40.2	55.7	78.7	65.4	51.9	112.4	174.5	112.6
C. Total Financing	29.4	36.7	45.5	69.6	65.0	88.8	91.1	116.7	161.6	107.0	168.5	318.0	306.2
III Domestic Financing as Proportion of Total Financing (II B/II C)	6.1	-2.2	16.3	42.4	43.2	45.3	61.1	67.4	40.5	48.5	66.7	54.9	36.8

SOURCE: World Bank

sector's share of gross domestic consumption has declined from 15 percent to 13 percent. These trends in the sector's contribution to domestic consumption and investment are reflected in the sector's investment/expenditure ratio, which has risen sharply from 35 percent in the late 1960's to 57 percent in the late 1970's. This indicates that presently over one-half of public sector expenditure (in the national accounts sense) takes the form of investment. The public sector's contribution to Malawi's gross domestic savings (GDS) has also risen sharply and presently accounts for about 40 percent of gross domestic savings, up from 27 percent in the early 1970's. This strong performance is due to consistent savings by public enterprises, equal to about one-quarter of GDS, and to marked improvement in fiscal performance on the part of the Central Government, which has moved from a position of negative savings to a position of contributing some 15 percent of GDS. This development is reflected in the public sector's savings/investment ratio, which has risen along with the sector's contribution to domestic savings. The fact that the ratio of public savings to GDS is about equal to the ratio of public savings to public investment reveals that, on balance, the sector's investment has equaled the gross savings of the domestic economy. In other words, the public sector invests as much as the economy saves, as far as magnitudes are concerned. In fact, much of the public sector investment is financed by capital inflow in the form of grants and loans.

The private sector has also increased its ratio of savings to investment and presently saves almost as much as it invests. The combined improvement in savings performance by both public and private sectors

has increased the proportion of domestic investment which is financed by domestic savings from one-quarter to about 60 percent in recent years. Since the private sector is nearly self-sufficient in the financing of its investment, public sector investment can be seen to depend on continued access to foreign finance, without which public investment would absorb an increasingly larger share of domestic savings and thus leave less domestic financing available for private investment.

II.1.3.2. Central Government Expenditure^{1/}

During the period 1967-78, total central government expenditure grew five-fold in nominal terms; by 1978 it stood at about K250 million. Within this growth, two overriding trends occurred in the pattern of consolidated expenditure (Table 11):

(a) The larger shares of expenditure by functional classification, i.e., the economic and administrative sectors, grew proportionally larger while the smaller shares of expenditures, i.e., the social sector and fixed obligations (interest and pensions), grew proportionally smaller;

(b) The proportion of capital expenditure nearly doubled, from 25 percent to 46 percent, while the proportion of recurrent expenditure fell by almost one-third.

These trends are complementary, in that the nature of the large investments which have been made in transportation, construction of the new capital in Lilongwe and, to a lesser extent, in agriculture have led to relatively low proportions of subsequent recurrent expenditure. This

^{1/} Based on World Bank, Fiscal Performance of the Public Sector, Annex No. 3, Malawi: Basic Economic Report, 1980.

Table 11. Distribution of Central Government Expenditure

	1967-69	1970-72	1973-75	1976-78
	(percent)			
Economic	36	43	42	46
Social	24	20	20	18
Administrative	28	26	31	29
Interest and Pensions	12	11	7	7
Total	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>
Of Which:				
Recurrent	75	63	58	54
Capital	25	37	42	46

SOURCE: World Bank

has permitted capital expenditure to increase as a share of total expenditure. On the other hand, the smaller sums invested in the social sectors, which have led to relatively higher proportions of subsequent recurrent expenditure, have somewhat offset the effects of investment in the other sectors and have prevented the share of recurrent expenditure from falling further than it did.

While the relative characteristics of investment in each sector are important determinants of the recurrent-capital mix, they do not ensure an optimal balance between the two. The realities of budget constraints and the desire to undertake new investments squeeze recurrent expenditure, in order to generate recurrent expenditure surpluses which are used as domestic counterpart funds to finance increased capital outlays. This often occurs without sufficient analysis of the production lost through lower recurrent expenditure vis-a-vis the additional pro-

duction gained through new investments. This tendency has been exacerbated by the type of external finance available during this period which, for the most part, has been restricted from financing recurrent expenditure and has required that domestic funds be contributed towards the financing of the investment for which the external finance was made available. In addition, the general concessionality of available external finance has made it difficult for the Government to turn down projects for the lack of domestic counterpart funds. The combined effect of the relative characteristics of investment in different sectors, the terms of available external finance, and the need to generate recurrent expenditure surpluses has been to intensify the proportion of capital expenditure and to favor investment in the economic and administrative sectors in which the future recurrent obligations are relatively less per unit of investment than in the social sector. These forces have intensified the functional and the recurrent-capital patterns of total expenditure, as evidenced by the two definite trends of the past twelve years.

II.1.3.3. Central Government Expenditure by Functional Categories

Most growth has occurred in the economic sectors, which together dominate the pattern of expenditure. The main force behind this growth has been investment in transportation; specifically, a growing road construction program and extension of the railroad to Lilongwe. The transport sector as a whole has about doubled in size and has comprised nearly one-quarter of overall expenditure since 1975 (Table 12). In contrast, the share of expenditure on agriculture, which rose gradually to about

Table 12. Central Government Expenditure by Functional Category

	1967-69	1970-72	1973-75	1976-78
	(percent)			
<u>Economic</u>	<u>36</u>	<u>43</u>	<u>42</u>	<u>46</u>
Agriculture	13	15	16	13
Transport	10	14	17	23
Power and Water	1	3	2	4
Communications	3	3	3	3
Other	9	8	4	3
<u>Social</u>	<u>24</u>	<u>20</u>	<u>20</u>	<u>18</u>
Education	16	13	11	10
Health	6	4	6	5
Housing and Com. Dev.	2	2	3	3
<u>Administrative</u>	<u>28</u>	<u>26</u>	<u>31</u>	<u>29</u>
Administration	16	12	13	13
Buildings	2	6	7	2
Justice	8	6	5	5
Defense	2	2	6	9
Interest	5	7	4	6
Pensions	<u>7</u>	<u>4</u>	<u>3</u>	<u>1</u>
Total	100	100	100	100

SOURCE: World Bank

16 percent in the mid-1970's, declined to its former level of about 13 percent in the 1976-78 period, due to a leveling off of investment in nominal terms. As for other economic sectors, expenditures on power has been lumpy (1-4 percent), reflecting the nature of investment in hydroelectric facilities; expenditure on water has been minimal, less than one percent each year except in 1978 when an investment program in rural water facilities began; and communications has maintained a constant share of about 3 percent.

The share of expenditures on administrative services and investment peaked in the 1973-75 period, during which time much of the investment in the new capital city was made. Since then a decline in investment in administration has been offset by a substantial increase in defense expenditures, the latter rising from a low of two percent through 1972 to about 5 percent in 1973-75 and to about 9 percent in the most recent three-year period. Much of the increase in defense expenditure is due to purchase of equipment and construction of army buildings, although a modest increase in the size of the defense force and associated recurrent expenditure is reported. Since 1970, the proportions of expenditures associated with general administration (13 percent) and justice (5 percent) have remained stable, which indicates a certain degree of discipline in restraining the growth and size of the administrative civil service.

The growth in the shares of economic and administrative expenditures has resulted in a reduction in the share of expenditures in the social sectors. The decline occurred primarily in the share of education, which fell consistently from about 16 percent in 1967-69 to about 10 percent in 1976-78. This was due to low and rather constant nominal amounts of educational investments, as well as to low growth in recurrent expenditures on education. Expenditure on health has been mostly recurrent in nature and has varied between 4 to 6 percent of expenditure. Lastly, the share spent for housing (investment) and community development (recurrent) has remained steady at 3 percent of the total.

II.1.4 Government Revenues

Ordinary revenue (tax and non-tax) has remained about constant as a proportion of GDP (15-16 percent). This revenue burden is relatively light in comparison to other LDC's. Moreover, direct taxes accounted for 39 percent of total revenue in 1975-77, a much higher proportion than for comparable countries. As a consequence, indirect taxes are less important in Malawi than in other African countries; they constituted 44 percent of revenue in 1975-77. This implies that taxes on internal and international trade are less important as a source of revenue than in other African countries. Moreover, although the share of non-tax revenue in government receipts has declined, non-tax revenue is still more important than in most other countries, implying that the government has been moderately successful in raising revenue through sales of services and operating surpluses from public enterprises.

II.2. Manufacturing Industry

Manufacturing activity is concentrated in agricultural and food processing, but there is also a range of import substitution industries.

According to the index of manufacturing output, the growth of industrial activity slowed down to 10.4 percent in 1978, and in 1979 it decelerated further (Table 13). In the last two months of 1979 industrial activity was sharply curtailed by the external transport dislocations, which created shortages of imported inputs and disrupted the distribution of finished products within the economy. This left many companies with large stocks of unsold output at the end of the year, and caused widespread liquidity difficulties.

Table 13. Index of Manufacturing Output, 1970-79 (1970 = 100)

	Weight %	1971	1972	1973	1974	1975	1976	1977	1978	1979 ^a
Consumer Goods Mainly for the Domestic Market of which:	<u>62</u>	<u>113.2</u>	<u>120.9</u>	<u>150.4</u>	<u>171.7</u>	<u>194.8</u>	<u>194.6</u>	<u>212.8</u>	<u>236.2</u>	<u>244.5</u>
Food Beverages, Tobacco	33	112.3	127.6	169.4	192.1	225.7	238.6	259.9	274.4	275.1
Footwear, Clothing, Textiles	14	118.1	118.8	115.2	120.1	130.2	109.9	126.2	148.2	192.8
Other Goods	15	110.8	108.0	142.4	175.1	187.3	176.8	190.2	235.8	223.5
Intermediate Goods (Mainly for Building and Construction)	18	103.1	122.9	147.6	129.0	157.6	128.6	142.9	166.8	179.2
Total Manufacturing (Mainly for the Domestic Market)	80	111.0	121.3	149.9	162.1	186.5	179.8	197.1	220.6	229.8
Export Industries	20	108.7	125.4	137.7	131.6	154.0	172.3	207.3	217.1	218.4
Total Manufacturing	<u>100</u>	<u>110.6</u>	<u>122.0</u>	<u>147.4</u>	<u>156.0</u>	<u>180.0</u>	<u>178.7</u>	<u>199.1</u>	<u>220.8</u>	<u>227.5</u>

SOURCE: National Statistical Office (NSO). Monthly Statistical Bulletin, Oct. 1978, Table 8, p. 5 and NSO Estimates

^aProvisional

In 1978 growth slowed down sharply to 5 percent in the primary-processing export industries, reflecting the limited expansion of agricultural production of export crops in that year. Industries producing mainly for the domestic market grew by 11 percent, slightly faster than in 1977; among these, industries processing food products were depressed by the slower growth of agricultural output, but all other industrial activity grew more quickly than in recent years. Rising incomes stimulated consumption demand, and high construction activity raised demand for locally manufactured intermediate inputs. In addition, production started in a number of new import-substitution industries, and a large-scale extension to Malawi's major textile factory was completed.

The slow-down in the growth of manufacturing output in 1979 occurred both in the industries producing for the domestic market and in the export industries. Compared to the growth in 1978, the output of the food industry in 1979 showed almost no growth, reflecting the decline in the marketed surplus of food crops. Growth of the intermediate-goods industries showed a marked decline from 1978, mainly as a result of depressed activity in the construction industry. The output of the export industries was almost unchanged reflecting little growth in production and processing of sugar, tobacco, and groundnuts. The expansion of output from the textile industry resulted from the increased productive capacity created by investment in the plant in 1978.

Regarding future industrial development, a ten-year plan is currently being prepared to cover the period 1982-91. No major changes in industrial policy are anticipated. Malawi's manufacturing sector will con-

tinue to be concentrated on the processing of agricultural products, particularly for export. Widespread import-substitution activity is not viable without resorting to unacceptably high levels of tariff or quota protection because of the relatively small size of the domestic consumer market. However, three large-scale import-substitution projects currently under consideration are the production of fertilizers, ethanol, and glass, for which it is believed that demand in Malawi is sufficient to support operations at competitive levels of capacity utilization. In addition, a small-scale industry assistance project is soon to be implemented, providing extension services and credit facilities to entrepreneurs. It will be financed jointly by the EC, Indebank, and a private foreign company. Efforts to orient this project to small-scale rural enterprises would be desirable.

II.3. Transportation^{1/}

The closure of the Rhodesia-Mozambique border in 1976 necessitated a complete routing of Malawi's external trade through the Mozambique ports of Nacala and Beira. The ports rapidly became overcongested and were unable to handle the large increase in traffic efficiently. Furthermore, the railway lines linking the ports with Malawi were in poor state of repair, and deteriorated rapidly with the increase in traffic they were required to carry. The costs of transporting goods to and from the coast rose immediately by about 15 percent, and by 1978 the c.i.f. markup on imports had risen to 23 percent of the f.o.b. value, compared to about 14 percent in 1974-75.

^{1/} Based on Int. Monetary Fund, Malawi: Recent Economic Developments, 1980.

The difficulties with the external transport situation increased from mid-1978, and remained severe throughout the first three quarters of 1979. Delays between ordering and receiving imports increased from about two months to as much as nine months, and long delays in transporting goods to the coast and loading them onto ships resulted in a considerable deterioration in the quality of the export crops. Shortages of certain imported inputs began to develop in 1979, and among the most serious was a shortage of fuel. These shortages cause widespread disruption to productive activity, particularly in the construction industry.

In October 1979 political unrest in neighboring countries caused Malawi's coastal land trade routes to be entirely severed. The shipment of goods in and out of the country was confined to airfreight for a period of about two months, and limited airport capacity within Malawi severely restricted the volume of goods that could be airfreighted. The average c.i.f. markup on imports rose to over 40 percent, and in the case of fuel the landed price in Malawi more than doubled. Shortages of certain imported inputs became acute, and productive activity was widely disrupted. In particular, delays occurred in importing fertilizer for the 1979/80 planting season, and shortages were reported in certain areas of the country which threatened to undermine agricultural production in 1980. Acute shortages of fuel were felt throughout the economy, and internal distribution services were brought to a near standstill, adding further to the disruption to domestic activity.

The effects of this two-and-one-half month breakdown in the external transport system were widespread. The land routes to the coast were re-

opened in January 1980, but congestion at the Mozambique ports continues to affect traffic. Although the transport crisis of 1979 is ended, Malawi's external transport situation continues to make the economy vulnerable to disruptions and delays as well as to high costs for importing and exporting goods.

II.4. Energy^{1/}

Electricity requirements in Malawi are met by a hydro-electric complex at Nkula Falls, which serves the central and southern regions of the country. The limited demand for electricity in the northern regions and certain other areas is met through a number of small diesel generating plants. Installed generating capacity at Nkula was 68 MW in 1979, and the maximum demand was estimated 60.4 MW. A large-scale extension to the Nkula plant is under construction, and was planned to be operating by late 1980. Although construction delays have been experienced, it is expected that the plant will be completed only a few months behind schedule. The extension will be sufficient to meet projected electricity demand through 1985. The next infrastructural development anticipated by the Electricity Supply Commission (ESCOM) will be the extension of the national transmission network from Nkula to the north so that existing diesel plants can be replaced. In 1979 the demand for oil imports by ESCOM was estimated at around 850,000 liters, equivalent to less than 1 percent of total oil imports. No subsidies are paid by the Government for electricity consumption.

Domestic energy requirements in Malawi are met mainly by firewood, which is also used for curing some three quarters of the tobacco crop.

^{1/}Based on IMF, ibid.

In certain areas of the country shortages of firewood have occurred in recent years. Although the shortages are not serious at present, increasing emphasis is being placed on reforestation, and they are encouraging estate farmers to grow timber to meet their own firewood requirements. A large forest area on the Viphya plateau has been developed to service a planned wood pulp mill, but world pulp prices have been too low so far to warrant investment in the mill. In the interim, some consideration is being given to using the timber for firewood in areas of the country that are experiencing shortages. The problem with that is transportation costs. Generally, it is cheaper to produce and ship charcoal if the final use is located 50 miles or more from the source of the wood supplies.

Malawi's remaining energy needs are met by imported refined petroleum. In 1978 consumption amounted to slightly less than one million barrels, of which about 40 percent consisted of gasoline and about 55 percent consisted of gasoline and about 55 percent consisted of diesel, aviation spirit, and other fuels. Since 1974, consumption has increased by about 9 percent per year. Historically, the rainy season (from October/November to March) has been the period of lowest demand in Malawi, since construction activity at this time is adversely affected by the weather. Stocks of fuel are accumulated in this period, partly within Malawi but mainly at storage facilities at the Mozambique ports, and are used during the period of peak demand from June to November, when construction and internal distribution activity are highest.

The fuel situation became critical at the end of 1979, when supplies were limited to the amount that could be airlifted into the country. The

landed cost of fuel in Malawi rose by over 100 percent to 55-65 tambala per liter. Internal distribution services were halted, compounding the external transport difficulties, and activity throughout the economy was adversely affected. In December the Government imposed a procurement levy on petroleum of 14 tambala per liter. After the land routes through Mozambique were reopened, supplies of fuel into the country reached normal levels again by February 1980.

II.5. Employment and Wages^{1/}

Wage employment increased by 10 percent in 1978 and another 9 percent in 1979, the latter in spite of the decrease in economic growth caused by transport disruption and fuel shortage during the year (Table 14).

Wage employment in agriculture is in the public sector and on the agricultural estates. Employment in the agricultural estate sub-sector has expanded from 42,600 in 1969 to 148,300 in 1978, absorbing some of the returning migrant labor from neighboring countries (Table 15). This increase translates into an average annual growth rate of 15 percent. Estates tend to maintain a small crew of permanent field labor and hire additional labor as needed during the peak seasons. Thus, the workers shown in Table 15 are not necessarily employed for the full year. Many maintain their own small farms and work seasonally on the estates. Burley tobacco estates, in contrast, are farmed by tenants who are allocated two-acre plots and sell their output to the estate owner at a fixed price. In 1978, there were 11,918 tenants on Burley estates, which means that more than 160,000 workers were "employed" on estates in that year.

^{1/} Based on IMF, ibid.

Table 14. Number of Paid Employees in Private and Government Sectors by Industry, 1968-79^a

('000)

	Old Series ^b							New Series ^d					
	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977 ^c	1977	1978	1979 ^e
Agriculture, Forestry, Fishing	42.2	48.3	53.7	57.4	63.7	76.3	80.4	93.0	103.9	133.9	155.1	169.3	185.0
Mining and Quarrying	0.5	0.8	0.5	0.6	0.8	0.7	0.8	0.9	1.1	0.1	0.6	0.6	0.6
Manufacturing	21.2	17.7	19.5	21.7	23.1	25.7	26.8	31.0	36.0	31.4	33.7	36.2	36.4
Electricity and Water	1.5	1.5	1.7	2.2	2.4	2.9	2.5	2.7	3.0	2.8	2.8	2.9	3.5
Building and Construction	15.3	17.4	18.5	17.7	18.2	21.1	22.8	21.1	21.1	22.3	23.2	31.5	37.5
Wholesale, Retail Trade, Hotels and Restaurants	9.4	11.0	12.3	13.8	15.8	18.4	20.9	19.9	20.7	18.3	25.2	27.5	29.8
Transports, Storage and Communications	8.2	8.4	8.5	9.2	9.8	10.4	11.4	11.9	12.9	15.7	16.6	17.8	20.7
Financing, Insurance and Building Services	0.9	1.1	1.2	1.4	1.4	1.9	2.3	2.8	3.4	6.0	6.7	6.8	7.9
Community, Social and Personal Services	37.4	40.3	43.4	48.3	54.1	57.9	59.0	61.2	61.9	44.8	45.6	47.4	47.7
Total	<u>134.5</u>	<u>146.5</u>	<u>159.3</u>	<u>172.2</u>	<u>189.5</u>	<u>215.3</u>	<u>226.9</u>	<u>244.7</u>	<u>264.1</u>	<u>275.3</u>	<u>309.0</u>	<u>339.5</u>	<u>369.1</u>

SOURCE: NSO, monthly Statistical Bulletin

^aFigures are averages of four quarterly figures. Statutory Bodies are included in the Private Sector. All figures exclude unpaid family workers and working proprietors.

^bThe "Old Series" covers only firms or organization in which 20 or more persons are engaged.

^c"Old Series" figures for 1977 cannot be directly compared with previous years because some industrial activity particularly government was reclassified between 1976 and 1977. In particular government agricultural extension workers were reclassified from "Community, Social and Personal Services" to "Agriculture, Forestry and Fishing".

^dThe "New Series" covers all employees working in establishments in Malawi regardless of the number employed by each. However some small firms which are not registered on the National Statistical Office List or establishment are not covered. Since most of these are family owned, the numbers of paid employees will not be seriously underestimated due to these omissions.

^ePreliminary estimate.

Table 15. Employment on Agricultural Estates ('000 persons)

Year	Tea Estates	Tobacco Estates	Other Private Commercial Agriculture	Total
1969	30.1	8.1	4.5	42.6
1970	30.7	13.1	4.8	48.6
1971	32.6	15.9	5.2	53.7
1972	32.5	20.2	6.8	59.5
1973	35.2	24.6	11.5	71.4
1974	35.2	24.6	17.1	74.8
1975	36.8	20.5	28.8	86.1
1976	36.7	30.6	28.5	95.8
1977	39.6	71.7	21.5	132.8
1978	39.0	87.5	21.8	148.3

SOURCE: NSO, Monthly Statistical Bulletin

Complete data on wages paid to unskilled estate labor are not available. There is some evidence that estate wages exceed the legal minimum wage of 25 tambala per day. Average field labor wage rates including benefits for tea estates were reported to be 48.1 t/day in 1976 to 1978, tobacco workers earned 43 t/day. Labor is paid piece rate on sugar estates; compensation including meals and other benefits averaged K 1/day in 1979.

The participation rate in Malawi is estimated at 49 percent. But that figure has little meaning in light of the dominant smallholding organization of the rural sector. The data in Table 14 refer to employees working for wages. In the smallholder sector, labor by and large is unpaid family labor. Men, women and children all participate. Little is known about the actual participation and utilization of the rural population. No estimates have been made of the underemployment of this labor force on a seasonal or annual basis.

The organized recruitment of migrant labor from Malawi to work in neighboring countries was resumed in July 1977, but on a much smaller scale than in earlier years. Since then the number of workers seeking work abroad has declined, and in total it was estimated that in 1979 fewer than 20,000 workers were employed abroad. This decline has been attributed to fall in real wages and less attractive working conditions in neighboring countries.

Although the number of skilled workers has been increasing with an intensification of government spending on technical and vocational training, Malawi continues to experience shortage of well-qualified personnel in certain sectors of the economy. A new manpower survey is being completed that will allow the government to identify more accurately the supply and requirements of trained personnel.

Over the last decade the government has adopted a policy of wage restraint, which is intended to encourage an expansion of employment, avoid inflationary pressures, and restrain rural-urban migration. Wage claims in the private sector in excess of 5 percent a year have to be submitted to the Wages and Salaries Restraint Committee for approval, and are only granted where they can be shown to be justified by productivity increases; as a result, producers are not able to use higher wage costs as a reason for applying for price increases for their products. In January 1978 wage rate increases of 30-35 percent were granted to public sector employees in order to correct the disparity which existed between public and private sector pay scales. Since then public sector wages have kept pace with wages in the private sector.

II.6. Prices^{1/}

The low-income retail price index for Blantyre rose by 8.5 percent in 1978, about double the rate of increase in the preceding two years (Table 16). The increase in prices was particularly marked in the first two quarters of 1978, when it reflected in particular increases in the prices of imported goods. In the last two quarters of the year the rate of inflation slowed down, reflecting good food harvests. The high-income index rose by 13.6 percent in 1978, slightly faster than in 1977.

In 1979 the low-income index rose by 11 percent and the high-income index by 19 percent, reflecting a considerable acceleration in inflation for all income earners. In both indices the prices of transport services rose fastest, by around 20 percent, reflecting the rising cost of imported petroleum and also the breakdown in internal transport services in the last quarter of the year. Transport difficulties on the coastal route through Mozambique raised the cost of all imported goods in 1979, but because of differences in consumption patterns, this was more heavily reflected in the high-income index.

Price controls are imposed directly on about 45 items, including certain basic food products and beverages, some household goods, and some industrial inputs. No controls are placed on increases in the prices of imported goods, although the markup imposed by traders on these goods is carefully monitored. The rising prices of imported goods have exercised a strong upward influence on the domestic consumer price indices. For locally produced goods, an application has to be made to the Ministry of Trade, Industry and Tourism by a producer if he wishes to raise prices.

^{1/}Based on IMF, ibid.

Table 16. Index of Retail Prices in Blantyre, 1975-79

(1970=100)

	Weights	1975	1976	1977	1978	1979
Low-income index ^a	<u>100.0</u>	<u>157.0</u>	<u>163.8</u>	<u>170.7</u>	<u>185.2</u>	<u>205.4</u>
Foodstuffs	47.9	171.8	175.7	178.7	190.0	216.4
Drink and tobacco	7.7	138.1	149.0	154.4	158.1	170.0
Footwear and clothing	17.6	132.2	137.2	141.5	151.4	162.1
Household goods	19.8	158.1	171.0	190.6	223.8	245.4
Domestic help	1.6	141.7	150.9	157.5	161.5	...
Transport expenses	1.8	177.0	187.4	195.3	211.1	251.9
Other	3.6	112.2	122.8	125.9	129.7	139.8
High-income index ^b	<u>100.0</u>	<u>167.5</u>	<u>187.7</u>	<u>212.0</u>	<u>240.8</u>	<u>286.1</u>
Foodstuffs	23.3	153.2	148.2	176.9	197.5	206.7
Drink and tobacco	6.7	128.1	134.3	147.6	172.5	190.9
Footwear and clothing	5.8	179.7	198.9	201.3	200.5	211.1
Household goods	12.3	171.1	192.5	204.2	230.9	263.3
Domestic help	6.7	141.7	150.9	157.5	161.5	...
Transport expenses	26.4	203.1	232.4	276.7	314.3	387.7
Other	18.8	152.3	186.9	215.4	262.5	314.1

SOURCE: Monthly Statistical Bulletin^aThe low-income index covers households with yearly expenditure up to K 600.^bThe high-income index covers households with yearly expenditure between K 600 and K 2,000.

The producer has to demonstrate his need for a price increase on the basis of higher costs of production (other than higher labor costs). As a guideline for investigating applications for price increases, the authorities use the profitability of companies measured as the return on capital employed, and an average rate of 10-12 percent after-tax is considered to be the maximum level acceptable.

II.7. International Trade and Balance of Payments

II.7.1. Exports

The total value of exports declined by 13 percent in 1978 but then increased in 1979 to their highest level since independence (Table 17). The value of tobacco exports increased sharply in 1979, due entirely to volume expansion since tobacco prices continued a decline that began in 1978. Increased export values also occurred for groundnuts, sugar, and cotton. The value of tea exports was essentially unchanged from 1978.

Tobacco and tea are by far the most important exports. These two crops, plus sugar, groundnuts and cotton, account for more than 90 percent of export earnings. Even the small range of other products that are exported are mostly manufactured from Malawi's crops and forest production. Thus, the country's export base is highly concentrated on a few crops. As a consequence export earnings are highly vulnerable both to domestic production levels and changes in world prices.

II.7.2. Imports

The total value of imports rose by 15 percent in 1979, following an increase of 22 percent in 1978. Taking into account the increase in

Table 17. Domestic Exports by Major Commodities (FOB), 1964-79

(K'000)

	Tobacco	Tea	Groundnuts	Cotton	Sugar	Other ^a	Total
1964	8,436	6,676	2,226	1,934	-	3,736	23,008
1965	10,260	7,536	3,278	2,158	-	3,852	27,084
1966	9,042	8,898	2,574	2,168	-	4,988	27,670
1967	8,452	8,982	6,868	1,384	-	7,418	33,104
1968	10,570	9,700	4,616	1,274	1	7,397	33,558
1969	12,646	9,526	5,590	1,730	154	6,942	36,588
1970	16,592	10,916	4,241	2,777	158	5,893	40,577
1971	22,066	11,905	5,883	2,547	314	6,862	49,577
1972	24,968	12,022	7,123	2,567	360	8,102	55,142
1973	30,269	13,721	5,922	1,951	3,276	13,673	68,802
1974	39,269	17,220	5,202	2,720	9,180	15,943	89,534
1975	51,132	21,730	6,490	1,932	12,286	12,713	106,283
1976	64,930	26,431	11,243	2,348	23,103	12,875	141,030
1977	86,051	41,626	8,861	2,435	14,928	18,069	171,970
1988 ^b	88,619	29,236	4,673	342	11,358	16,041	150,269
1979 ^b	104,500	30,800	8,900	2,000	22,000	16,700	184,900

SOURCE: Reserve Bank of Malawi, Financial and Economic Review, Vol. 10, No. 3, 1978, Table 4.4, p. 92 and Official Sources.

^aCotton fabric, yarn twine, oilmeal cake, wooden boxes and other products.

^bProvisional

import prices, estimated at 13 percent in the first half of 1979, and allowing for a further increase in import prices in the second half of the year, the nominal rate of import growth of 15 percent for the year as a whole implies practically no growth in real terms. The volume index of imports in 1979 was virtually unchanged from 1978 (Table 19). However, the inventory of imported goods was generally adequate, as a sharp growth in the volume of imports in 1978 (30 percent) partly represented inventory accumulation. As Table 18 indicates, during 1978 imports of all major categories of goods expanded rapidly. The expansion of imports of capital goods (plant, machinery, and equipment) was particularly sharp; such imports (including transport equipment) expanded by 70 percent. The growth rate of imports of construction materials was 44 percent, and that of industrial raw materials 22 percent. Imports of consumer goods also expanded at a relatively high rate of 25 percent. Because of the geographical location of the country and inadequate transport facilities, the delivery of imported goods to Malawi can take as long as nine months. Annual trade data, therefore, do not necessarily reflect the demand for imported goods for use during a particular calendar period.

II.7.3. Terms of Trade

Following a sharp improvement in 1977, the terms of trade declined by 10 percent in 1978 and deteriorated a further 8 percent in 1979 (Table 19). The deterioration in the terms of trade since 1977 was mainly attributable to increases in import prices. The unit value of exports declined in 1978 and then recovered partially in 1979, while the unit value of imports rose sharply in 1979. Import prices have doubled since 1974. Ex-

Table 18. Imports by End Use (C.I.F.)^a 1965-70

(K'000)

	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979 ^b
Consumer Goods	<u>11,452</u>	<u>12,514</u>	<u>12,754</u>	<u>12,626</u>	<u>12,002</u>	<u>13,063</u>	<u>15,496</u>	<u>18,103</u>	<u>19,166</u>	<u>25,957</u>	<u>30,477</u>	<u>22,382</u>	<u>28,799</u>	<u>35,891</u>	<u>48,282</u>
Nondurable	9,846	10,502	10,838	10,844	10,228	10,951	13,187	15,281	16,471	22,265	24,417	19,429	24,951	30,261	-
Durable	1,606	2,012	1,916	1,782	1,774	2,112	2,309	2,822	2,695	3,692	6,060	2,953	3,848	5,630	-
Plant, Machinery & Equipment	<u>3,526</u>	<u>6,914</u>	<u>4,968</u>	<u>8,762</u>	<u>7,978</u>	<u>9,014</u>	<u>10,379</u>	<u>12,290</u>	<u>14,461</u>	<u>19,169</u>	<u>27,134</u>	<u>28,495</u>	<u>34,745</u>	<u>58,899</u>	<u>-6,092</u>
Operating Machines	1,930	4,804	2,962	6,084	5,296	5,273	6,298	6,847	7,697	11,060	15,679	18,201	23,496	38,128	-
Auxiliary Equipment	1,596	2,110	2,006	2,678	2,682	3,741	4,081	5,393	6,764	8,109	11,645	10,294	11,249	20,671	-
Transport Means	<u>4,604</u>	<u>7,098</u>	<u>7,222</u>	<u>9,072</u>	<u>9,440</u>	<u>10,626</u>	<u>12,490</u>	<u>16,770</u>	<u>16,358</u>	<u>22,128</u>	<u>34,970</u>	<u>26,212</u>	<u>22,758</u>	<u>38,579</u>	<u>41,739</u>
Motor Cars & Bicycles	1,968	2,128	2,236	2,048	2,056	2,519	2,794	2,298	3,382	3,795	4,448	2,564	3,341	6,469	-
Other	2,636	4,970	4,986	7,024	7,384	8,107	9,696	14,472	12,976	18,333	30,502	23,348	19,417	32,110	-
Materials for Building & Construction	<u>2,746</u>	<u>3,428</u>	<u>3,446</u>	<u>4,334</u>	<u>5,994</u>	<u>5,078</u>	<u>7,423</u>	<u>10,286</u>	<u>10,294</u>	<u>13,339</u>	<u>16,992</u>	<u>19,546</u>	<u>16,512</u>	<u>23,667</u>	<u>27,008</u>
Basic & Auxiliary Materials for Industry	<u>7,346</u>	<u>13,254</u>	<u>13,334</u>	<u>13,348</u>	<u>15,760</u>	<u>22,669</u>	<u>27,037</u>	<u>28,482</u>	<u>35,620</u>	<u>50,416</u>	<u>72,460</u>	<u>54,938</u>	<u>62,129</u>	<u>74,707</u>	<u>90,298</u>
Parts, Tools & Misc. Appliances	<u>794</u>	<u>1,106</u>	<u>1,258</u>	<u>1,624</u>	<u>1,840</u>	<u>2,854</u>	<u>4,040</u>	<u>3,065</u>	<u>3,553</u>	<u>4,640</u>	<u>7,188</u>	<u>7,060</u>	<u>10,419</u>	<u>13,976</u>	<u>17,231</u>
Commodities for Intermediate & Final Consumption	<u>9,698</u>	<u>8,942</u>	<u>6,686</u>	<u>7,096</u>	<u>7,068</u>	<u>6,683</u>	<u>11,540</u>	<u>12,535</u>	<u>14,202</u>	<u>21,388</u>	<u>28,186</u>	<u>29,743</u>	<u>33,654</u>	<u>38,183</u>	<u>60,269</u>
Piece goods	6,498	5,318	4,430	3,996	3,770	3,052	3,906	4,104	5,002	6,205	8,163	5,208	7,993	7,667	-
Oil, Fuel & Lubricants	1,604	2,004	2,228	3,056	3,274	3,603	7,608	8,398	9,161	15,034	19,806	23,809	25,615	30,468	-
Other	1,596	1,620	28	44	24	28	26	33	39	149	217	26	46	48	-
Imports under K 20 in Value	<u>496</u>	<u>664</u>	<u>600</u>	<u>594</u>	<u>580</u>	<u>597</u>	<u>654</u>	<u>666</u>	<u>391</u>	<u>253</u>	<u>238</u>	<u>142</u>	<u>157</u>	<u>213</u>	<u>-</u>
Misc. Transaction	<u>142</u>	<u>370</u>	<u>584</u>	<u>726</u>	<u>816</u>	<u>783</u>	<u>691</u>	<u>716</u>	<u>606</u>	<u>436</u>	<u>828</u>	<u>662</u>	<u>614</u>	<u>1,070</u>	<u>1,081</u>
Total	<u>40,804</u>	<u>54,292</u>	<u>50,852</u>	<u>58,180</u>	<u>61,478</u>	<u>71,367</u>	<u>89,750</u>	<u>102,913</u>	<u>114,651</u>	<u>157,726</u>	<u>218,663</u>	<u>188,480</u>	<u>209,787</u>	<u>285,175</u>	<u>328,000</u>

SOURCE: NSO. Monthly Statistical Bulletin, March 1979 and Official Sources.^aFrom 1965-70 imports were reported f.o.b.^bProvisional

Table 19. Indices of Volume and Unit Values of Imports and Domestic Exports^a,
1967-79
(1970 = 100)

Period	Imports		Domestic Exports		Terms of Trade ^b
	Volume	Unit Value	Volume	Unit Value	
1967	106.70	93.20	107.32	80.74	86.63
1968	110.83	99.73	107.76	89.74	89.98
1969	96.83	101.27	99.27	94.07	92.89
1970	100.00	100.00	100.00	100.00	100.00
1971	107.37	106.38	111.14	108.58	102.07
1972	118.76	110.93	127.50	103.62	93.41
1973	112.39	129.07	135.40	115.78	89.70
1974	115.18	174.43	134.29	146.93	84.23
1975	130.89	212.02	138.28	172.20	81.22
1976	95.73	242.60	146.43	192.43	79.32
1977	111.51	269.77	164.79	253.74	94.06
1978	146.52	271.00	156.96	229.47	84.68
1979 ^c	147.11	315.28	179.17	240.00	76.12

SOURCE: Reserve Bank of Malawi. Financial and Economic Review, Vol. 10, No. 3, 1978, Table 4.3, p. 91, NSO. Monthly Bulletin of Statistics, March 1979 and Official Sources.

^aThese indices are based on Laspeyre (base weighted) method.

^bCalculated as $\frac{Px}{Pm} \times 100$, where Px is unit value index for exports and Pm is unit value index for imports.

^cProvisional

port earnings from the two major export products, tobacco and tea, were 8 percent and 5 percent lower, respectively, in 1979 than in 1978.

II.7.4. Balance of Payments

Malawi's visible trade balance has been negative every year since 1964 (Table 20). A sharp increase in the deficit occurred in 1978 and 1979, in response to price, volume and transport cost factors. This rising trade deficit has been balanced by increasing capital inflows, especially long-term official capital. Official international reserves fell both in 1978 and 1979. At the end of 1979, reserves were equal to about three months of goods imports at 1979 volumes and prices.

The economy faces continuing and intensifying pressures on foreign exchange earnings. This underscores the importance of expanding and diversifying exports. It also highlights the role that foreign capital plays, both in the mobilization of resources for investment and in maintaining external equilibrium. External borrowing, both from governments and international organizations, is heavy, accounting for 75-90 percent of total borrowings. Some two-thirds of the existing external debt is on concessional terms. Some donor countries have recently converted outstanding loans into grants, which has led to some improvement in the country's external debt situation.

II.8. Income Distribution and Levels of Living

GDP in 1977 (at factor cost, current prices) was K726.1 million. For the 5.5 million Malawians counted in the 1977 census, this means the country generated a per capita GDP of K 152, equivalent at the current rate of

Table 20. Commodity Imports (C.I.F.) and Exports (F.O.B.)^a, 1964-79

(K'000)

Period	Imports	Domestic Exports	Re-Exports	Visible Trade Balance
1964	28,640	23,008	1,992	-3,640
1965	40,804	27,084	1,698	-12,022
1966	54,292	27,670	7,146	-19,476
1967	50,852	33,104	7,804	-9,944
1968	58,180	33,558	6,486	-18,136
1969	61,478	36,588	7,384	-17,506
1970	82,480	40,577	9,120	-32,783
1971	89,750	49,577	9,725	-30,448
1972	102,913	55,142	9,344	-38,427
1973	114,651	68,802	11,117	-34,732
1974	157,726	89,534	11,772	-56,420
1975	218,663	106,283	15,839	-96,541
1976	188,480	141,030	10,592	-36,858
1977	209,787	171,970	8,360	-29,457
1978	285,175	150,269	6,870	-128,036
1979 ^b	328,000	184,900	5,100	-138,000

SOURCE: Reserve Bank of Malawi. Financial and Economic Review. Vol. 10, No. 3, 1978, Table 4.2, p. 90 and Official Sources.

^aFrom 1970, imports are reported on a c.i.f. basis; exports are valued f.o.b. at point of despatch.

^bProvisional.

exchange to U.S. \$200. This places Malawi among the poorest countries in the world.

It is included in the U.S. Economic and Social Council's list of "least developed countries." This designation is based on per capita GDP, industrialization and literacy.

It is also one of the designated "most seriously affected" (MSA) countries, a U.N. classification reflecting per capita income levels and chronic severe balance of payments deficits.

The World Food Council has identified Malawi as a "Food Priority Country", which is based on per capita income, projected cereal deficits, proportion of population under-nourished, rate of increase in food output, and potential for accelerating growth of food output.

The only available data on income distribution is for 1969. In that year, it is estimated that the bottom 40 percent of households received 15 percent of total income, the highest 20 percent received 53 percent of total income, and the highest 5 percent received 30 percent of income. If average per capita in 1969 was around \$117, then the average per capita income for the bottom 40% of Malawian households was approximately 75 per capita. By any standards of absolute poverty, all of this group--and a good share of the middle 40 percent of families as well--would fall below an absolute poverty line.

There are no data to indicate how income distribution has changed since 1969. Since productivity levels and wage rates have generally increased very little among the lowest two thirds of the population, it seems likely that relative income inequality has increased somewhat. This con-

clusion would also be consistent with a rising share of profits and professional salaried income in the country and a tendency for real wages to decline.

Poverty in Malawi is strikingly visible, not so much in the sense of shocking disparities between the many poor and the privileged few but in the generalized low levels of income and living of small farmers, estate workers, and urban unskilled workers. These groups represent 95 percent or more of the country's population. Although widely shared, the degree of poverty in the country is no less real.

Most of the lowest income countries also rank low in indicators of basic needs fulfillment. Malawi is no exception. In the early 70's, infant mortality (before year one) was a high 143 per thousand. Life expectancy at birth was just 41 for males, 44 for females (lower in rural areas), although female death rates exceed male rates during active reproduction years. Basic literacy was 25 percent, and even lower for females.

On the Physical Quality of Life Index (PQLI) developed by the Overseas Development Council, Malawi's performance value was 30 in the early 70's, which ranked 32 from the bottom of 150 countries. While its performance was better than average for countries with comparable levels of per capita income, and at least marginally better than the poorer performing countries with average incomes of \$200-\$500 per capita, the country's low absolute index is an indication of the overall poor conditions of its population in terms of life expectancy, infant mortality and literacy.

Undernutrition and malnutrition in the 0-3 years age group is thought to be a major cause of this high infant and child mortality throughout the country. It is uncertain how widespread and severe this problem is inasmuch as no national nutrition status survey has ever been undertaken. Also, the attendance rate of children at Maternal and Child Health (MCH) services rapidly declines for ages above one year (80 percent of children seen are below one year of age).

Preventable infectious diseases like malaria, measles, hookworm and bilharziasis compound health problems stemming from poor nutrition. Gastroenteritis (with resulting dehydration) due to unsafe drinking water supplies is regarded to be the most important single cause of undernutrition in a number of rural areas. Three nutrition surveys done in 1969-70 in Lower Shire, Namitambo and Nkhotakota found that about 30 percent of all pre-school children were affected to different degrees by nutritional deficiencies. Many showed signs of "stunting" from chronic malnutrition.

Nutrition risk varies considerably seasonally. It peaks during January-March, the pre-harvest months when food supplies run low in many areas and work requirements are high. The high workload for women during the planting and weeding season results in a reduction in the number of meals cooked for pre-school children, which would also help explain the increase in underweight children in this season. The impact of pricing and marketing policies on nutrition has not yet been analyzed. Similarly, little is known about nutritional implications of shifts from subsistence to cash cropping. Improved nutrition and health may not always come with higher cash incomes.

It is apparent that preventable communicable diseases and poverty-related sickness linked to poor environmental sanitation account for the majority of illness and death. For instance, among infants and children under five, measles, upper respiratory infections, diarrhea and gastroenteritis, malaria and under-nutrition, are the major killers.

III. Production of Agricultural, Forestry, and Fishery Products

III.1. Role and Organization of the Agricultural Sector

Without doubt agriculture is the dominant sector of the Malawian economy. It directly contributes 43 percent of GDP (1979). It produces enough food to make the country basically self-sufficient. It provides raw materials for the bulk of Malawian industry. It accounts for well over 90 percent of the country's exports. Lastly, it directly provides employment and the main means of livelihood for the 90 percent or more of the population that lives in rural areas, and indirectly for much of the urban population.

Malawi's agricultural production comes from two subsectors--smallholder agriculture and estate agriculture. The smallholder subsector accounts for over 85 percent of all agricultural production and largely meets the country's demand for food staples (maize, beans, groundnuts, sweet potatoes and rice) while providing agricultural raw materials for domestic industry and some export surplus (cotton, groundnuts, and fire/air-cured tobacco). The export surplus from this subsector accounted for 31 percent of all agricultural exports in 1977. Because a large segment of smallholders still live basically in a subsistence economy, it is difficult to measure the past growth of the subsector. It is estimated, however, that smallholder output has been increasing~~ing~~ at not more than three percent per year in real terms, only slightly higher than the rate of population growth.

Most of the output of smallholders is used for consumption on the farm where it is produced or in the local area. However, some domestic foodcrops are sold for the national market (primarily to ADMARC), and smallholders produce fire/air-cured tobacco, groundnuts, and cotton for export.

The Agricultural Development and Marketing Corporation (ADMARC) is responsible for marketing smallholder crops and has a monopoly on the purchase of all cotton and tobacco grown by smallholders. Smallholders can dispose of their surplus of food crops through local and district markets or sales to private buyers at the farmgate. Generally, ADMARC acts as a residual buyer of the basic food crops such as maize, groundnuts, and cassava. It then resells these products in urban markets or deficit rural areas. ADMARC's purchases of principal crops from customary land since 1965 are shown in Table 22. With the exception of rice there has been no discernible tendency for crop sales to ADMARC to increase during the 70's. Although varying from year to year, groundnut, tobacco, and cotton sales have stagnated, while maize sales have varied with crop conditions.

Possible constraints on output in the smallholder subsector include:

- a) transfer of good quality land to estates;
- b) insufficiently remunerative prices set by ADMARC, especially for cotton and groundnuts;
- c) limitation of smallholder participation in the production of high-value export crops (tea, tobacco, sugar); and
- d) lack of information, inputs, and services required to increase yields on smallholder crops.

Table 22. Purchases by ADMARC of Crops From Customary Land 1947-48

Year	(Thousands of short ton)					
	Tobacco	Groundnuts	Maize	Cotton	Rice	Pulses
1965	20.3	25.2	24.5	22.7	5.6	30.1
1966	16.0	46.5	62.7	14.6	4.5	20.3
1967	17.5	47.6	100.0	13.1	5.1	23.3
1968	9.7	25.1	92.2	12.8	2.3	3.8
1969	6.4	40.9	58.2	20.2	9.3	18.1
1970	13.1	29.5	88.9	25.2	10.3	8.0
1971	16.0	40.7	40.9	24.6	19.1	19.3
1972	19.5	43.3	70.1	24.4	21.9	17.7
1973	16.6	33.0	69.5	17.8	19.0	7.5
1974	12.8	31.7	72.2	23.6	23.5	8.7
1975	13.5	36.2	32.2	19.6	16.2	6.5
1976	16.0	35.9	71.4	19.8	27.0	20.5
1977	25.5	20.3	99.0	24.9	26.3	9.6
1978	26.2	12.3	132.6	26.7	34.0	11.5

SOURCE: Compendium of Agricultural Statistics, 1977, NSO; ADMARC

In 1977, the livestock population consisted of 744,000 cattle, 794,000 goats, 205,000 pigs and 86,000 sheep. The growth of the cattle herd, which contains over 2,000 grade dairy animals, is estimated at five percent per year. Most cattle are found in the less densely populated central and northern regions. They are raised by smallholders by traditional methods and are often considered by farmers as a store of wealth rather than as commodities for sale. Consequently, overstocking is becoming noticeable in some areas and seasonal shortages of meat have occurred in rural areas. In Malawi, goats are an important source of meat, as are poultry and pigs. Most of the organized pig and poultry production is in the hands of large commercial producers

who keep the urban markets supplied. Malawi imports most of its dairy products, though recent progress in dairy production by small producers in the major milkshed areas is promising. Projects are underway to increase domestic production and processing of dairy products.

The output performance of the estate subsector has been spectacular. Its output has expanded at around 17 percent per year in real terms since 1968 (Table 20). Overall, the estates contribute 15 percent of the total agricultural production in the country but account for nearly 70 percent of all agricultural exports. Estate production is mainly centered on flue-cured tobacco, burley tobacco, tea and sugar. The value of exports from the estates increased from K 13.0 million in 1967 to K 97.0 million in 1978 (Table 21).

Agricultural estates are believed to control about 490,000 ha of land, most of it suitable for cultivation. About half of the estate land is in the Central Region. This amount of estate land represents 17 percent of total land now utilized by smallholders. As of March, 1979, the number of estates totalled 1,108, of which 524 produced flue-cured tobacco, 556 burley tobacco, 26 tea and 2 sugar. Together, these estates produced 15 percent of total agricultural output, and accounted for 70 percent of agricultural exports in 1978.

III.2. Smallholder Crop Authorities

The production of good quality flue-cured tobacco for export requires exacting standards of field operations which, in turn, necessitates considerable organization and discipline on the part of growers. To

Table 20. Production on Agricultural Estates 1968-77

	Burley Tobacco	Flue-Cured Tobacco (short tons)	Tea	Sugar	Output Growth ^{a/} Index for All Crops 1968 = 100
1968	3,336	3,030	18,279	-	100.0
1969	3,816	3,055	18,575	-	103.1
1970	6,255	5,154	18,842	-	124.3
1971	6,245	7,065	21,247	-	143.8
1972	6,220	9,533	22,647	-	162.3
1973	6,664	11,013	23,700	-	175.9
1974	5,922	11,599	26,839	71,519	284.3
1975	8,815	16,423	27,499	92,807	351.8
1976	7,275	17,824	31,581	100,906	380.3
1977	11,211	21,589	32,886	103,040	422.8

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SOURCE: World Bank

^{a/} This index has been calculated using $I = \frac{(qt_p o)}{(q_0 p_0)} 100$ where q_0 and p_0 represent the quantity and unit price for the comparator year (1968 for tobacco and tea, 1974 for sugar) and qt the quantity for succeeding years.

Table 21. Contribution of Agricultural Estates to Export Earnings

	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977*	1978*
	(K Million)											
Export of Estate Crops	<u>13.0</u>	<u>14.6</u>	<u>16.2</u>	<u>19.7</u>	<u>22.9</u>	<u>25.7</u>	<u>35.5</u>	<u>50.9</u>	<u>65.2</u>	<u>86.8</u>	<u>104.9</u>	<u>97.0</u>
Tobacco	3.3	4.6	6.2	8.2	10.4	13.2	18.2	24.2	31.0	36.9	47.9	55.9
Tea	9.0	9.7	9.5	10.9	11.9	12.0	13.8	17.2	21.7	26.4	41.6	29.2
Sugar	0.2	-	0.2	0.2	0.3	0.4	3.3	9.2	12.3	23.2	14.9	11.4
Others	0.5	0.3	0.3	0.4	0.3	0.1	0.2	0.3	0.2	0.3	0.5	0.5
Total Agricultural Exports	32.0	32.3	34.3	37.6	46.6	52.0	63.5	82.8	97.4	132.9	160.5	140.2
Total Domestic Exports	33.1	33.8	36.6	40.6	49.6	55.1	68.8	89.6	106.3	141.0	172.0	150.3
Estate Exports as % of Agricultural Exports	40.6	45.2	47.2	52.4	49.1	49.4	55.9	61.5	66.9	65.3	65.4	69.2
Estate Exports as % of Total Domestic Exports	39.3	43.2	44.3	48.5	46.2	46.6	51.6	56.8	61.3	61.6	61.0	64.3

*Estimates

SOURCE: World Bank

integrate a group of smallholders into flue-cured tobacco production, a smallholder flue-cured scheme was started at Kasungu in 1968 under the supervision of the Kasungu Flue-Cured Tobacco Authority (KFCTA). Smallholders now produce about 760 short tons of flue-cured tobacco annually. The KFCTA sells directly to the auction floor so the farmers get the full auction price net only of small charges for transport to Lilongwe and handling. Moreover, the KFCTA manages growers closely, organizing settlement and paying settlement allowance, supervising operations, and extending credit. Consequently, yields equal those of better estates.

Tea is predominantly an estate crop but about 3,700 smallholders grow tea, almost all of them under the supervision of the Smallholder Tea Authority (STA). The STA supervises planting and operations of growers, provides credit, pays them establishment allowances, makes their tea at its own factory (or arranges for processing in estate factories) and markets the tea.

Coffee is a minor crop. A few hundred smallholders presently grow coffee on about 1,300 acres in northern Malawi. Production has been declining steadily over the past two decades as a result of low producer prices and a host of institutional problems, but is being revived now under the supervision of the newly-formed Smallholder Coffee Authority.

Sugar is grown on two estates, the oldest one in the South and a newer estate near the lakeshore (Dwangwa). About 300 smallholders will grow cane for the Dwangwa estate, which began production in 1979.

III.3. Government Services for Agricultural Development

III.3.1. The Ministry of Agriculture and Natural Resources

The major activity of the Ministry of Agriculture and Natural Resources (MANR) is the provision of services to the agricultural sector. There are two deputy secretaries, one of which is responsible for the implementation of the agricultural programs which operate through three departments: Agricultural Development, Animal Health and Industry, and Agricultural Research. The other deputy secretary is responsible for Fisheries, Water Resources, National Parks, Geological Survey, Forestry and Planning.

III.3.2. Crop Marketing and Input Distribution

The MANR also exercises general supervision over the activities of the Agricultural Development and Marketing Corporation. ADMARC maintains 52 main storage depots/markets supplemented by over 700 produce-buying "bush" markets throughout the country. Prices paid to farmers at ADMARC markets are announced each year before the start of the planting season. The producer prices are uniform throughout the country and are fixed by ADMARC in consultation with the Government.

In addition to crop marketing, ADMARC is also responsible for distributing essential agricultural inputs to farmers on customary land. These inputs include improved seeds, fertilizers, pesticides, and spraying equipment.

III.3.3 Seed Production

Seed production is the responsibility of the newly established National Seed Company of Malawi (NSCM). It manages seed multiplication schemes for all crops other than cotton which is undertaken by the Makoke Research Station. After growing, cleaning, processing, and bagging, the bulk of the seed is handed over to ADMARC for distribution.

III.3.4. Agricultural Credit

Currently, there is no single agricultural credit institution in Malawi that serves the whole agricultural sector. Credit facilities to the smallholder subsector are provided by: (a) the ongoing agricultural projects; (b) the settlement credit schemes run by the technical services department of MANR; (c) the Crop Development Authorities (Smallholder Tea, Smallholder Coffee, and Kasungu Flue-Cured Tobacco Authorities); and (d) the Government Loan Board. Both seasonal and medium-term loans are available and with the sole exception of LLDP, all these credit entities administer seasonal loans through farmer's groups to minimize the administrative costs. The administration of smallholder credit is characterized by strict supervision and discipline, and by its close working relationship with extension staff, the input distribution agency, (i.e., ADMARC). The estate subsector gets financing from the two commercial banks.

III.3.5. Agricultural Research

Agricultural research is carried out by the Agricultural Research Department (ARD) of MANR, the Faculty of Agriculture of the University of Malawi, and the Tea Research Foundation (an independent organization for tea research). The University at Bunda College of Agriculture carries out its own research or does so on behalf of MANR. The ARD is a full-time research department with national responsibilities covering all crops and livestock.

Administratively, agricultural research is organized on the basis of research stations which, in turn, are subdivided into substations and district sites. Scientifically, research is organized under research projects based on crops or disciplines. The link between research and extension has so far been weak. Greater efforts should be made to interpret and transform research findings into simple packages which extension workers can recommend to the farmers. MANR should also ensure that the time lag between the completion of research projects and publication of results is reduced.

III.3.6. Agricultural Extension

Until 1977, agricultural extension services had been run on a dualistic structure. Each of the major integrated rural development project areas had its own extension services managed from the project headquarters. However, farmers outside the project areas who constituted about 85 percent of the rural population were served by an embryonic

national extension service which was seriously handicapped by budget and personnel constraints. With the launching of the National Rural Development Program in 1977/78, the MANR recognized the need to strengthen its extension services and has restructured its organization at the field level. The Ministry instituted a geographical unit approach to rural development based on ecological principals that are consistent with administrative boundaries and size vis-a-vis area and population density. These geographical units--called extension planning areas (EPAs)--are as uniform in terms of physical resource as possible. One hundred and eighty of them cover the whole country. They are, in turn, grouped together for administrative purposes into development areas of which there will be about 40 in all by the time NRDP covers the entire country.

An important feature of agricultural extension in Malawi is its emphasis on the group approach, which has been fostered by the practice of providing seasonal credit only to groups. The extension worker helps the farmers apply for credit, and then proceeds to teach the recommended practices largely by demonstrations for the entire group. This group demonstration is followed up with visits to as many of the individual plots as possible by the extension worker to make sure that his advice is being acted on. Currently, there is one extension worker (technical assistant) to 1,400 to 2,400 farmers, the ratio depending on the location. The technical assistant is supported by supervisory staff and specialist staff (technical and professional officers) at the divisional and regional levels. The shortage of personnel in the extension service, particularly

at the field level, poses a very serious constraint to rapidly expanding development activities under the NRDP.

III.3.7. Farmer Training

To provide more intensive training to farmers, the extension service maintains two types of farmer training centers throughout the country. The day training center consists of a classroom attached to an EPA field office where one-day sessions are held for groups of 25 to 40 farmers on current topics which are either suggested by the field staff or requested by the village committees. Residential training centers, totalling 16 for the country as a whole, are used for one-week and two-week courses on subjects largely determined by project staff. The day centers have recorded about 70,000 student days per year and the residential centers some 85,000 student days per year.

III.3.8. Agricultural Education

Bunda College of Agriculture, located just outside Lilongwe, has a 400 acre farm and 1,200 acres of forest land. The College is planning to acquire an additional 3,500 acres and may start a Department of Forestry. Its total student capacity is being increased from 206 to 365 by 1979/80. Bunda provides a diploma course which involves three years of studies, and a degree course which requires a further two years to complete. Applications for admission have been running eight times higher than the admission capacity. The bulk of the diploma students

(Technical Officers) and the degree students (Professional Officers) have found employment with the MANR, but increasingly graduates are being attracted into private industry because of higher salaries.

Colby College of Agriculture is charged with the task of training the Extension Service's field staff (Technical Assistants). The students complete a two-year course. The college, located adjacent to the Chitedze Research Station, has a 50 acre campus, much of which is devoted to cropland and pastures. The unanticipatedly high demand for TAs led to the acquisition of an additional campus at the Likuni Farm Institute. This has permitted the total student capacity to increase to 360. Even at this expanded capacity, only one of every five applicants is accepted. Plans are underway to set up a National Resources College at Likuni. The new college, when it materializes, will absorb Colby College and permit a further expansion in the output of TAs.

Thuchila Farm Institute provides training for 20 women each year in a one-year course in home economics and horticulture. Graduates are qualified as Farm Home Instructresses and divide their time between home visits and teaching short training courses for farm women.

Mikolongwe Veterinary School conducts a two-year course for training of Veterinary Assistants (VAs). The annual output of VAs ranged from 28-47 between 1976 and 1978.

The College of Forestry at Dedza annually admits 50 students. Successful completion of a two-year course qualifies the students as Forest Rangers. After some years of practical experience, outstanding

Rangers are selected for an additional 18 months of training to be upgraded to Foresters.

III.4. Forest Products

III.4.1. Forest Land

Around 50 percent of Malawi's total land area is classified as forest land. About 20 percent of the forest land consists of national parks and game reserves, 20 percent is forest reserves and protected hill slopes, and 60 percent is natural woodland.

Of the total land area, about 82 percent is held under customary tenure and is termed customary land. The vast majority of natural woodland is on customary land. Customary land is administered by the traditional authorities (chiefs and village headmen), under customary law. Traditional authorities make allocations of unused customary land to farmers based on their family needs for personal use. Once use of the land has been granted, a family is free to harvest trees and plant crops for any purpose. On unallocated land there are no rights of ownership over trees and they can be cut freely for domestic needs by members of the community.

The forest reserves are administered by the Forestry Department of MANR as protected government land. At present around 700,000 ha of indigenous forests are classified as reserves or protected hill slopes and about 72,500 ha are exotic forest reserve plantations. In addition, some 258,000 ha of indigenous forests are proposed to be

added to the reserves bringing the total area under forest reserves to around 1 million ha. In contrast to customary held land, a license has to be obtained to cut fuelwood and poles in the forest reserves.

The indigenous woodland in existing forest reserves and on customary land is the principal source of traditional forest products. Altogether, around 3.0 million ha of natural woodland, which is considered unsuitable for agricultural development, is available for forestry development.

In general, the sustained yield from customary woodland is lower than from forest reserves due to greater stand degradation, a result of population pressures and wildlife. The average mean annual increment is 0.8 m^3 per ha for customary land versus 1.2 m^3 per ha for forest reserves.

III.4.2. Current Pattern of Forestry Production

Malawi's forestry sector produces a limited number of forestry products: sawn timber, veneer, plywood, poles and fuelwood. Annual production of industrial roundwood from both state and private forests is about $85,000 \text{ m}^3$, of which half is softwood from state plantations. The wood is processed locally into sawn timber, veneer, and plywood, which are largely absorbed by the domestic market. Exports of forest products are negligible.

Although there are no reliable figures for indigenous fuelwood and pole production, recent estimates by the Forestry Department of potential supply put it in the region of 8.8 m^3 million per annum. The country's

total fuelwood and pole requirements are estimated at 11 m³ million per annum, of which 86 percent is fuelwood and the balance building poles. In 1977, there was a deficit in supply of around 2.2 m³ million, which is projected to increase substantially in the future. Analysis further reveals that 14 districts out of 24 presently run deficits in supply ranging from 1.6 m³ million per year in Lilongwe district to 0.5 m³ million in Chichewa district. These districts are indicative of the considerable demand for wood for fuel and building supplies, which, at present, is being largely met by the destruction of forests on customary land. As indigenous forests on customary land cannot be relied on in the future as a sufficient source of supply, future supplies must increasingly be based on fuelwood and pole wood plantations.

III.4.3. Role of Forestry Subsector in the Economy and Government Support

The role played by the forestry subsector in the Malawi economy is understated, since official statistics do not adequately reflect the important contributions made by the indigenous forest resource in providing nontraded fuelwood and building poles to the rural population. In 1978, the forestry subsector accounted for only three percent of the agricultural GDP (current prices). Its contribution to government revenue is small, primarily because 98 percent of consumption is free, and the royalties levied for commercial purposes are nominal. Fuelwood, building poles and minor forest products are essential to meeting the rural population's energy and domestic needs and constitutes an

essentially underdeveloped resource which can be harnessed for productive purposes.

Rising fossil fuel prices and the desirability of minimizing dependence on such energy sources coupled with the relatively high cost of developing alternative sources of energy (e.g., electricity), have led the Government to favor developing Malawi's forest resources to strengthen the country's energy resource base. At present rates, the demand for fuelwood and poles is expected to double in 25 years, while existing supplies would have virtually disappeared, even in areas where at present there is a substantial surplus. Based on projected supply and demand through the end of the century, a large-scale tree planting program, particularly in the natural woodland areas, would be necessary to meet projected demand.

III.5. Fish Production and Consumption

III.5.1. Fish Production

Although it is a landlocked country, Malawi produces a large volume of fish, especially from Lake Malawi. Other lake and river fisheries are also important, however, so that fish production tends to occur in substantial quantities in most areas of the country.

Malawi has five major fisheries--Lake Malawi, Lake Malombe and the Upper Shire River, Lake Chilwa, Lake Chiuta, and the Middle/Lower Shire--which comprise some 21 percent of the total area of the country.

Virtually all the waters of Malawi, including small streams and seasonal rain ponds, are fished. The total catch realized from these fisheries during the 1960 to 1977 period is shown in Table 22.

A small quantity of fish is supplied from fish ponds in Malawi. Over 1,000 fish farm units are reported to exist, but no comprehensive data is available indicating the amount of fish they produce. (In 1976, the Fisheries Department reported production of 24 metric from fish farming, but indicated the data was not representative of all fish farming because no overall data was available). At best, however, they account for a very small portion of Malawi's total fish catch.

Between one and two thousand metric tons per year fresh weight equivalent (1,942 tons in 1976) are exported, mostly to Zimbabwe, Zambia and South Africa. Imports of fish into Malawi average three to four hundred tons per year. The bulk of these imports are canned pilchards, mostly from South Africa.

Over 240 identified species of fish are produced in Malawi. The majority are small cichlids which are widely consumed locally. The major ones are: Chambo, Kambuzi, Utaka, Kampango, Mlamba and Usipa.

Fishing in Malawi is carried out by traditional fishermen and by individual entrepreneurs and fishing companies using modern commercial fishing techniques. Traditional fishermen supply 90 percent of the fish output, with commercial fishing companies and privately owned commercial pair trawlers supplying the other 10 percent. Nearly every artesanal fishing method is used somewhere in Malawi. The dugout canoe

Table 22. Fish Production, Imports and Exports, in Malawi, 1960-1978

Year	(thousand metric tons)					Total Quantity	Exports	Imports
	Lake Malawi	Lake Malcombe and Upper Shire	Lake Chilwa	Lake Chiuta	Middle/Lower Shire			
1960	-	-	-	-	-	5.8	-	-
1961	-	-	-	-	-	7.9	-	-
1962	9.3	1.8	0.5	-	-	11.6	-	-
1963	7.4	2.6	3.3	-	0.45	13.7	-	-
1964	6.2	1.1	5.3	-	0.54	13.1	0.09	0.09
1965	6.5	1.5	8.9	-	2.00	18.9	0.09	0.09
1966	5.8	2.9	7.3	-	1.50	17.5	0.09	0.18
1967	5.4	4.0	3.3	-	1.70	14.4	0.09	0.18
1968	7.8	7.8	0.9	-	2.30	18.0	0.18	0.27
1969	24.2	5.3	2.9	0.07	9.2	42.3	0.54	0.27
1970	43.6	6.4	4.2	1.1	11.0	66.3	0.81	0.63
1971	54.0	5.0	3.6	0.9	9.7	73.2	1.54	0.27
1972	57.0	3.1	5.3	1.4	17.3	84.1	1.00	0.36
1973	54.8	2.1	1.9	0.8	9.8	69.3	0.90	0.18
1974	52.2	4.2	3.1	0.9	9.7	70.3	1.40	0.54
1975	47.2	8.1	2.8	0.7	12.1	70.9	3.50	0.18
1976	36.5	6.1	21.2	1.8	9.3	74.9	1.94	0.40
1977	33.9	6.4	20.8	1.5	5.6	68.2	1.03	0.05
1978	-	-	-	-	-	67.5	0.72	0.14

SOURCE: Department of Fisheries

is most commonly used as a fishing craft, but the growing scarcity of large trees is likely to make them less available and more expensive in the future. Flat and V-bottomed plank boats are built by GOM boat yards and private builders. These range up to 20 feet long, some being powered with outboard engines. A project is beginning on Lake Malawi to make ferrous cement fishing craft which will compete with dugout canoes and plank boats.

Commercial fishing efforts are undertaken on Lake Malawi using pair trawlers about eight meters long with inboard engines and six person crews. About 20 such vessels operate on the lake, mostly in the Southern and Central Regions. The fishing gear used by traditional fishermen varies, but the gill net is by far the most common. About 50 percent of the total traditional catch is taken with gill nets which have a catch per unit effort amounting to 5.5 kilos per hundred meters of net in all of Malawi. The Chiliamila net, a modified purse seine, is also used extensively in the northern and central parts of Lake Malawi, accounting for about 18 percent of the traditional catch. The catch per unit effort for this type net has averaged 29 kilos. The beach seine accounts for about 9 percent of the traditional catch in Malawi with a catch per unit effort of 49 kilos. Handlines, long lines, scoop nets and fish traps are also used. They do not account for a large proportion of the total fish catch, but do deliver a high quality catch as compared to other fishing methods.

The southern portion of the Lake Malawi (the southeast and southwest arms) is the most important part of the fishery in terms of output. There is, however, a general consensus that the harvest of the southern end of the lake has reached its maximum sustainable yield so that no incremental output should be expected from this source. Research is being proposed to enable this portion of the lake to be better managed in order to enable its sustainable yield to be increased over time.

The remaining fisheries of Malawi have also reportedly reached or nearly reached their maximum sustainable yield. Thus, any major increases in fish output from Malawi's natural fisheries will have to come mostly from the central and northern parts of Lake Malawi. The potential for expanding the catch in the other parts of the Lake are as yet unknown. There is some evidence that major expansion is not possible. If this turns out to be the case, fish farming in inland ponds may emerge as the most economical alternative for increasing fish production.

The apparent inability of Malawi's fisheries to supply substantial increases in yield without seriously damaging their long run productivity strongly suggests the need for conservation and use of all the fish now available for consumption. It also implies that fish culture activities could become much more important in Malawi. Finally, it suggests that fish prices could experience upward pressure in the future and that livestock and other forms of protein may become more important in meeting the protein demand of Malawian consumers.

III.5.2. Fish Consumption

Fish is the most important source of animal protein in Malawi. Although not consistently consumed by everyone because of distribution difficulties, on the average, it is the major source of protein by far for consumers. Per capita annual consumption in 1973 amounted to 14.4 kilos, 3.6 times as much as all other meat consumed per capita (see Table 23). There is some indication that annual per capita consumption of fish is falling. Total fish production in Malawi has remained relatively constant in recent years while population has grown. It is estimated that annual consumption in 1977, for example, was about 12.5 kilos per capita.

III.5.3. Future Demand and Supply for Fish

Future demand for fish in Malawi is expected to grow substantially based on population and income growth, consumer desire for fish compared to other protein products, and because the price of fish is attractive in comparison to other protein sources. The prices of fish, for example, range from K120 to K400 per ton at wholesale and K120 to K500 per ton retail. This compares to K760 per ton for imported fish at wholesale and K300 to K1080 per ton for local meat at wholesale and K360 to K1180 for local meat at retail.

A conservative annual demand increase for fish would be 2.6 percent, the estimated rate of population growth. Income growth per capita of 4.0 percent per year, with an income elasticity of demand for

Table 23. Per Capita Consumption of Major Food Items in Malawi, 1973

Item	Annual Per Capita Consumption (kg)
Ngaiwa	36.5
Ufa	152.2
Cassava four	14.4
Cassava root	0.4
Millet	3.9
Rice	2.5
Sweet potatoes	2.1
Vegetable leaves	32.5
Other vegetables	8.6
Groundnuts	2.4
Pulses	26.9
Fresh fish	3.9
Dried fish (fresh weight equivalent)	10.5
Poultry	0.7
Meat	3.3

SOURCE: E. Thomson, M. Cameroon, and A. Jackson, Food and Nutrition Programme for Malawi, A Report of the F.F.H.C. Nutrition Team, 17 July, 1973, to 15 January, 1974.

fish of 0.6, and the population growth factor would combine to make the rate of increase in the demand for fish at least 5.0 percent, and probably higher. This increases demand, when coupled with the lack of an upward supply trend in fish output since 1970, is certain to create pressure on fish and other animal protein prices. In fact, given that the livestock economy of Malawi is not very dynamic, the above supply-demand trends for fish, unless reversed, will progressively create a protein scarcity in the country that will be felt most severely by the poor who depend on fish as a cheap source of protein and who have little access to--or effective demand for--other sources of animal protein. Thus, there is a strong case for perserving all fish harvested in Malawi, for harvesting all natural fisheries up to their sustainable yield, and for producing as much additional fish as economically feasible via fish farming.

IV. Malawi's Agricultural Development Strategy

IV.1. Dualistic Approach to Estates and Smallholders

Agriculture is recognized by the Government as the nation's key industry. The agricultural sector must be developed if the nation is to develop. Malawi has no major mineral resources. Being landlocked and facing high transportation costs, it has not developed major manufacturing or assembly industries that can generate employment and export earnings. Thus, the agricultural sector must provide not only the nation's food but also investment capital and export earnings, which are the basis for infrastructure, investments, new industries, and government services.

In very general terms, the Government has followed a dual agricultural development strategy: one approach to the estate sector and another to smallholders. On balance, the Government has supported the development of the estate sector without directly subsidizing either inputs or outputs. It has viewed the estates as the principal source of foreign exchange earnings and, in general, has not attempted to substantially influence the prices of their exports. It has, however, attempted to keep the estates from competing with smallholders and has exercised control over the prices of some estate products sold on the domestic market (e.g., sugar). To a large extent, the Government has relied on the estates to generate their own capital from reinvestment of earnings, borrowing from commercial banks, and attracting risk capital from foreign investors. It has invested relatively little in infrastructure to support or promote estates. The estates usually are expected to finance their own education and training activities, to fund their own land clearing and irrigation projects, and to provide a good deal of their own social services for employees. The

actual wage rates paid by estates have usually been well above the minimum daily wage rate of 25 tambalas set by the Government.

With respect to smallholders, the Government's main objective appears to be to promote the production of food crops at least to the point of national self-sufficiency. It has tried to achieve this objective through pricing policies, extension programs, credit programs, integrated rural development programs, and more recently, through the National Rural Development Program (NRDP)

IV.2. Price Policies

Available evidence suggests that farmers in Malawi are fairly responsive to changes in relative prices. Government price policies usually have reflected some awareness of this responsiveness. The Agricultural Development and Marketing Corporation (ADMARC) is the sole buyer of most of the marketed production of smallholders. The prices paid to farmers at ADMARC markets are fixed by ADMARC in consultation with the Government. They are intended to provide a "reasonable return", to the farmer while enabling ADMARC to earn surpluses to support national development programs. ADMARC has placed considerable emphasis on price stability and gradual increases in price over the years. This has shielded farmers from the price fluctuations of international markets. ADMARC's prices for smallholders products in recent years have been set to "subsidize" food production and "tax" smallholders production of export crops.

According to IBRD estimates, ADMARC's prices in 1977, for example, would have provided farmers the following gross return per manday:

<u>Product</u>	<u>Tambalas</u>
Rice	90
Maize	54
Tobacco	52
Cotton	36
Groundnuts	35

While the returns to farmers growing cotton and groundnuts are higher than the statutory minimum wage rate of 25 tambala per day, they compare unfavorably with daily field labor rates prevailing on estates that range from about 40 tambalas to one Kwacha. This has resulted in the stagnation of cotton and the decline of groundnut purchases by ADMARC.

Because of the high costs of transportation and handling exports and imports, there is a substantial difference between the "import parity" and the "export parity" prices of agricultural products in Malawi.^{1/} The "export parity" price of maize in Lilongwe in 1977, for example, was estimated by the IBRD to be K1.40 per 100 lb. bag. ADMARC's price was K2.30 per 100 lb. bag, over 64 percent above the export parity price. This was still substantially below the "import parity" price of corn, however.

The situation was quite different in the case of groundnut. The "export parity" price of groundnuts in Lilongwe in 1977 was estimated to be K24.00 per 100 lb. bag, ADMARC's producer price, on the other hand, was only K10.00 per bag, a 40 percent of the "export parity" price. Similarly, smallholders have received only a small share of the realized export earnings on tobacco and cotton.

^{1/}The "export parity" price is the world price of a commodity less transportation and other marketing costs. The "import parity" price is the world price plus transportation and other marketing costs.

IV.3. Integrated Rural Development Projects

Until 1977, Malawi's main smallholder development activities were centered on four major integrated rural development projects. These four projects covered about one million people, nearly one fifth of Malawi's rural population in the mid-1970's. The 1980 IBRD review of these projects suggests that they brought about substantial social benefits through a general improvement of the quality of rural life. In addition to the direct effects of increased agricultural production these benefits came from new roads, health services, markets, water supplies, and training.

The production impacts of the four projects were mixed. There was no apparent increase in maize yields and some decline in groundnut yields for the Lilongwe Land Development Project (LLDP). Disease problems with groundnuts and high fertilizer prices and poor weather were considered in the case of corn to be responsible for much of the failure to achieve project goals.

In assessing the significance of these results one must keep in mind the magnitude of the programs that were part of the LLDP. The Government was devoting its best talent and investing millions of Kwacha to carry out this project along with the three other integrated rural development projects. These were model projects. The IBRD evaluation of the LLDP concluded that it was well managed and well received by farmers. Most project activities were carried out more or less on schedule and within their budgets. Nonetheless, they failed to substantially affect yields, achieve their fertilizer use targets, influence ADMARC's price policies, or anticipate and effectively deal with potential disease problems. This criticism of the project serves to highlight the magnitude of the job of attempting to increase yields of smallholder crops.

Cotton yields increased during the first phase of the Shire Valley Agricultural Development Project (1968-72). Livestock and fisheries activities were considered to be successful during the second phase (1973-78) but, except for rice, yield targets were not achieved for other crops. During this period production was affected by drought, unusually severe pest problems (especially mice), the expansion of cultivation of less suitable soils, and low cotton prices. In the absence of the project, yields may have fallen even more.

Crop yields apparently increased somewhat in the case of the Karonga Rural Development Project. Fertilizer use, however, was lower than expected. This was partly due to an increase in fertilizer prices and partly due to ADMARC's failure to deliver fertilizer on time. The main components of the Karonga project were the development of rainfed and irrigated rice, the increase of maize, cotton and groundnut acreages and yields in health facilities and lake transport. The emphasis on irrigation, livestock, health, and transport facilities was eventually reduced. Rice, corn and groundnut production were increased. Cotton production fell far short of projected targets. In terms of rainfed crop production this project appears to have been the most successful of the four. This was partly due to the fact that it was possible to bring new land into production as well as increase yields.

Relatively little information is available to judge the performance of the Lakeshore Rural Development Project. The area is very similar in many respects to the Karonga area. An evaluation of the project in 1974 calculated the internal rate of return on investment to be 15 percent. Later estimates indicated that production of rice, cotton, groundnuts and

maize increased. These increases were undoubtedly due in part to more land brought into production.

There are several general conclusions that can be drawn from the four integrated rural development projects. First, irrigation schemes appear to have been much more costly and difficult to implement than was initially anticipated. Where irrigated projects were attempted they generally were not particularly successful. Second, the projects had a greater impact on yields in areas where new land could be brought into production than in areas where unused land was scarce. This may have in part been due to the greater fertility of the new land brought into production. Differences in weather patterns and disease problems may have also played a role.

The small impact on yields is not surprising when one considers that:

- a. there was a severe shortage of qualified staff, particularly at the farm extension level,
- b. a good deal of emphasis was placed on the use of fertilizers to yields but the ratio of output prices to fertilizer prices during the later years of the projects provided little incentive to use fertilizer even if it could be obtained at the right time, finally
- c. there is little evidence that the extension agents had much to offer in the way of appropriate new varieties or improved cultivation or management practices.

Third, that farmers probably were more responsive to changes in relative prices than project planners had anticipated. Thus, ADMARC's price policies were a significant factor in affecting the extent to which production targets for various crops were achieved.

Malawi's experience with large scale integrated rural development

projects led the Government to conclude that extending this approach to the remainder of the country would be too costly and too slow. It, therefore, decided to undertake a National Rural Development Program that would try to cover the entire country.

IV.4. National Rural Development Program (NRDP)

The NRDP aims to:

- a. increase the general level of Malawian smallholder production, in particular the production of cash crops for export and the growing urban population,
- b. provide the inputs and services required to increase yields, and
- c. preserving natural resources by encouraging solid conservation, conserving key watershed areas, and developing forestry resources.

To achieve these objectives the Government is focussing its efforts on increasing the efficiency and expanding the delivery systems with particular emphasis on agricultural services such as extension, input supply, marketing and credit. To this end, the Ministry of Agriculture and Natural Resources (MANR) has been restructured. The country has been divided into eight Agricultural Development Divisions (A.D.D.'s) and a Management Unit assigned to administer the activities in each of these units.

The NRDP has not terminated the four integrated rural development programs. Rather, it has absorbed them into a national program and changed their intensity and investment priorities. In general, the NRDP strategy is to give priority to investments expected to have an immediate impact on agriculture. Other investments which are either relatively more costly or have a less direct impact on production are given lower priority. The NRDP is to be implemented over a 20 year period through some 40 development

project areas. Funding for many of these projects will be provided by international lending and development agencies.

The NRDP will continue to focus government agricultural development activities on assisting smallholders. Main emphasis is being given to the traditional smallholder crops such as maize, groundnuts, tobacco, cotton and rice. Somewhat more emphasis is being placed on a national livestock program focus first on cattle and then on goats. Some attention will be given to poultry. Relatively little is being given to hogs and sheep. It appears that considerably more attention will be given to forestry activities. These include pulp wood, saw timber and fuel wood projects. Fishery development activities are likely to be limited in the early stages of the NRDP. At the farm level, great emphasis is to be placed on extension services and short and medium term credit to promote the use of new seed varieties, fertilizer and increased farm power by financing the purchase of oxen and ox-drawn equipment. It appears that the development of rural roads and markets are to be left primarily to organizations other than MANR. A few activities of the NRDP will benefit all of the A.D.D.'s or provide better information for central planners. These include an expanded national research program, a land use survey, a soils mapping project, and seed industry development activities.

The NRDP concept appears to be flexible enough to respond to changes in priorities and opportunities. At the central headquarters level, some attention is being given to the prospects for developing small rural industries, questions of appropriate technologies, and diversification of cropping patterns.

V. Emerging Issues

V.1. Food Self-Sufficiency

Except for occasional shortages due to poor harvests and inadequate storage facilities, Malawi has achieved its objective of self-sufficiency in maize and other basic foods. Nonetheless, maintaining this self-sufficiency will be increasingly difficult in the years ahead. Moreover, due primarily to poverty-related nutritional deficiencies, calories per capita as a percentage of nutritional requirements was estimated at 90 in 1977.^{1/}

As an example, World Bank projections indicate that, even with favorable weather, Malawi will be deficit in maize production by 1984. This deficit could grow to 123,000 short tons by 1990.^{2/} The key elements of this projection are the population growth rate, the limited number of arable land not already in production, and the low-rate of increase in maize yields per hectare harvested.

Current estimates indicate that the population growth rate is about 2.6 percent annually. This implies nearly a 30 percent increase during the next 10 years. It seems highly unlikely that there will be a significant drop in the population growth rate during the next decade. In order to even maintain current food consumption levels without increases in food imports, food production will also have to increase by

^{1/} World Bank, World Development Report, 1980.

^{2/} World Bank, Malawi Basic Economic Report: Annex I: Key Issues in Agricultural Development, July, 1980.

30 percent during the decade, just to maintain existing levels of per capita consumption. This certainly is not impossible, but it will not be easy. Moreover, the source of this increase will have to shift from expansion in area cultivated to higher yields per unit area.

It is estimated that 36 percent of Malawi's land is arable, and that, at present, some 95 percent of this land is in production. The largest amount of unused or underutilized land is in the Northern Region. Bringing this land into full production will require major investments in rural roads. In the Southern Region there is reason to believe that the arable land is being "overutilized" in the sense that fallow periods have been shortened, less productive land is being brought into production, soil erosion is increasingly evident, and average yields have tended to remain constant or decline. One way to change this situation is to invest more in the promotion of soil conservation practices, water control, and irrigation schemes. These are costly activities--at least in the short run. Another alternative is to promote migration out of the Southern Region to new-land development areas in the Northern Region. This is unlikely to be a less costly approach. Even if it were less costly, it would have a fairly small impact because, the Northern Region also has a limited amount of unused or underutilized arable land. A third alternative is to emphasize the introduction of new varieties, improved management practices, and chemical inputs to increase yields. This alternative has already been tried under the integrated rural development projects and the more recent

National Rural Development Program (NRDP). There is little evidence to suggest that these programs have had a substantial impact on yields during the past decade--at least in the Southern Region. Considerably more resources will have to be devoted to existing extension, credit and research programs to change this situation during the next decade.

Regardless of which combination of these three alternatives is selected, the cost of Government programs to maintain food self-sufficiency will increase during the next decade. There is also the question as to how to finance the required activities. Both of these questions have been partially answered. The National Rural Development Program places major reliance on the third alternative--yield increases. Some attention will be given to soil conservation and irrigation programs. Little attention will be given to promoting rural-to-rural migration. Loans and grants from international lending and development agencies will become increasingly important in financing these activities.

V.2. Size of Farm, Employment, and Incomes of Smallholders

As has been previously emphasized, population growth is about 2.6 percent per year and is unlikely to fall significantly in the near term future. If anything, the rate of growth may rise to 3 percent or more per year before a fall in the birth rate begins. If growth rates by district continue according to the 1966-77 pattern, and use of cultivable land is intensified by reducing the ratio of fallow to cultivated land, the supply of arable land for the country as a whole will be fully

utilized before 1990. This would happen earliest in the Southern Region, next in the Central Region, and finally in the Northern Region. Significant population movement would be necessary to redistribute the layer population to the available land. Indeed, some such movement is already taking place.

Projections based on a "requirement" of from 2 to 2.5 ha per family, made up of a mixture of crops and fallow, show that total national requirements of cultivable land would reach 4.0 to 4.7 million ha by 2,000, which is 50 percent or more in excess of all but the most optimistic estimates of the area available.

An evaluation in depth of this issue is beyond the scope of this assessment, if not beyond the adequacy of the information available. Nevertheless, the basic results are very much what might be expected:

- 1) farms will tend to grow smaller;
- 2) land more distant from roads and services, more subject to erosion, and more limited by poor soils and/or low rainfall, will be brought into production;
- 3) reduction in land in short-term fallow in the cropping systems will occur which will lower yields without compensating use of chemical or organic fertilizers and more effective soil conservation practices.

All this implies a decline in output per person, an increase in underemployment, and lower levels of living for the smallholder population. Since the possibility that the growing rural population can be

absorbed by nonfarm jobs is nil, the only alternative for raising productivity and incomes of smallholders is to increase yields on the available land. This is the greatest problem facing the smallholder subsector in the next 20 years. It's solution will require a "green revolution" in Malawi--delivering to small farmers the information and inputs that will help them to steadily increase yields per ha, i.e., new technology that is land-saving and labor-using rather than labor-substituting.

Thus, on all counts, raising yields for smallholder crops is the logical approach not only to maintain food self-sufficiency but also to increase employment and incomes. As yet, no consistent widespread improvement in yields has been achieved; area expansion has been the main source of growth of smallholder output. To raise yields, farmers will need to purchase better seeds, fertilizer, and other chemicals, as well as utilize improved cultural practices. Labor inputs for cultivation practices and harvesting will rise. Credit will be required. Risks may increase. Assured markets for surplus food crops and crops grown for sale will be needed.

Basic foodcrops are presently produced in large part by human labor, using simple hand tools. The use of animal power is limited, and mechanization is almost nonexistent. Production depends on rainfall, which is variable from year to year. Fertilizer use is low. The use of higher yielding varieties lags behind the rate in other parts of the developing world. These patterns reflect the subsistence nature of food production, the heavy participation of women and children in the production of

food, the timing of soil preparation where the ground is too hard to prepare until rain falls, and the need to maintain soil fertility using rotation and fallow systems.

Government plans and programs have placed great emphasis on improving conditions in the smallholder subsector, but actual achievements have lagged far behind the rhetoric. The problem has been less with the intentions than with the implementation. Improvements in smallholder productivity and incomes will come through effective research, extension, credit and service institutions, adequate infrastructure investments, efficient marketing systems, and appropriate economic and social incentives. A whole range of policies and programs that complement and support each other are required. If some policies are inconsistent or inadequate, the "positive" effects of other policies and programs may be minimized by the "negative" effects of the incorrect or missing policies. Success in dealing with these complex interactions among resources, production practices, policies, and the social-cultural characteristics of the smallholder population, is the key to increasing productivity, meeting domestic food needs, and generating exportable surpluses.

III.3. Estate Diversification

There is, in fact, a fourth alternative to increasing the nation's food production. That is to encourage the estate sector to produce basic foods. In some cases this would result in land being shifted out

of the production of export crops--primarily tobacco. In other cases, food production could be increased through more intensive land use, primarily using land now being held in fallow or reserve. The net impact on exports probably would be fairly small. Estates would not shift resources to food production if exports were expected to be more profitable. Nor is the estate sector likely to be able to "solve" the nation's food problems. It is estimated that estates account for about 470,000 ha of arable land. It is doubtful that more than 50,000 to 70,000 ha of this land could be devoted to food production without a reduction in agricultural exports. If, for example, an additional 70,000 hectares had been devoted to maize production in 1978, with average yields, total maize production would have increased by less than 6 percent. Even if average yields on the estates were 50 percent higher than those of smallholders, the estates would provide less than 9 percent of national maize production under the assumptions made here. This is not insignificant, it would provide some exportable maize surpluses in the early 1980's allow the Government to build up its stocks for food security and price stabilization purposes, and provide three or four additional years at the end of the decade to increase smallholders' yields. In short, it could postpone the deficits in maize projected by the World Bank until the early 1990's.

It would be unfortunate, however, if estate production of food were permitted to shift attention and resources away from the smallholder subsector. There significant increases in productivity and

income will only be possible through widespread use of land-saving, labor-using, yield-increasing technology. Thus, estate food production at the expense of smallholders will only aggravate existing patterns of rural underemployment and poverty.

A closely related question is whether or not it is feasible for estates to produce a wider variety of export crops. A number of alternatives are being explored. These include production of Arabica Coffee, expanded rubber production, production of specialty nuts such as Macadamia nuts, and tea seed oil.

At present tobacco and tea comprise approximately 80 percent of all exports from the estate sector. Concentration on these two commodities, particularly tobacco, renders Malawi vulnerable to international price fluctuations. Swings in the export price of tobacco during the last half of the 1970's substantially affected the financial liquidity of the nation's commercial banks and ADMARC as well as the tobacco estates themselves.

There is another reason for seeking alternatives to flue-cured tobacco. This is the increased shortage of fuelwood reflecting the fact that tobacco production areas are being deforested. Under Malawian conditions four hectares of forest are required to support one hectare of flue-cured tobacco production when isolated, small traditional barns are used. The ratio is 2:1 for modern well-designed large barns. Whichever ratio is used, the fact remains that Malawi is "mining" its forests to produce tobacco.

There are several factors that limit the set of viable alternatives for estate export crops. First is the feasibility of production. Second is the long-term international price outlook and Malawi's access to major markets. Third is the high transportation cost and potential long transportation delays likely to be encountered. Nearly all of Malawi's exports outside of the East-Central African region must pass through Mozambique's ports of Nacala and Beira. In recent years these exports have faced severe transport disruptions, delays, damage and theft in transit. (Imported agricultural inputs face the same problem). The result is not only high transportation costs but also high insurance rates, and, with existing interest rates, high carrying costs. It reportedly takes six to nine months to move tobacco from the farm to the processor in England because of transportation problems. Add to these problems the high cost of gasoline and the lack of all-weather roads in most of the Northern Region and it becomes readily evident that the estate export commodities cannot be perishable, should have a high value per kilo, and must be able to support high marketing costs. This effectively rules out the export of fresh fruits and vegetables to the European market, for example.

Malawi's relatively stable political situation has encouraged long term investments by the estate sector. Investment in tree crops such as rubber and Macadamia nuts are far less risky in Malawi than they would be in many other countries. Furthermore, the abundant supply of low cost labor gives Malawi a comparative advantage in labor intensive

products such as tea and high quality tobacco.

Diversification of smallholders crops is also a subject likely to become more important during the next few years. Even with increased yields for maize, rice, beans, groundnuts, and cassava, smallholders' real incomes are unlikely to increase very much as farms become smaller unless they are able to diversify into higher value products. Limited as they may be, the possibilities are worth exploring. Mushrooms, goats, vegetables, fish ponds, and flowers are a few examples. In most cases, the only off-farm market would be the national urban market. It seems unlikely that reliable export markets for perishable, high value products will be found in East-Central Africa. Thus, the potential for increasing smallholders incomes through fruit and vegetable exports appears limited. Increased entry into the more profitable production of export crops (e.g., burley tobacco, tea, sugar) is a much more likely path to higher incomes for smallholders.

III.4. Pricing of Agricultural Products

It has become increasingly apparent that ADMARC's pricing policies not only affect smallholders incomes directly but their production decisions and the amount of output which they market. Its policy of uniform crop and input prices throughout the nation also involves cross-subsidization of producers located in the Northern Region by those located nearer to the major consumption areas. Similarly, in recent years ADMARC's price policies have, in a sense, subsidized maize production and taxed smallholders producing cotton, groundnuts, and tobacco.

As awareness of the importance and impacts of ADMARC's price policies has increased, so have questions as to whether or not its price structures are consistent with national development objectives. While there may be many advantages to a consistent policy of gradually increasing prices, it is evident that ADMARC will need to maintain a more flexible price policy in the future and to effectively incorporate a wider range of views and information into its price-setting process.

There are a number of other areas in which price policies, traditions, or price levels need to be reviewed. The pricing of customary land leased to estates, for example. The pricing of irrigation water will have to be carefully evaluated in light of local customs in order to assure that irrigation water is effectively utilized. Indeed the procedures for charging for irrigation services and financing the maintenance of irrigation systems are likely to be extremely important to the success of future irrigation programs. In general, pricing of many government services will have to be given greater attention during the next decade. (Road services, port services, health services, etc.). Firewood pricing is another topic that the Government will have to address in the years ahead. One of the reasons for the current firewood "problem" is that in the past much of the firewood was obtained from customary lands at little or no charge.

III.5. Skilled Labor Shortages

The speed of Malawi's agricultural development will depend in part on how rapidly it can develop the skilled labor required by the Govern-

ment, agri-related industries and the estate sector. This will require substantial investments in national educational institutions as well as in foreign training programs. Most of the existing studies of agricultural manpower needs have focused on the number of persons required to carry out government development programs. Equal attention needs to be given to planning for total manpower requirements of the sector.

III.6. Forestry

The depletion of forest resources is an ongoing process in Malawi and is likely to continue at an increasing rate. Particularly in the Central and Southern Regions the remaining woodlands on public land outside of Forest Reserves are rapidly being destroyed as population density increases. This destruction occurs in two ways: forests are cleared to obtain land for agricultural purposes, and timber is cut for fuelwood, poles, and tobacco curing. In those areas where wood has become scarce, farmers and their families (usually women) have to walk long distances to obtain their daily fuelwood needs. In many areas deforestation is also having adverse effects on soil and water conservation as well as wild life.

Malawi's long-term forestry development objectives is to expand fuelwood and building pole supplies for both domestic and commercial use by establishing: (a) rural nurseries to supply seedlings of fast growing species to farmers for planting woodlots; and (b) plantations in wood deficit rural areas and near main urban centers. Expanding supplies in this way would help offset shortfall in supply in deficit areas and

shield the majority of the low income population from the inevitable rise in the fuelwood prices as indigenous forests continue to dwindle. A secondary objective is to improve and extend government management of forest reserves. Introduction of forest management on customary land, along with a program to increase wood production, will help prevent further destruction to the environment and generate additional revenue from the sales of wood and wood products. A third objective is to encourage self-sufficiency through appropriate pricing policies and increased government support for forestry development. Since current pricing is not based on cost recovery, little revenue is generated from the sale of wood. In 1977/78, for example, forestry products accounted for only 0.7 percent of total government revenue, and royalties and timber sales currently account for only around 28 percent of the Forestry Department's development expenditure.

Of particular importance to smallholders is the availability of poles and fuelwood. Wood poles are used extensively in construction of houses and tobacco and livestock barns largely because of its cheaper price vis-a-vis modern building materials. As no alternative to poles is likely to be cheaply available, the pattern of demand for wood poles is expected to persist and increase with the population growth. Firewood is the major source of fuel for cooking and heating in rural areas. Electricity is not widely available, and kerosene, the principal alternative fuel, is too expensive for most of the people. Hence, fuelwood is expected to remain the major source of energy in Malawi in the foreseeable future. Besides households, tobacco curing, public institutions,

particularly schools, and hospitals and industrial enterprises such as tea factories, bakeries and brick-burners are the major fuelwood consumers. Total demand for fuelwood and poles, which has grown to 8.8 million m³ in 1977, is projected to increase from about 10 million m³ in 1980 to 18 million m³ in 2010.

At present, forests in 14 of Malawi's 24 districts cannot meet local demand except by over exploitation (and ultimate destruction of the forests) rather than cultivation on a sustained yield basis. Moreover, within 25 to 30 years, all but one of those districts currently able to meet demand are also projected to become deficit areas. Thus, with demand projected to outstrip supply, prices of wood and wood products can be expected to rise significantly in the future.

Currently, fuelwood and poles from forests on customary land are free for domestic use, and the average stumpage price for commercial use is only US \$1.20 per m³. Nominal fees are charged for permits which are required for cutting wood in forest reserves and on protected hill slopes. Fuelwood in forest reserves is price (stumpage) between US \$1.70 and US \$4.00 per m³ and poles average US \$7.00 per m³. Given present consumption patterns (85 percent fuelwood and 15 percent poles), the weighted average stumpage price for wood from forest reserves is US \$3.60 per m³. To promote more efficient use of wood and to stimulate further forestry development, wood prices need to be fixed at levels which would ensure the recovery of the cost of wood production.

The Government is undertaking to increase its investments in the development of forestry resources, particularly village woodlots and forest reserves. Additional attention will have to be given soon to the pricing of forestry products.

III.7. Fisheries

The UNDP-FAO study of the commercial fishing potential of central and northern Lake Malawi has not yet revealed commercial quantities of fish. This area of the lake was Malawi's major hope for increasing fish supplies. It is the general consensus that all other major areas of fishing are being over-fished. Thus, if Malawi is to maintain current levels of fish consumption it will have to move vigorously to promote inland fish ponds.

A program to develop demonstration fish farms and to promote integrated fish/chicken/vegetable operations has been designed and is being studied by the World Bank for possible loan-financing.

It is estimated that about 1000 fish ponds now exist in Malawi with an annual production of about 25 metric tons. The economic analysis done to date indicate that at present fish prices fish farming would not be particularly profitable. Nonetheless, as fish supplies from existing fisheries fall and demand continues to increase, fish prices will undoubtedly increase thus, raising the profitability of fish farming. It certainly is not too soon to begin testing and introducing farmers to the technology of fish farming, and training persons in MANR who will be working in this area. Grant funding, at least

initially, might be desirable to stimulate interest and develop the MANR's capability to assist farmers who would like to begin fish farming activities.

VI. Strategy for Agricultural and Rural Development

VI.1. Priority Objectives and Basic Strategy, 1980-90

Agriculture is the dominant sector of the Malawian economy and will continue to be looked to for major contributions to the country's development. If it is to continue to lead the economy during the next decade its primary contributions should be:

- 1) Production to supply domestic food requirements, industrial raw materials, and exports;
- 2) Employment, at rising levels of productivity; and
- 3) Foreign Exchange and Capital to fund public and private investment.

In the choice of strategy, many factors need to be taken into account.

Some of the most important are:

- 1) Rural underemployment: Given the small size of farms, large families and wet-season production patterns, substantial under-employment of labor exist in periods other than those of peak labor-requirements. (Land preparation at the beginning of the rainy seasons is probably the heaviest peak period. Weeding and crop-care is another. Harvest is a third). Thus, for at least six months each year (the dry season) labor needs are well below labor availability in the densely populated districts.
- 2) Land scarcity: Even in the absence of good information about land quality, it is clear that, at a national level, little land remains that can be cheaply brought into production. Extending the land base will require major investments. Indeed, even maintaining the existing land base will necessitate higher conservation costs.

- 3) Food self-sufficiency: Malawi has used its land and labor resources to achieve food self-sufficiency, primarily through expansion in areas cultivated. This growth path is ending and another must be found if the country is to continue to meet its production needs.
- 4) Export concentration: Exports are highly concentrated in two products--tobacco and tea. Diversification, as well as expansion in exports, is urgent.
- 5) Productivity and income: Absolute poverty in rural Malawi is widespread. While much can be done through social services to raise levels of living, there is an overriding need to increase output per person so that average levels of income can rise. Moreover, care should be exercised to assure that participation in growth is widespread, contributing to a higher level of equity in the economy while at the same time achieving production goals.

In view of the needs and these conditioning factors, the best strategy choice is to delivery technology and inputs to smallholders that will permit them to increase the value of output per unit of land per year. This strategy will involve increasing yields of existing crops, introducing new crops, and promoting cropping patterns that result in higher incomes without undue production or market risks. This is the appropriate strategy if the government wishes to achieve equity in a growth context.

VI.2. A.I.D.'s Rural Development Activities

AID's major rural development goal is to increase the incomes and general level of welfare of the rural poor. Thus, its programs need to be focused on smallholders rather than estates. There are several ways that

this could be done. One approach would be to become a "sponsor" for one of the eight Agricultural Development Divisions or one or more major projects of a Division. The IBRD and several other development agencies are taking this approach. There is still at least one A.D.D. and several proposed projects for which the Government needs sponsors. Basically, by taking this approach a donor agrees to fund a specific part of the National Rural Development Program. There are several advantages to this approach. First, the project areas are well defined. Second, the project activities have already been approved by the Government. Third, the projects are definitely focused on smallholders. Fourth, the MANR already has considerable experience and a fairly good track record in carrying out area development projects. Finally, the project management system is already in place within the MANR so that AID probably would not have to invest as much in project management as would be required with other approaches.

An alternative approach, and the one we recommend, is for AID to undertake a number of sector activities that cut across the geographic scope of the A.D.D.'s or add new programs in support of the NRDP. The value of this approach is entirely dependent on the value of activities selected. There are four sets of activities which appear likely to have a high payoff in the 1980's. These are:

- 1) Improved Rural Development Information Base
 - a) Land and water resources inventory and evaluation
 - b) National sample survey of agriculture
 - c) Soils classification study
 - d) Food consumption and nutrition surveys

- e) Agricultural policy analysis
 - (1) feasibility of generating local non-farm employment
 - (2) pricing of agricultural inputs, outputs, resources and services
 - (3) evaluation of regional production potentials
- 2) Improved Information, Input, and Service Delivery Systems
 - a) Extension information
 - (1) training of extension agents
 - (2) translating research results into extension programs
 - b) Mobilizing rural earnings
 - (1) rural banks and savings institutions
 - (2) rural credit
 - c) Introducing appropriate technology
 - d) Water, health and educational services
 - e) Consumer goods and services
- 3) Production Diversification
 - a) Technical, social and economic feasibility of new food products
 - b) Farming systems analysis: feasibility of multiple cropping, intercropping, and multi-level cropping
 - c) Increased production of livestock products: (dairy, goats, poultry, rabbits)
- 4) Rural Infrastructure Investments
 - a) Rural roads (self-help) projects
 - b) Farm fish ponds
 - c) Rural village electrification

- d) Firewood development
- e) Irrigation/soil conservation

Each of these four sets of activities would contain a training component. In some cases long and short term training aboard would be needed. In most cases, however, the training could be carried out locally through university, on-the-job, and special short-course training programs.

VI.3. Recommended AID Programs

VI.3.1. Improving Malawi's Rural Development Information Base

This component is needed to strengthen the capacity of existing institutions to produce the quantity and quality of information that is required to improve policy decision-making and implementation in the public sector.

In its most general form, "planning" can be conceived of as a continuous process of producing information needed for policy decisions, implementation, and evaluation. The offices and staff responsible for producing this information constitute the "planning system." Policy makers are important "users" of this information. It is also used by implementing agencies, which are responsible for executing policies, programs and projects chosen by the policy makers. Together, the decision makers and the implementing agencies constitute the political-administrative system.

The existing information base in Malawi is scanty and unreliable.

Areas that need early attention are:

- 1) Inventory and evaluation of land, forestry, and water resources;
- 2) Annual estimates of crop areas, yields, production, and utilization;
- 3) Socio-economic household surveys;

- 4) Demographic data;
- 5) Nutrition and health status assessments.

It is also necessary to improve the capacity of the planning system to do policy analysis. Policy analysis usually begins when a policy maker identifies a problem and requests information about that problem. In order to produce this information the following must be done:

- 1) Define the problem
- 2) Select policy alternatives
- 3) Evaluate the policy alternatives
- 4) Interpret and present the results.

Policy analysis requires human and financial resources and close communication between analysts and decision makers. Technical assistance, training, and financial resources can be used to strengthen the policy analysis capability of the appropriate planning offices. Policy areas that deserve early attention include:

- 1) Price policies and input subsidies,
- 2) Rural non-farm employment,
- 3) Role of women in farm and household production,
- 4) Optimum cropping system for small farmers in response to changing relative prices and levels of risk,
- 5) Utilization of land on agricultural estates,
- 6) Participation of smallholders in productivity of high-value domestic and export crops (e.g., burley tobacco, fruits, vegetables).

VI.3.2. Improved Information, Input and Service Delivery System

In reviewing the resources available for increasing agricultural production in Malawi, we have stressed the growing scarcity of land, although

peak-period labor needs may be a constraint in some areas. In general, however, and increasingly in the future, land is the scare resource. Therefore, policy makers should be looking for ways to maximize output per hectare per year, consistent with seasonal labor balances. Land augmenting technology allows more to be produced from the same land areas, and is usually also labor-using. Bio-chemical inputs and cropping systems that increase yields, and thereby increase fertilizing, weeding and harvesting labor requirements, while leaving planting labor requirements unchanged, will raise output and income per person, if planting is the peak labor requirement period.

Raising output per ha in the smallholder subsector will require a "package" of new technology, appropriate inputs, support services and knowledge of farming systems that is not presently available in Malawi. In the time available for this assessment, we were unable to identify the key constraints that need to be relaxed in raising the productivity of the smallholder subsector. We are certain that the complexity of the target group, with its various inputs and outputs, its seasonal and year-to-year fluctuations, its adaptation to soil fertility requirements, and other factors, makes the task a large one, from which dramatic results cannot be expected quickly. Past efforts have produced few significant results in terms of the critical output and productivity dimensions. The problem with the poor showing of smallholder assistance programs lies deeper than a lack of resources (human or financial) deficient implementation, or misdirected policies. A large number of constraints can be identified, but there is no agreement on a strategy to remove these constraints. USAID should join with the Government in undertaking an in-depth study of priority programs

capable of breaking the smallholder productivity bottleneck. In our opinion, the success of the NRDP rests on the results of this diagnostic evaluation.

VI.3.3. Production Diversification

Small amounts of a wide variety of fruits and vegetables are grown in Malawi. These include grapefruit, lemons, mangoes, oranges, peaches, cabbage, carrots, cucumbers, green beans, onions, tomatoes, sweet potatoes, pumpkins, peas, and sweet corn. Most of the commercially marketed vegetables are grown close to the major consumption areas particularly Blantyre in the South and Lilongwe, in the Central Region. Fruits travel longer distances to markets than do vegetables. Very little information appears to be available on the prospects for increasing the production of fruits and vegetables or the returns to producers. The export market for most fruits and vegetables is severely restricted by the high transportation costs associated with moving produce to neighboring countries. In some areas there is the potential for increased vegetable production for on-farm and village consumption. This potential should be investigated in more depth than it has to date.

There appears to be an increased recognition of the prospects for increasing smallholders incomes through promotion of multiple cropping, intercropping, and multilevel cropping. Such farming systems may not result in the maximum yields per hectare but frequently generate more real income and more fully utilized family labor. Some research in this area is planned under the AID sponsored research project being carried out by the University of Florida. Additional work in this area seems likely to have high returns. This work should begin at the farm level to determine what types of farming systems are being used and why. From this starting

point one then asks how the existing systems can be made more productive. The initial emphasis in this approach is on increasing incomes from traditional crops rather than introducing new crops.

Malawi is experimenting with a number of approaches to increasing the number and production of farm livestock and poultry, particularly cattle. The main objective has been to remain self-sufficient in livestock and poultry production. In general this objective has been achieved. The national figures indicate an annual increase in livestock production of about 5 percent during the 1970's. This is adequate to allow about a 2 percent annual increase in animal protein consumption.

There are several factors that are limiting the rate of growth of animals and poultry in Malawi. Diseases are a major problem for cattle and poultry. Newcastle disease is widespread and a continuous problem in the case of poultry. Hoof and mouth diseases and East Coast Fever are a problem in the case of cattle. Vaccinations of poultry and the national dip tank program for cattle are underway to deal with these diseases but their eradication will be a long, slow process.

In the case of cattle, increased pressure to bring land under cultivation has reduced the land available for range fed cattle; particularly in the Southern and Central Regions. On the other hand, as crop production has increased so has the quantity of crop by-products that can be used for animal feeds. The Government has undertaken a program of stall fattening to promote the utilization of the by-products. Under this program it provides smallholders one or two head of cattle which they fatten for about five months. The farmers then sell these cattle back to the government and are paid on the basis of weight gained. Experience to date suggests

that farmers can expect to earn about K50 per head under this program. This program has been limited in scope, however, and carried out only in the Central Region. It is likely to be expanded and eventually to be extended to other Regions.

There are very few sheep in Malawi. Given the climate and lack of knowledge of sheep production, it is unlikely that this situation will or should be changed. Hogs are produced primarily by larger farmers near urban centers. It does not appear worthwhile to promote smallholder production of hogs at the present time.

Goats do very well in Malawi, even in the dry season. Their numbers are increasing and there appears to be good potential for increasing the number of goats raised by smallholders. It should be recognized, however, that goats presently destroy a great many trees each year and thus worsen the nation's fuelwood problems.

Very little work appears to have been done on the possibilities for smallholder production of small fowl such as pigeon or small animals such as rabbits. These possibilities are worth further investigation.

VI.3.4. Rural Infrastructure Investments

Investments in physical infrastructure will play an important supporting role for programs to increase smallholder productivity. Funds will have to be mobilized for roads, marketing and community facilities, irrigation, electrification, and other economic and social infrastructure needs. The approach being followed now is to consider infrastructure requirements within the programs designed sequentially for the EPAs. In addition a study is underway to define a national strategy for irrigation.

Given limitations on domestic funds as well as donor financing, a planning framework that considers relative needs by EPA's as well as expected results of alternative infrastructure investments could assist in allocating limited available funds to their most productive use. This type of study could draw on the information base and analytical capacity recommended earlier in this Section and would form a logical part of the basic study of rural development strategy also previously recommended in this Section.