Elitist Land and Agriculture Policies and the Food Problem In Malawi

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INTRODUCTION

Malawi is facing a food shortage that is now entering a critical stage. In the absence of carryover stocks from 2000/01, the little food that was harvested from 2001/02 cropping season has started to run out. The number of people without food is increasing dramatically and peasant families are therefore joining millions of people surviving on relief food. Malawi is the region's worst affected country with over 3.2 million people suffering the combined effects of reduced food availability and declining purchasing power.[2]

The current year's maize output, is 10% below last year's poor harvest i.e. 1.54 to 1.6 million tonnes, and is a result of late start to the planting rains, flooding in several districts and a dry spell early in 2002.[3] The fact that food prices show a rising trend across 2000-2002 also suggests the presence of demand and supply imbalances going way back beyond three cropping seasons.[4] These trends signal a possibility that the food problem may be perennial in nature.

This paper is a longitudinal study of Malawi's agricultural policies since the 1960's in an attempt to isolate short term from long-term causality focussing on factors that may have evolved in a historical context. The motivation of this paper is that in food policy research as in other aspects of economic development it is essential to distinguish the narrow from the broader perspective in order to fully understand an economic problem as well as formulate appropriate economic policy.

In the context of this research, the fact that Malawi is desperately mobilizing resources to import some 585,000 tonnes to fill the 2002 food gap passes an act of 'fire fighting' to ameliorate the current problem. The main thrust of this paper is the belief that Malawi requires a 'Marshall Plan' style effort coordinated to address long term problems of food insecurity, which may only be surfacing.

This paper therefore investigates agricultural and macro policies and structural factors and how they have evolved to undermine the capacity of Malawi to produce enough food, specifically evaluating the agricultural dichotomy between estates and smallholder, distribution of land, labour and incomes

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[2] See Appendix 1 for the proportion of families without food by February 2002 compared to February 2001.

[3] 2002 maize output is also a 32% drop on the record crop of 2000

[4] Based on monthly data from twenty markets around the country, the National Statistics Office reports that by November 2001 maize prices were 250 percent higher than that of November 2000, and by March 2002 they were almost 400 percent higher than that of March 2001

policies and how this may have resulted in the country's repeated failure to produce enough to meet national requirements for human consumption.[5]

The paper also examines agricultural production[6] and marketing policies investigating whether or not scope existed for farmers to meet household food and cash requirements on a sustainable basis. Specific attention is paid to access to crops, inputs and credit,[7] and effectiveness of free farm inputs.[8]

Having explored many avenues of analysis, this paper finds that land policies had favoured estate based export production at the expense of household food production. The conversion of nearly 1 million hectares of customary land to leasehold land tenure remains one final act that destined the masses to poverty and the country to a looming food crisis that was yet to come.

Initially, low population levels concealed effects of the land haemorrhage, but further population growth escalated food demands above carrying capacity of diminishing household land. Desperate efforts to reclaim land for food and shelter have resulted in deforestation. Cultivation of marginal lands resulting in high rates of soil erosion and intensive use of good land has also resulted in generally poor quality if land in Malawi.

For a long time, no system existed for rural farm credit. This was compounded by government policy of keeping smallholder farmers away from the lucrative tobacco crop while suppressing other producer prices, thereby reducing incomes of the poor. These policies deprived the rural sector the opportunity to expand food productivity by investing in better technologies.

Invariably, the fact that the sale of tobacco at the auction floors was under a quota system has led to under utilisation of massive estate land holdings acquired from the poor. Low maize producer prices at ADMARC also acted as a disincentive against estate production of maize using their excess land. Land rents have also been so cheap that a farmer could afford large amounts of idle land held in anticipation of the current situation where land reform will entail huge profits.

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[5] The requirement is based on the average historic rate of consumption of about 151 kg per person per annum for the population of 11,44 million, used by FAO/WFP Mission in 2002.

[6] The study also examines policy implications of disproportionately large (roughly 75 percent) amount of land under maize. The area planted with maize in 2001/02, estimated at 1.49 million hectares, is marginally less than for both 1999/00 and 2000/01 (both about 1.51 million hectares).

[7] It is believed that poor repayment of loans in 2000/01 resulted in shortage of credit in 2001/02, which resulted in reduced output as a result of reduced ability of farmers to purchase seed and other inputs.

[8] Low maize production was attributed in many areas to a shortage of seed,
retained seed having often been consumed as a result of the poor harvest of
the previous year

The spectacle of Malawi receiving 175, 000 tonnes of food aid in 1989/90, of which 115, 000 tonnes was imported cereals, is a complete contrast to period preceding 1974/75 when the country exported maize. The reality remains that Malawi's food problem is a rupturing time bomb that has been ticking since the early 1980's.

Today Malawi spends more on maize imports than on petroleum imports. The country's land locked nature means that high shipment costs feed into food prices that have risen to result in Malawi experiencing the second highest food price increase in Africa, after Zambia.

The study also finds that $1 of food aid to the consumer achieves only 30% of what the same $1 would achieve if it were provided directly towards the purchase of starter pack fertilizer. The $300 incurred per tonne of imported maize will feed five families of five people for only 96 days. However, the same amount will buy enough fertilizer to support 7 ha of farmland to produce 13 tonnes of maize and therefore feed the same families for 10 months.

TABLE OF CONTENTS

INTRODUCTION

1. LAND AND POPULATION
   Population
   Land
   Environmental Implications

2. AGRICULTURAL PRODUCTION
   Production Capacity
   Farm Productivity
   Input Uptake

3. POLICY ANALYSIS: AGRICULTURAL PRODUCTION
   Agricultural Strategy
   Changing Fortunes
   Donor Involvement
   New Government Strategy

4. POLICY ANALYSIS: AGRICULTURAL MARKETING
   Produce Marketing
   Constraints to Private Involvement
   Local Market Development

5. MANAGING THE TRANSITION
   Production
   Rural Development
   Developing Markets

CONCLUDING REMARKS
   Lessons from Experience
   Short term Policy Questions.
   Long term Policy Questions

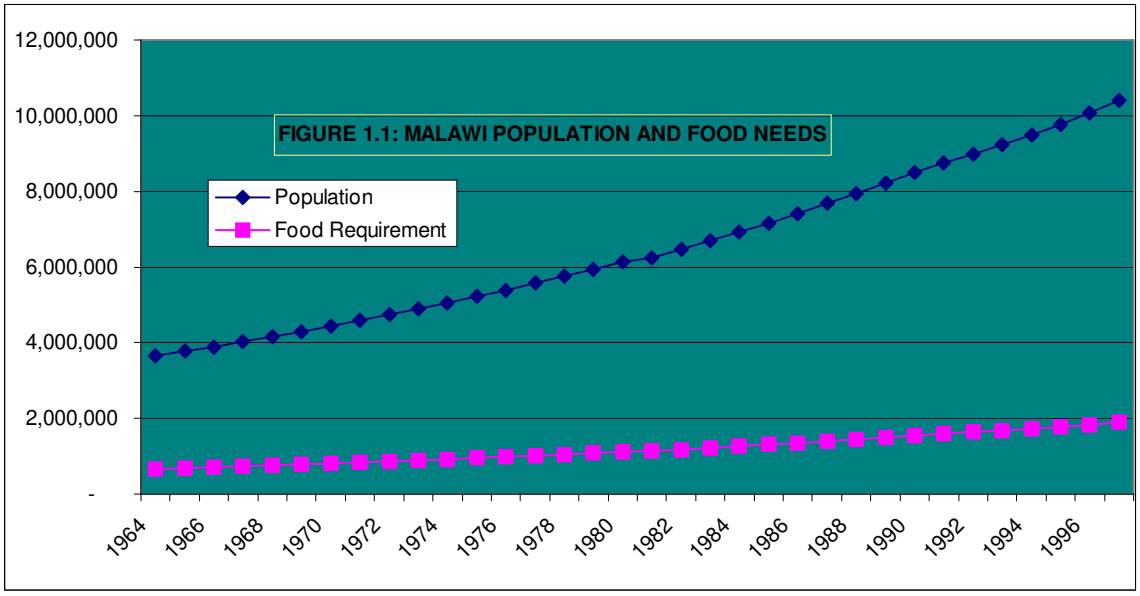
Chapter 1:

POPULATION AND LAND

Population

During the 33 year period from 1964 to 1997, Malawi food requirement more than trebled from a mere 0.6 million tonnes of cereal to some 1.9 million per year, as a result of a surge in population from 3.6 million and 10.4 million. See Figure 1.1.

Escalating land pressures can be discerned from the fact that the national average density of approximately 87 people per square kilometre was recorded in 1987, more than double the national average density of only 41 in 1964. Population density has since worsened to 118 in 1997. That means in 33 years there were 288 people occupying a space previously assigned to 100 people.



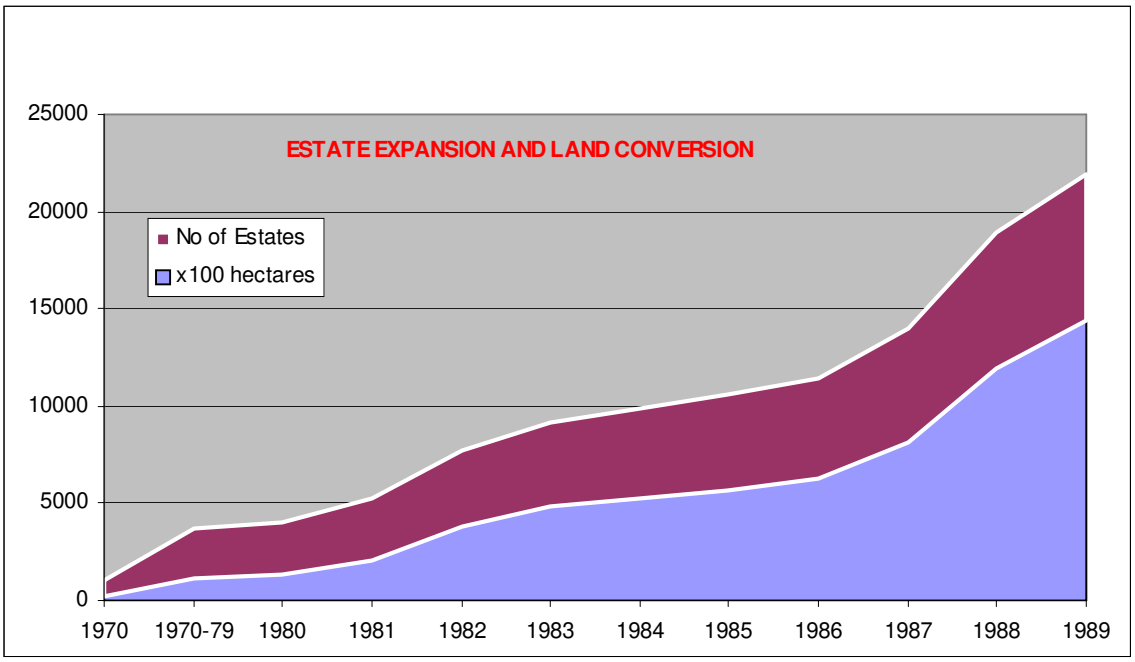
The implications for population pressure on agricultural activity are more serious considering that only 54% of the land is Malawi is arable. The above population trends translate to 171 people per square kilometre of arable land (NSO, 1987). This has since worsened to 231 people per hectare of arable land in 1997.

The above averages conceal sharp differences in population pressures on land by region. The Southern Region has the highest population density ranging between 230 and 460 people per square kilometre of arable land, varying from district to district. That produces very extreme levels of concentration when population is calculated against available arable land.

Land

Although Malawi has a land area of approximately 9.4 million hectares[9] the three categories of land tenure confine smallholder production to declining pockets of customary land. This is occupied or used under customary law and excludes all public and private land. [10] This type of land has been consistently on the decline as government legislated its transfer at a very low cost to leasehold tile for purposes of promoting tobacco production.

Within a period of less than twenty years there has been a 900% increase in leasehold land from 79,000 hectares in 1970 to 759,400 hectares in 1989. It is also estimated that estate land had risen to 1,000,000 hectares by 1997, comprising more than 10 per cent of total land (Ng'ong'ola et al., 1997a).



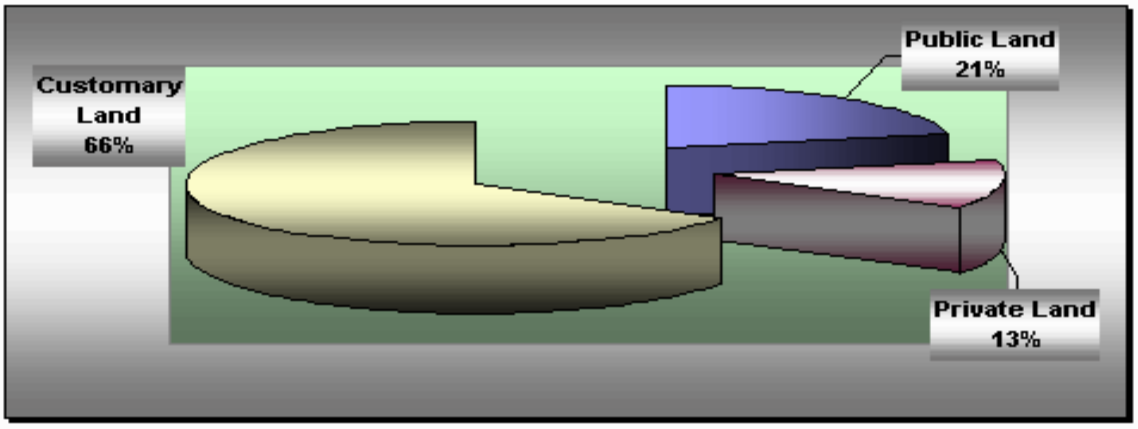
The implications of land haemorrhage have been to worsen population concentration on land as Malawi population nearly doubled from 4.4 million to 8.2 million. Meanwhile customary land shrunk from 8.1 million ha to 7.1 million ha (see also appendix 2).

The population pressure among households has been evident as the land losses were mostly in arable land for food production. From 85% of total land area in 1967 customary land dropped to only 66%

[9] 94 million hectares is distributed as follows: 28% is in the northern region, 38% is in the central region, while the remaining 34% is in the Southern Region

[10] Public land is land that is used, occupied, or acquired by government and also any land that is not customary or held under freehold or leasehold title. Public land consists mainly of forest and wildlife reserves and any other public places.

of total land area in 1997. Ten years later, Malawi population, expanded to 10.4 million, with more serious implications for the fact that 85% of the people live in rural establishments where land entitlement and use is determined under customary tenure. One implication of this trend has been escalating pressures for land to meet of food production.



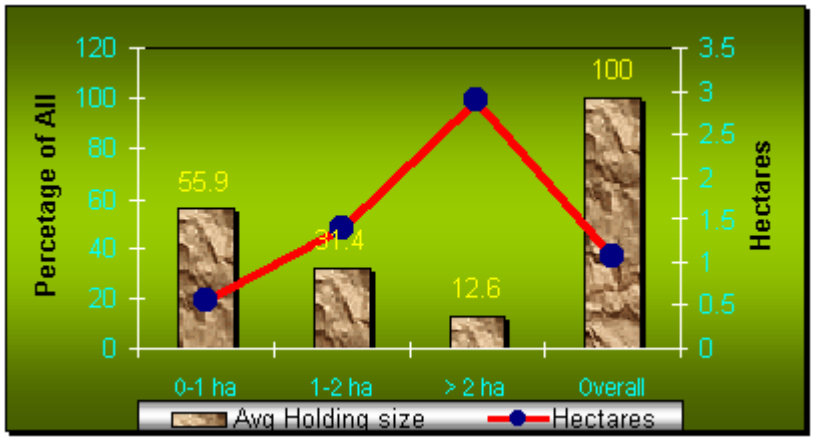
Source: Ministry of Agriculture and Irrigation (1997

During the land use studies conducted using satellite imagery it was realised that land under agriculture had increased from 2,064,600 ha in 1965/67 to 3,026,400 ha in 1971/76. Land under cultivation was determined at 4,540,000 ha in 1989/90. However, the Commission inquiry on Land established in 1997 that of the 6.2 million ha of customary land, only 4,100,000 were classified as suitable Customary land while 2,100,000 was not.

These trends have implications for land holdings for food production purposes. The final outcome has been fragmentation of land holdings to rise to levels where, land under traditional management levels have been reduced to land parcels that cannot produce enough food for households.

Bunderson and Hayes (1995) established that by 1987/88, 56% of all smallholders in Malawi cultivated less than one hectare of land, 31 % had 1 to 2 hectares, and only 13% had more than 2 hectares. BDPA (1997) later established that in 1996/97 cultivated land was 0.86 ha per holding a further decrease of about 22% over the previous ten-year period.

Average holding size by household



Source: Ministry of Agriculture 1988. (Bunderson and Hayes, 1995)

UNICEF (1993) also established that land pressures had forced smallholders to undertake continuous cropping, often of cereal monocultures dominated by maize (grown on 75% of total land area) without rotations or fallow. The rising incidence of bad land use practices has also caused several forms of land degradation, of which soil erosion ranks as the most serious environmental problem (DREA, 1994).

Environmental Implications

Despite the 94 million ha of land, the principal limitations in Malawi is that land available for sustainable agricultural production is only 32% of the total land area for rain-fed cultivation at traditional management. However, Green and Nanthambwe (1992) established that as much as 48% of the land was under cultivation by 1989/90. This meant that 16% of cultivation was taking place in marginal, unsuitable and environmentally fragile areas like steep slopes, dambos and stream banks often with no conservation measures.

Further agriculture growth is now expanding into the woodlands that once dominated most of the plateau zone. Agricultural crops have replaced forests that were once common while broad grass-covered dambos have been either overgrazed or cultivated and are left bare without grass.

Silt loads in surface water run-off has also led to significant problems in downstream water quality, such as increased suspended solids, biochemical pollution and water treatment costs, decreased hydroelectric power generation capacity, water flow problems and siltation of ports.

Although trends in soil loss for Malawi are difficult to determine, proximal indicators point to the conclusion that the rate of soil loss is on the increase, considering the increased sediment loads of the rivers and reservoirs. This is because the common land preparation method among smallholders in is the annual construction of ridges of about 90 cm apart, a practice that involves shifting soil at the same depth annually. Under conditions of low inputs and continuous cultivation this practice creates a hard pan at shallow depth leaving the topsoil prone to erosion. Structure

Besides wood harvesting for fuel wood, land clearing for agriculture is one of the main contributors of deforestation in Malawi. Mwandira, (1997) established that tobacco curing is another cause of deforestation and the estate sector alone consumes an estimated 84,826 m3 of wood for tobacco curing annually.

Since the liberalisation of tobacco in 1994, the number of farmers growing tobacco has increased tremendously as manifested by the number of registered burley clubs, from 1,318 clubs in 1994 to 19,014 clubs in 1997 (SADP, 1997). The production of flue-cured tobacco has exacerbated this situation.

Chapter 2:

AGRICULTURAL PRODUCTION

Production Capacity

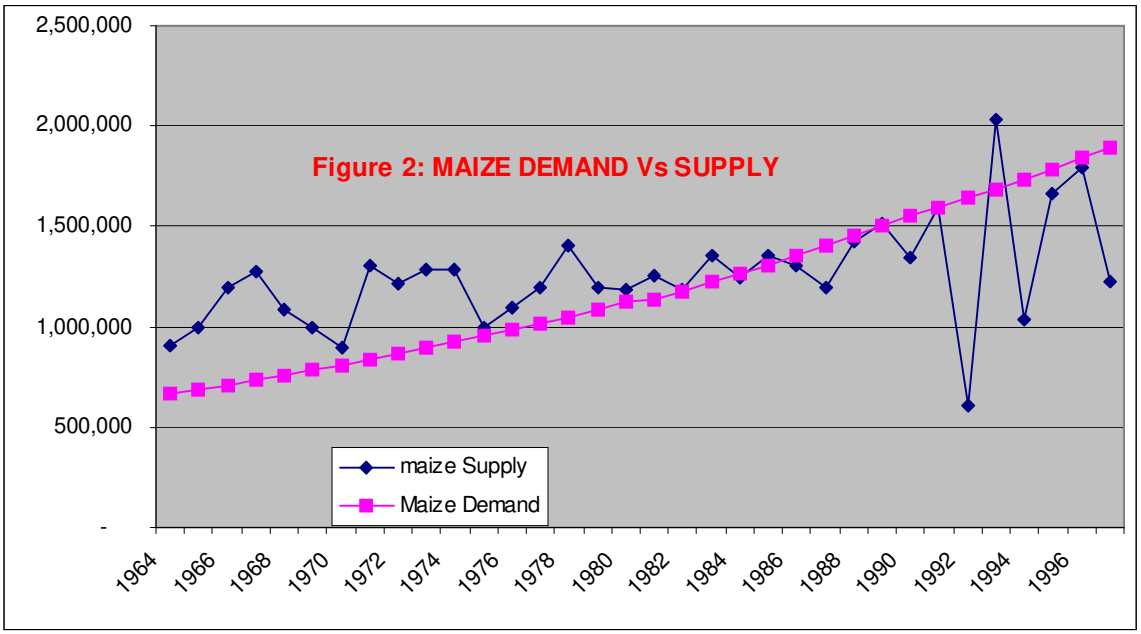
Stoddard *et al.* (1975) uses a concept that links land availability and productivity to study demands for food for a given population. Known as the Carrying Capacity of Land, the concept is applied to the management of rangeland regions of the world and especially to pastoral systems in Africa where livestock are primarily dependent on grazing resources for feed supply. The Carrying Capacity of Land concept, more than in other disciplines, has provided a planning and management tool, which has formed the basis of many proposed development interventions, designed to ensure the continued sustainable exploitation of these rangeland ecosystems in the context of determining the maximum size of herd that a given piece of land can sustain.

This study borrows the concept to determine the maximum population that agricultural land can support on a sustainable basis. The principle is also applied to determine at what point the population expansion exceeded the capacity of land to produce enough food to feed the nation. This defines the maximum population size that would be sustained by food produced from Malawi land, without engaging in intensive cropping or food imports.

Table 2 below suggests that Malawi's food security entered a critical phase during the period from 1984 to 1986. The convergence between food demand and supply during the period suggests that population had stretched the ability of land to naturally produce food to the full limit.

The short convergence also suggests that food security was highly vulnerable The simulation shows that 6.9 million was the break-even population for Malawi and that the possibility of carry over food stocks diminished and became eliminated as a result of demand pressures utilising all available food produced locally.

Table 2 also suggests that during the last fourteen years since 1988 Malawi has become increasingly trapped in a food deficit, the main features of which include rising population, generating food demands way above the capacity of the country to produce. The key explanatory factors include declining land quality, low fertiliser uptake, the crowding out of land by estate production of tobacco, and further crowding out of food production within customary land as smallholder farmers dedicate rising proportions of their land to burley tobacco production.



Evidently, since 1988, Malawi has become a regular importer of maize to fill the food gap on a yearly basis. From imports of only $2 million in 1988 the cost of maize imports has risen to nearly $80 million. Given the bulky nature of maize, and the landlocked position of Malawi, freight alone costs more than the maize imported.

From 1974/75 when food aid was unheard of in Malawi, the country was receiving 175, 000 tonnes of food aid in 1989/90, of which 115, 000 tonnes were imported cereals.

Maize imports of $46 million in 1995 cost some $30 million to ship into the country. Furthermore, maize imports which cost as much as $188 million between 1994 and 1996 included $65 million as the cost of shipment. This represents 34% of the landed cost.

Figure 2.2, below suggests that while high costs of petroleum imports have been a major cause of concern for Malawi since the late 1970's, maize imports have actually taken over as a major burden on balance of payments. In 1995 and 1996, maize imports cost twice as much the cost of importing petroleum products.

In terms of balance of payments ranking, maize imports constitute the second largest item after debt service if account is not taken for raw material imports and other consumer goods.

These developments have also been reflected in an escalating food price index (see Figure 2.2).

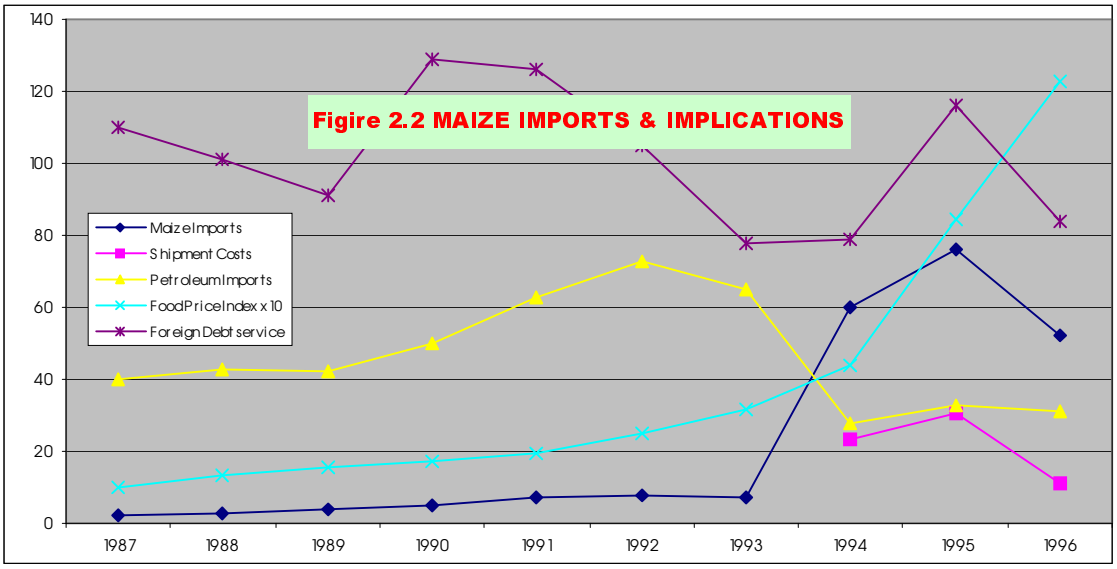


Figure 2,2 above shows that the index of food prices in Malawi has risen from a base of 100 in 1987 to more than 1,226 in 1996. That mean in 1996 maize cost was 1126% higher than ten years earlier, and that food prices have been rising at a rate of not less than 110% per annum.

If the study period is split, these figures show that average food price inflation has advanced at the rate of 34.9% since 1990, ahead of average annual inflation of 21.1% between 1985-89. That also makes Malawi a country with the second highest food price escalation in the entire African continent after Zambia.

Productivity

Studies of agricultural practices in Malawi suggest that most farmers do not adhere to methods that will promote healthy growth of crops. Crop management failures include late land preparation, late planting, poor weed control, limited or non-use of organic or inorganic fertilizers and poor plant populations. In most farms, ground cover is generally too poor to protect the soil from rainfall-induced erosion. The practice of soil and water conservation technologies is very poor and the adoption rate for most land husbandry technologies is also very low.

While ridging is a common practice, most ridges are not made on the contour as recommended. It is estimated that only about 12% of the cultivated land has ridges on contour exposing the rest to massive soil erosion. Most low lying areas of lower shire valley and the lakeshore plain actually does not practice ridging (Amphlett, 1986). Limited availability of land means that farmers cannot practice crop rotation or leave the land fallow so it can recover productivity. Few farmers are also aware that the crop residue remaining after harvest is a very valuable resource as a source of organic material for

incorporation into the soil for maintenance of soil fertility and structure, but also assist in soil erosion control and water conservation.

This study undertook a regional comparison of productivity in maize to determine how Malawi compares with other countries with regards to maize output per hectare.

The results, summarised in Table 2.1, shows that South Africa is producing 51% more maize per hectare than Malawi while Zambia and Zimbabwe also surpass Malawi by 36% and 20%, respectively. Tanzania also shows a higher productivity by 19% above Malawi while Mozambique is the only country with only 48% the productivity of Malawi.

Table 2.1 NATIONAL PRODUCTIVITY IN MAIZE

Average	Kgs per hectare						Year
	Malawi	Zambia	Zimbabwe	Mozambique	Tanzania	RSA	
1,528	1,170	2,690	1,810	320	1,260	1,920	1988
1,635	1,190	1,810	1,710	330	1,580	3,190	1989
1,435	1,000	1,430	1,720	450	1,500	2,510	1990
1,428	1,140	1,710	1,440	320	1,260	2,700	1991
635	450	730	410	160	1,170	890	1992
1,638	1,520	2,520	1,630	630	1,250	2,280	1993
1,463	920	1,500	1,660	520	1,330	2,850	1994
1,157	1,350	1,420	600	640	1,550	1,380	1995
1,745	1,440	2,090	1,700	940	1,600	2,700	1996
1,385	990	1,610	1,340	1,000	1,220	2,150	1997
-	-	-	-	-	-	-	
Average	1117.00	1751.00	1402.00	531.00	1372.00	2257.00	

Except in 1995 when Malawi has a maize productivity 17% above the annual average for the region, throughout the period from 1988 to 1997, Malawi produces 25% less than the annual average.

A time series trend also shows that by 1997, productivity was only 84% of that recorded in 1988 (See Appendix 3). The data also shows Malawi's vulnerability to drought as the yield per hectare had declined by as much as 63% during 1992 as a result of low rainfall alone, despite fertiliser.

Using the data at Appendix 4, this study also finds that productivity has a far more overriding influence on maize output than the total acreage under maize. The study found a correlation of 0.99 between national maize output and output per hectare. Invariably, national maize output and total land under maize showed a correlation of –0.12.

These results suggest that productivity has greater multiple influences over maize output than the amount of land actually claimed for maize cultivation. The results also suggest that increased land coverage merely extends farming into marginal lands of such low productivity that net output may actually fall, taking into account the extra cost of labour and seed.

These results are consistent with the land resources appraisal results undertaken by Green and Nanthambwe (1992). Based on the FAO land suitability assessment methodology, under unimproved rain-fed traditional agricultural management they found that only 8% of the land area is good quality land, 24% is moderate quality land, 31% is marginal land and the remaining 37% is unsuitable land.

Input Uptake

A key characteristic of soil quality in Malawi is the inherently low level of nitrogen, a very important nutrient to plants. The study by Green and Nanthambwe reveals that most areas have light to medium soil textures and are liable to leach of nutrients to below the rooting zone especially when there is intense rainfall.

Productivity is further undermined by the fact that continuous cropping does not give enough time for replenishment of soil fertility. This has led to soil exhaustion in many parts of the country. This has increased the critical importance of inputs such as fertilisers as well as organic matter to give temporary sustenance to productive capacity of the soil.

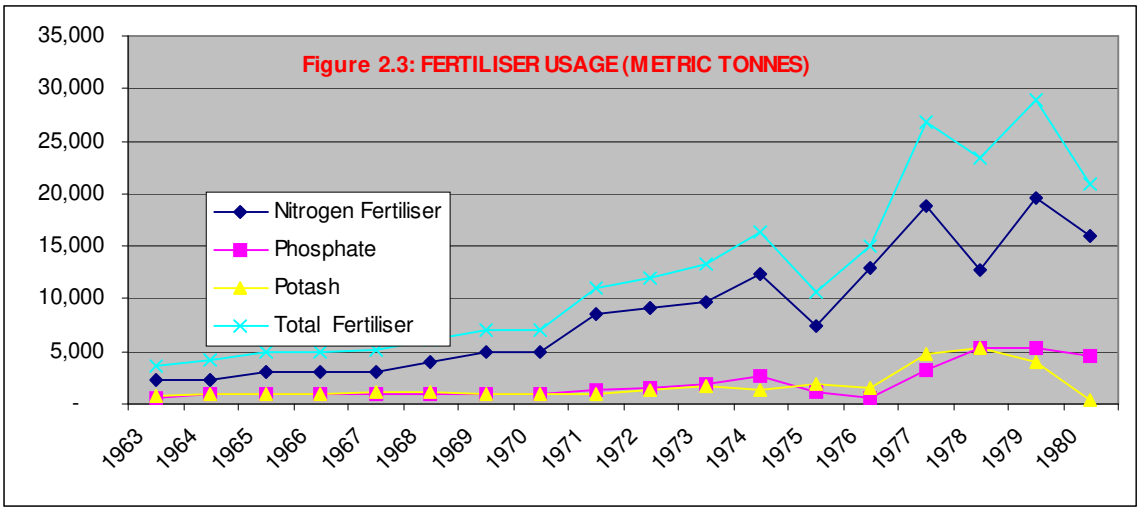
In the last eight years, high cost of fertiliser (see Appendix 5) has resulted in a major reduction in fertiliser uptake at farm level. During the ten years from 1990 to 2000, average fertiliser prices have risen from only K29 per 50kg bag to over K1, 200. This has resulted from elimination of subsidies and also the effects of currency devaluation. [11]

The use of organic matter is also very low as most land use practices destroy the crop residues. Animal manure application is also limited by under developed livestock farming at village level.

Figure 2.3 above shows that despite continued land availability and relatively low levels of population Malawi agriculture maintained a steady increase in the volume of fertiliser applied during 1960-70. More particularly, Nitrogen fertiliser was in greater use especially for maize production while the use of phosphate was more predominant in tobacco production.

[11] World Bank has admitted that forcing subsidy removal while Kwacha was devaluing was a mistake. See World Bank (1998) *Country Assistance Strategy,* Report No. 18349-MAI, August 4, World Bank, Washington D.C

However, Table 2.2, below shows that although fertiliser application is critical to agricultural production in view of declining soil quality, the rise in fertiliser usage does not seem to have been reflected in corresponding growth in maize output during the 1970-80 period when maize output only rose from 907, 000 tonnes to 1,186,000 tonnes.



There seems to be three different explanations for this trend; first is the possibility that fertiliser uptake merely concealed the dead weight of poor agricultural practices, soil erosion and the fact that agricultural activity had spilled into barren lands.

Secondly, it is possible that increased subsidization may have resulted in massive leakage of fertiliser to non food production, possibly small estates as leasehold land holding had shrunk from 345 ha to only 54 hectares. Some of estates were practically renamed household land parcels merely producing tobacco on land earmarked for food.

Thirdly, it is possible that there was another factor at work, most probably rainfall or weather patterns to which maize output showed very high sensitivity. The fact that maize alone constituted 70 –76% of agricultural land, and that maize is sensitive to rainfall may explain the high magnitude of losses incurred during 1992 and 1994.

Curiously, fertiliser usage continued to rise during 1990-1994 from 54, 800 tonnes to 86,000, without a corresponding rise in output. In fact a rise in fertiliser usage from 73,800 tonnes in 1993 to 86,000 tonnes in 1994, resulted in a drop in output by more than 50% due to the drought. However, despite the drop in fertiliser usage by more than 50% as well as reduction in acreage under maize in 1995, maize output rebounded due to favourable weather conditions in Malawi.

These observations suggest that in considering policy options for increased maize production in Malawi it is crucial that irrigation is considered as an essential component to improvements in agronomic practises and increased fertiliser intake at farm level. In the context of Malawi, improvement in crop management practices remains a very important challenge as well as increased use of high yielding seed, increased fertiliser uptake and development of village level irrigation.

Table 2.2:

FERTILISER USAGE/MAIZE (tonnes)

	Nitrogen	Phosphate	Potash	Total	Land on Maize ha	Maize
1990	30,300	18,000	6,500	54,800	1,217	1,343,000
1991	30,000	13,000	5,000	48,000	1,269	1,589,000
1992	46,000	16,000	8,000	70,000	1,343	612,000
1993	51,800	14,000	8,000	73,800	1,394	2,034,000
1994	60,000	21,000	5,000	86,000	1,360	1,040,000
1995	23,721	8,302	1,977	34,000	1,338	1,661,000

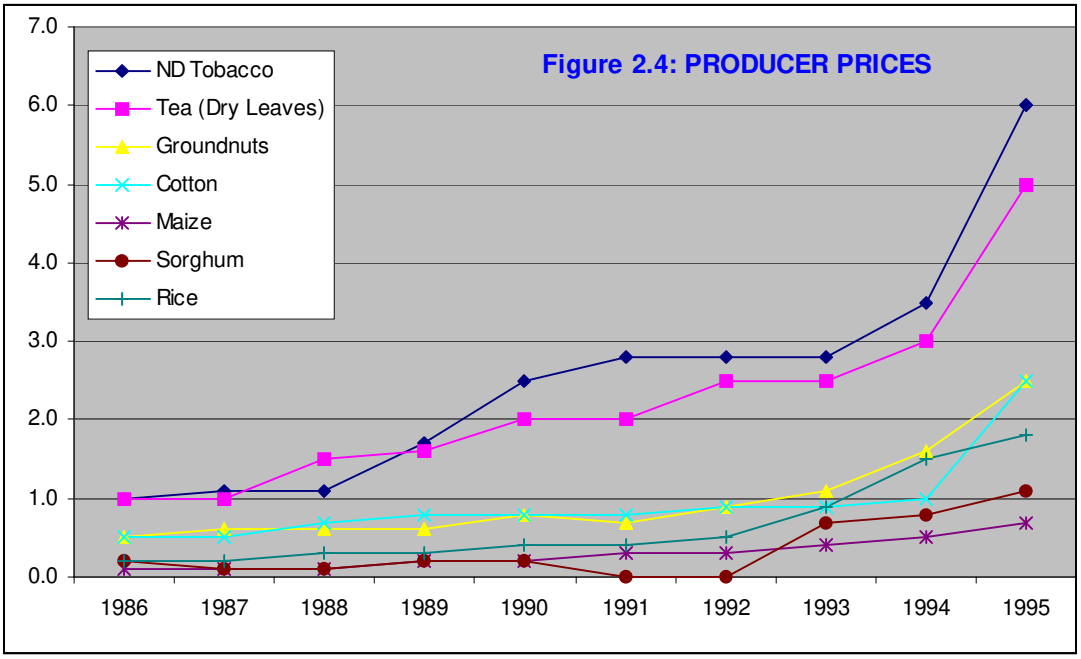
Theoretically, therefore, the concept of Fixed Carrying Capacity of Land can be challenged because it is possible to achieve high volumes of maize production economically outside the natural limits of land resources. It can be hypothesised that the limits on available land and its primary productivity do not restrict potential national food security in Malawi. In the context of this hypothesised concept it ca be argued that technological advancement has the ability to allow expansion in the Carrying Capacity of Land in Malawi.

A very crucial observation on land use in Malawi remains the low levels of land utilisation among estates when smallholder farmers desperately needed land to produce enough maize to feed the country. The answer seems to arise from the fact that tobacco sales at the auction floors were determined on the basis of a quota, which, given the suitability of most central region soils to tobacco production most estate farmers would achieve without utilising half of their land.

In Kasungu alone land utilisation among estates was estimated at 45% (Ng'ong'ola, 1993). The World Bank had also established that throughout Malawi only 24 % of estate land was utilised. Ng'ong'ola et al. (1997b) also found an utilisation rate of only 24.5% among maize producing estates in the country.

Although some of this land could have been used to produce maize for the market the fact that ADMARC was the only designated buyer and prices were very slow may have served as a disincentive.

Figure 2.4 below shows that for ten years maize was the least priced crop in Malawi. Maize sold at only 10 tambala per kilo between 1986 and 1988. Despite rising inflation maize prices remained relatively stagnant rising to 50 tambala in 1994. Figure 2.4 also shows that groundnuts cotton sorghum and rice enjoyed more favourable prices despite limitations on export. In real terms actually maize prices declined over the period when fertiliser process were already rising.



It is also plausible to expect that land rents were too low to compel a farmer to put land to productive use. At K30 per hectare for most of the 1980's, revenues from three hectares of northern division tobacco was enough to pay for 100 acres of idle land. When land rental was revised to K50 per hectare tobacco prices had in fact advanced so much that revenue from two hectares would cover rental for 100 acres.

The amount of land and extent of utilization in each tenure type is a matter of intense debate at present. However, the Estate Land Utilisation Study (1997) estimated land under private estate at l. l million hectares. That might mean no less than half a million hectares were idle is some two thirds of the land converted from customary ownership.

The Public Land Utilisation Study revealed that land under public tenure stands at 1.8 million hectares and land under customary tenure is estimated at 6.2 million hectares, according to the Customary Land Utilisation Study (BDPA, 1997).

Chapter 3:

POLICY ANALYSIS: AGRICULTURAL PRODUCTION

Agricultural Strategy

The fact that Malawi is a predominantly rural country, and that an overwhelming majority of households depend on agriculture suggests that any agricultural development strategy must be consistent with a program of rural development. However, since at independence the agricultural sector was sharply divided into a small "estate" sector and a much larger smallholder sector the main challenge seems to have been in the task of generating synergy between the two sub-sectors in the pursuit of the common goal of agricultural development.

It is doubtful whether this could be achieved by legislating customary land conversion to leasehold land tenure by commercially oriented smallholders, who were then classified as 'estates' and could grow tobacco. Interestingly, this meant that a few privileged Malawians joined commercially oriented estate sector was largely expatriate controlled and responsible for most of the country's exports while the smallholder sector was subsistence oriented.

This strategy was conceived in the belief that since ordinary workers employed by the estates would acquire technological knowledge to apply to their own farms. The strategy also perceived that farmers would produce their own food and depend on employment income from estates. In that way, it was considered unnecessary for household to engage in farming beyond producing their own food.

As it turned out, the government seems to have been too optimistic about technological cross fertilisation because estate incomes were too low and since the tobacco producers were mostly glorified smallholders or civil servants the estates were not well equipped or managed to set the desired examples. Estate agriculture failed both to provide relief to pressures on land as well as spark an agrarian revolution. In fact the dichotomy between estates and smallholder was a breeding ground for conflicts over land, labour and even markets from which estates emerged the winners at the expense of alleviating poverty (Mkandawire, 1999).

Estates had the further advantage of access to cheap finance collateralised by land merely acquired from smallholders. The government also openly directed credit to estates on the basis of predetermined quotas on bank lending which was also provided at low interest rates as a result of government policy of financial repression. Estates also enjoyed a favourable tax regime with a land

tax of only 10 Kwacha per hectare which remained static until the 1980s when it was raised it was to 30 Kwacha per hectare, but still not representative of the market rental.

Changing Fortunes

The strategy of generating an agricultural surplus as the prime support for development was generally accepted as working well as the Malawi economy grew at an average of about 5.5 percent per annum between 1965-80. This was largely driven by growth of 4.1 percent in agriculture, especially the development of new tobacco estates. Agricultural growth also gave impetus to industry and the service sector, which grew at 6.4% and 6.7% per annum, respectively during the same period.

However, starting in the late 1970s, performance deteriorated sharply as adverse price movements, especially for oil, caused a sharp decline in the terms of trade. This was followed by the civil war in Mozambique, which closed Malawi's direct outlets to the sea (sharply increasing transport costs) and resulted in a mass influx in refugees later in the decade. Agricultural growth also fell to about 2.5 percent per annum in the 1980s - less than the population growth rate - with particularly poor performance in the smallholder sector.

The economic outcome was worsened by the fact that the smallholder sector that consisted of nearly 2 million farm families had been marginalized and did not have the capacity to resuscitate the economy as an alternative engine for growth. The smallholder sector had been assigned a subsistence role producing 80 per cent of the country's food, but only 10 per cent of total exports. Invariably, 60 per cent of the country's workforce depended on deficient incomes generated by the small holder.

The overall stagnation in smallholder production is still attributed to reduced access to key productive inputs such as land (Mkandawire, 1999). Production stagnated because the smallholders could not adopt land productivity enhancing technologies such as hybrid maize and fertilisers, which required resources. In fact, their high concentrated in maize production, is largely for self-consumption and whatever they produced was not tradable internationally.

Donor Involvement

It is surprising that while government maintained its obsession with the estate sector the World Bank was concentrated in supporting smallholder production starting with the area-based, integrated rural development projects in 1960s and later switching to a less capital-intensive approach, under the

umbrella of the National Rural Development Program, in 1970's which placed greater emphasis on agricultural extension.

The fact that the World Bank later moved toward sectoral operations in extension, agricultural research, and smallholder credit would seem to suggest that Malawi did not have a long term plan for development of agriculture. The role of the World Bank was later defined by a series of structural adjustment credits with significant agriculture-related conditionality that were made following the balance of payments crisis in the late 1970s.

The conditionality primarily consisted of modifications to the price setting system and improvements to the efficiency and fiscal position of the major marketing parastatal. The Fourth (Agricultural) credit included the provision of tobacco production licenses to smallholders. The principal objective of the investment operations was to increase smallholder production, but the response to the production packages being promoted was poor.

A common excuse of the World Bank is always that Dr Banda had placed top priority in the smallholder sector on self-sufficiency through maize production as opposed to income generation. His overall development strategy was to develop an agricultural surplus. He dominated the economy, and shaped the direction of external assistance and there was nothing they could do to surpass the Minister of Agriculture.

New Strategy

This led to the government producing a new agricultural strategy in 1994. Previous restrictions on smallholder tobacco production and on trade were lifted, and the authoritarian approach relaxed. This was in recognition of the fact that low prices for smallholder products had been a key element of Dr Banda's flawed strategy.

Available data indicated that, notwithstanding the increased climatic variability, sectoral growth rebounded, to over 5 percent per year, and there had been a significant shift to tobacco and from maize to other food crops, particularly roots and legumes. Cross-border trade was also increasing, especially with Mozambique, where the population/land ratios sharply contrast with those in Malawi.

However, there is considerable debate over the extent and implications of these changes, which current data sources do not clarify. For example, there is considerable disagreement over why

farmers are shifting to root crops and whether they are desirable from the soil -fertility and nutritional points of view, even though they do reduce climatic risk and spread labour requirements. While value added per hectare has increased, poverty remains pervasive and malnutrition is widespread. Also it remains clear that agricultural programs are having limited impact on the rural poor, especially female-headed households, which comprise about 30 percent of the total.

There is some degree of consistency in that current World Bank operations support the government strategy, with major emphases on improving and broadening the research and extension effort and strengthening financial services to small-scale producers and related businesses and on attempting to target a range of efforts toward the poor (Starter pack). There is also a high degree of donor coordination as the World Bank is assisting in work on land and soil fertility issues with other donors and in other activities particularly targeting the rural poor and female headed households.

A new approach to the sector is exemplified in the new Country Assistance Strategy drawn out by the Government and the World Bank which recognizes that the key to overall growth in the economy will be the expansion of smallholder agriculture and its related activities in transport, marketing, and other off-farm processing and services. The principal future operation is to be a Sector Investment Program. In addition, flexible lending instruments, such as Learning and Innovation Loans, are envisaged for operations addressing the natural resource management and land problems.

Chapter 4

POLICY ANALYSIS: AGRICULTURAL MARKETING

Produce Marketing

As well as reforming agriculture production, Malawi has since the late 1980's initiated policy changes to reform agricultural marketing systems. Initially, government allowed licensed private traders to enter rural markets to buy produce for sale within or outside Malawi. This was aided by withdrawal of ADMARC from certain markets, thus reducing their areas of operation.

The initial reforms produced very little in the form of private response because traders still had to be licensed to operate in designated areas. Private traders were also permitted in markets from which ADMARC had pulled out and most such markets did not meet standards for profitable participation.

Government had also persisted with requirements for export licensing for agriculture commodities especially for the main staple maize and groundnuts. Private participation in the tobacco market was also limited because smallholder production, which was still subject to quota arrangements, produced very little; while estate producers had ready access to export markets via the auction floors.

The absence of liberal pre-export financing in an environment of highly collateralised lending also meant that produce trading was a preserve of businesses with a strong asset base. In effect, that inhibited rural based private traders, who were perceived to have local knowledge of the markets, and were expected to promote reticulation of produce among the fragmented markets.

Given the alternative avenues of business for centralised urban-based traders and adversity to risk, involvement in private trading was a sideline on which they could not deploy more resources. Instead, these businesses relied upon the rural traders to bring produce to their warehouses.

In addition to these problems, strict requirements for export receipts to be repatriated to Malawi within 90 days of export proceeds also restricted the flexibility of Malawi traders in combining price and delivery terms with attractive delayed terms of payment.

On its part, ADMARC too has become financially constrained to be able to undertake its produce marketing activities with the same vigour as before. Fiscal limitations on the part of government have constrained the scope fro subvention while prudential lending limits from banks prevent the institution from obtaining adequate financing on its own.

The experience in Malawi is in contrast to Ghana and Benin where marketing boards for cereals still exist, but their share of the market is very minimal because the private sector has taken over most of the marketing activities of cereals. The marketing boards in these countries have reduced their activities to holding buffer stocks or strategic reserves and insuring food security in periods of shortage.

In Malawi private trading remains an informal activity, while the marketing board, ADMARC still absorbs a lion share of the official maize market. Private traders find themselves competing with a giant that dominates in terms of distribution networks, storage and transportation infrastructure and financial facilities, but is not prepared to offer a better price to the farmer.

In Senegal, on the other hand, the trade marketing board for rice has been completely dismantled and the rice market (whether imported or domestic) is now operating fully and successfully in the hands of the private sector, without any need for government intervention.

Input Sectors

Historically, fertilizers, seeds and agro-chemicals were more heavily controlled by Malawi government parastatals than cereal trading and distribution. However, input markets were liberalized after many years of heavy subsidization by the state. The SFFRFM is the main importer of fertilizer into the country.[12]

Official seed distribution is also heavily controlled by State Enterprises, although a parallel private sector seed market has emerged. There are usual complaints about low quality of seed and inadequate development of the legal framework for producing and distributing certified seeds.

Thus, although a lot of private traders have entered agricultural input and output markets, expansion of area coverage and quantity traded has been very limited. Traders are not able to go much beyond entry into large-scale trading either in terms of geographical or volume expansion. Traders are often limited by unavailability of credit, limited storage and transportation facilities, and various restrictions by existing organizations or parastatals.

Constraints to Private Involvement

Malawi specifically suffers very poorly developed transportation and communication infrastructure, which limits long-distance trading, movement of information, and overall market efficiency. Many

[12] The same as SENCHIM is the major player in fertilizer production and distribution Senegal. In Benin, the marketing board, SONAPRA still regulates the entry and activities of private fertilizer companies

remote areas and regions remain isolated from the rest of the country and become almost self-sustaining entities. Transport costs in most parts of the country constitute up to 50 percent of total operating costs and need to be reduced to promote inter and intra-country trade and better integration of markets. More investments in roads, rail, port infrastructure, and telecommunications networks (telephone and fax networks, internet access, etc.) are needed between and within countries to facilitate trade and access to market information.

Use of storage facilities is not very common and traders store very small quantities. The limited propensity to store stems from the uncertainties regarding movement of prices and government interference, unavailability of storage infrastructure, lack of access to credit, inefficient knowledge about storage technologies, limited area coverage, etc.

Beyond the commitment to policies that provide an incentive to store, the government and the private sector need to invest in storage and market infrastructure and provide extension services to teach farmers and traders about storage technology.

Access to formal credit remains a pervasive in Malawi. Not many rural credit and financial organizations have emerged to replace previously subsidized credit from the Smallholder Agricultural Credit Administration (SACA) run by the government. Credit availability is biased to large export producers and trading companies and is not readily available to small-scale farmers or traders. Additionally, access to credit is limited due to high interest rates, lack of collateral, complex administrative procedures, and the short-term nature of the loans. Most traders that use credit obtain it from relatives, friends or moneylenders.

The maize price band operated in Malawi also seems to have features of a fixed price. The price band is a disincentive for private traders to conduct trading over longer distances or to store maize for later sale in leaner periods. Similarly, the ban of export trade in maize poses a constraint to traders seeking to adjust more quickly to changes in prices and supply and demand conditions within and between countries.

The task of developing a market information system that traders can use for their business is still in its infancy and not well targeted to the business sector. It is currently serving the needs of donor organizations and government statistical offices for data analysis and compilation of consumer price indices. Malawi needs to invest more towards developing market information networks that are accessible to the business community.

It is plausible to expect that the extent to which private traders may be expected to respond with their own investment would rise with the quality of infrastructure provided by government. This is a

very important guarantee for more integration across local markets considering the thinness of localised markets, which is an obstacle to the transition process.

Local Market Development

One important observation of most markets in Malawi is the continuous decline of real local producer prices. This would partly be attributed to limited trader involvement weakening demand. It is inevitable that during the transition from a centrally controlled marketing and pricing system to a decentralized private sector based system of distribution; prices in local markets in Malawi have to reflect local supply and demand conditions.

The rigidities in the distribution system are such that pockets of high demand in urban areas cannot be reflected at local price levels for the benefit of the producer. Prices have also tended to exhibit temporal patterns in line with the cost of carrying large supply quantities over time in an area where demand was weak or vice versa despite different levels of demand and supply only a short distance away. This is all a consequence of weak produce mobility.

A key motivation behind the adoption of market reform programs is that the decentralized mode of operation of a private-sector based marketing system is more flexible and therefore responds better to changes in market conditions than under the usually centralized system of marketing boards. In that way the expected improved response by private traders to changes in supply and demand conditions across local markets would lead to less instability as a more responsive flow of commodities would spread local price shocks to other markets more efficiently.

However, the results for Malawi appear to be very different. Price instability in local markets signals an upward trend after the introduction of reforms. It seems, however, that the higher levels of price instability in the post-reform era in Malawi are due to the series of droughts that occurred in that country during the first half of the nineties. If only the period between the introduction of reforms and the onset of the droughts is considered, one indeed observes a decline in market price variability.

The temporary decline in price instability between the onset of reforms and the drought years can hardly be directly attributed to the entry of private traders into the marketing system, knowing their activities cover on average a distance of merely 15 km. It is, however, possible that the changes in ADMARC's operations due to the increasing competition with private traders following the liberalization of markets have had a stabilizing effect on local prices.

Traders in Malawi also market at average costs that are higher due to poor infrastructure. The disparities in the performance of the transport sector are reflected in the unit costs of transport,

which are 14 times higher when compared to Benin. In Madagascar transport costs are only 3 times more than in Benin.

Chapter 5:

MANAGING THE TRANSITION

Production

The strategy adopted in Malawi was predicated on the assumption that increasing productivity for the basic staple (maize) would allow smallholders to produce their requirements on a smaller land area and free up a portion of their area for other crops for home use or sale. In practice this did not work because tobacco estates swallowed some of their land up.

Thus future emphasis would be more appropriately placed on land reform to increase land available to farming households. Mixed cropping (rather than sole cropping in maize) should be the norm, with food and cash crops either mixed on expanded land or interspaced within two seasons of the same year including a winter crop driven by irrigation.

Although continued population growth has reduced holding sizes among the country's rural poor it is possible to improve the viability of smallholdings through development of off-farm activities at the village level. Beef and milk production as well as poultry and production of mutton and goat meat have a proven profitability in Malawi where protein intake largely depends upon fish consumption.

The end of subsidization of fertilizer is still recalled as the "golden years" with fondness, but current prices of fertiliser should not cause concern if farmers become more productive than before and the industrial and service sectors regain their momentum to create jobs.

Extension support should continue to increase the focus on responsiveness to farmer priorities. A shift in emphasis to focus more on diversification and market-oriented production would also require a shift of focus in extension to make it more responsive to farmer priorities. This would imply a consolidation of the extension efforts to make more effective use of the below-strength staff, with the aim of increasing flexibility, to be able to respond to demands, rather than primarily disseminating a fixed set of messages.

Rural Development

Rather than focus on agricultural development, it is appropriate that government adopts a broad approach towards rural development from which a more facilitating environment for agricultural production would emerge. Improving the efficiency of markets and access to them through improvements in roads and reductions in operational cost of vehicles and greater access to financial services is key to these developments.

It is advisable that support for programs such as the MASAF, which increase resources available in rural areas should be increased to upgrade social and physical capital. This would enable the current agricultural changes to work themselves through and indicate priorities for technical support from the public sector as change continues and would imply working with several ministries besides Agriculture, such as Local Government, Commerce, Transport, and perhaps Education and Health.

The rural public works component of MASAF, especially of a labour-intensive kind should be seen as integral to the rural development strategy. The pervasiveness of rural poverty is at the root of the food security problem, hence a program that supports dispersed, small-scale public works, preferably of a labour-intensive kind and targeted at poor households, would serve the twin objectives of increasing the incomes of the rural poor and upgrading rural infrastructure and increasing accessibility to markets and employment opportunities especially in the dry season.

However, such efforts should be integrated into an overall safety net strategy, which has been absent in the past. While MASAF could have a significant role in such a program, it would be desirable to look to other means of managing works so as to avoid overwhelming MASAF's capacity.

Developing Markets

A very important determination for agricultural marketing in Malawi seems to revolve around the question of what will happen over the long term following the recent liberalization of agricultural and other markets, particularly the opening up of tobacco to smallholders. The success of the marketing system obviously depends upon successful linkages between the rural and the market economy.

This depends upon major improvements in primary, secondary and tertiary road connections, establishment of trading and storage infrastructure and improvements in transport. Given the low literacy levels and poor telecommunications in the country, it will also take the novelty of multifaceted connections between villages to towns and the ubiquitous flow of information to leverage the desired market developments.

Farmers will have become more market-oriented and less risk averse, and farm households should rely on markets more for their daily requirements while directing more of their production toward the market. It will take a lot of technological innovation to simplifying cropping practices to release labour for other more productive tasks at critical periods of the cropping year.

Even if labour bottlenecks emerge farmers should be able to resort to oxenization if returns from farming can provide the needed capital. This should overcome the problem of late land preparation as a result of the usual constraints with family labour.

What traders are looking for in Malawi are flexible facilities and an environment that helps improve the conditions for doing business, not a single-use facility that becomes obsolete and never comes again like the PTA Bank's export financing facility.

Continued market oriented diversification will also require the development of export markets. The participation of private sector organizations with links or an established presence in external markets will be essential if significant growth is to be achieved. In addition there may be prospects for additional processing in Malawi but if such investment is to be attracted, improvement of industrial infrastructure must be a short-term priority.

Malawi has a marketing system in a transitory situation characterized by a subdued ADMARC and a constrained private sector, with all the negative consequences for the existing gap. This is undermining the operation of local markets. The liberalization of agricultural markets has been partial and the transition to a private sector based marketing system is not yet complete. This is causing confusion because in the absence of robust private sector activity, the government still intervenes in many aspects of agricultural marketing.

Further progress in market reform will require not only further liberalization, but also a more concerted effort to go beyond the withdrawal of the public sector from agricultural marketing. While previous reform efforts led to government savings and a reduction in the budgetary burden of the state, progress in market reform will require both more costly investment and a partnership between the government and the private sector to promote the development of markets and the institutions that support them.

The maize price band operated in Malawi also seems to have features of a fixed price. It seems plausible that complete removal of these price interference mechanisms would promote more efficient participation of the private sector. The price band in Malawi is a disincentive for private traders to conduct trading over longer distances or to store maize for later sale in leaner periods. Similarly, the ban of export trade in maize poses a constraint to traders seeking to adjust more quickly to changes in prices and supply and demand conditions within and between countries.

It is essential that market information networks should include not only information on local prices and supply and demand conditions, but also information on trade and prices in neighbouring countries and international markets. This information will help reduce uncertainty about price movements and accelerate the response to changes in supply and demand conditions.

The absence of partial liberalization would have been the right environment to present private traders with greater opportunity and reinforce their confidence in the change in policy direction. The

survival of parts of the pre-reform ADMARC is more often than not a sign of insufficient commitment to the reform process. The process in such cases does not only lack consistency and credibility, but it also carries some of the same obstacles from the pre-reform period and often breeds new types of restriction to accompany the adopted policy changes.

CONCLUDING REMARKS

Lessons from Experience

The current food crisis is a culmination of 20-year-old land and population pressures in Malawi. It is also a reminder that not as many people have access to fertilizer and good seed as before. Malawi also seems to have entered a phase of irreversible climatic variability. Rising prices of maize reflect very tight conditions on the food market and also redefine the food problem as not one of production but lack of purchasing power among the majority of the population.

The current problem also reflects final exhaustion to all coping strategies for survival, worsened by the high incidence of HIV in the country. The Livestock sector, which bears the investment arsenal of the poor, has been decapitated to provide desperate resources for food.

The current problem also exposes the importation bottlenecks from which Malawi cannot extricate herself as well as the frailty of ADMARC as a reliable actor on the food market. ADMARC had intended to buy 120 000 tonnes of maize ended up getting 5 000 tonnes as a result of their late entry into the market. ADMARC price of K6/Kg was too slow and the adjustment to K12/Kilo came too late and after private traders had bought all the maize.

ADMARC practically delivered maize into the hands of the private traders who took advantage of the oligopolistic structure of the market and pushed the price to K35/Kg. The decision of ADMARC to raise their prices from K4/kg to K17/kg still left room for private traders to exhaust government maize suppliers, after which they traded in the range of K43/kg.

This would seem to suggest that Malawi is stuck in a highly vulnerable transition phase between parastatal regulation and full liberalization. Furthermore, the relationship between the parastatals and other actors does not seem to have reached the appropriate balance to achieve stability both in food prices and availability of supplies.

The food crisis also highlights weaknesses in government-donor coordination and also dissemination of public information. Partly, this is exemplified by the fact that the resident donors in Malawi ignored an early warning from the Ministry of Agriculture thus delaying the commandeering of food aid. Both Save the Children Fund – UK and the Malawi Economic Justice Network produced evidence of hunger, which was ignored until the media arrived on the scene. Humanitarian response

suffered while major donors (USAID, DFID, EU, Denmark) were preoccupied with issues of governance and economic management.

The crisis has also raised concerns about highhanded character of the donors dictating unsuitable programs and also rejecting well-considered government programmes like the starter pack. Institutions like the International Monetary Fund ought to be held accountable for advices proffered to poor country governments. The advice to sell off maize for mere purposes of redressing a cosmetic macroeconomic problem of financial skewedness was not justified in a year the country is facing starvation. The IMF has also advised government to sell maize in order to prop up maize prices from plummeting and acting as a disincentive to further production.

The rigidity of food habits in Malawi have obviously come under scrutiny as well as weaknesses in existing systems for forecasting non-maize foodstuffs (roots and tubers) by the Famine and Early Warning system. Concerns of rigidity also include difficulties extant to the process of maize importation. The slow pace of NFRA maize imports from South Africa bears testimony to regional constraints in responding to emergency food needs in Malawi.

Key to the entire food problem is the question of declining productivity. This addresses the problem of poor quality land, bad agricultural prices, low fertilizer uptake and inevitable consequences of climatic variability. Since 2000, production has plummeted from 2.5 million tonnes to 1.7 million and finally 1.4 million tonnes in 2002.

Short term Policy Questions

While suggesting that the Strategic Grain Reserves should be subject to regular audit and managed more transparently, the food crisis has brought the question of what would be the appropriate level of maize reserves, whether the NFRA should intervene on the market and how it should be capitalized.

Given the experience of ADMARC in the maize market policy questions also arise regarding whether it should scale up its operations, scale down, commercialize or close down completely. The experience also opens debate on the question of which institutions can guarantee food security in Malawi at affordable prices, and what kind of support the private sector would play in ensuring food security without exploiting weakness in the market during the development process.

There are also broader questions of the policy processes involving NGOs and the degree of responsiveness of government to their activities in this area. More importantly is definition of the

role than civil society can play in the process of building accountability into the food security and management situation.

There are also policy questions in the consideration of whether the targeted inputs program should be replaced by a universal starter pack, whether the latter is fiscally and politically sustainable and determination of a scheme by means of which farmers can be guaranteed agricultural inputs at affordable prices.

Long term Policy Questions

Long-term policy issues revolve around the question of the land problem especially to address distributive inequities caused by government's obsession with tobacco farming. As long as the poor remain patently landless while estate land remains unutilized the economy remains in a low-level equilibrium trap, as it cannot realize its full production potential.

Given that the country's population has continued to rise and is likely to exert more severe pressures beyond the current precarious situation population control remains the only key to sustainable agriculture and food security. This striking imbalance between population and land cannot be sustained beyond the current levels already manifested in the inability of the country to feed itself.

The government's policy of decontrolling producer's prices, especially for the staple food maize means that there is some incentive for estate production, but government out to look deeper into development of markets locally and also in the export sector to ensure that the price incentive does not collapse. The inevitable consequence of expansion in markets while land rents are raised will obviously be to escalate land utilization, thus releasing the economy from the low-level equilibrium trap.

These arguments suggest that a more appropriate food security policy would entail a combination of policies aimed at resolving inequities in land ownership, development of small farm irrigation, and promotion of higher fertilizer and use of productive seed. This would be coupled with appropriate family planning measures to check population growth

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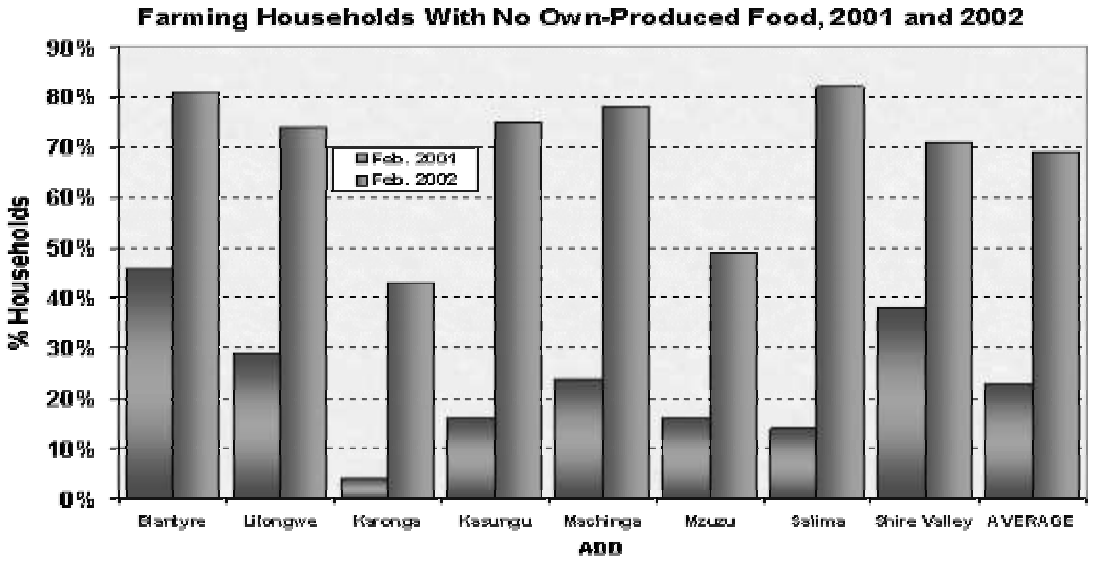
Appendix 1:


Farming Households With No Own-Produced Food, 2001 and 2002
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
% Households
Feb. 2001
Feb. 2002
Blantyre
Lilongwe
Karonga
Kasungu
Machinga
Mzuzu
Salima
Shire Valley
AVERAGE
ADD

Appendix 2:

Number of estates and hectarage, 1970-89

Year	Cumulative number of estates	Cumulative area ('000 ha)	Mean size of estates (ha)
1970	229	79.0	345
1970-79	1,105	255.8	231
1980	1,321	273.1	207
1981	2,086	320.0	153
1982	3,806	386.0	101
1983	4,806	435.2	91
1984	5,292	460.1	87
1985	5,655	491.5	87
1986	6,247	517.9	83
1987	8,114	588.1	72
1988	11,953	695.8	58
1989	14,355	759.4	53

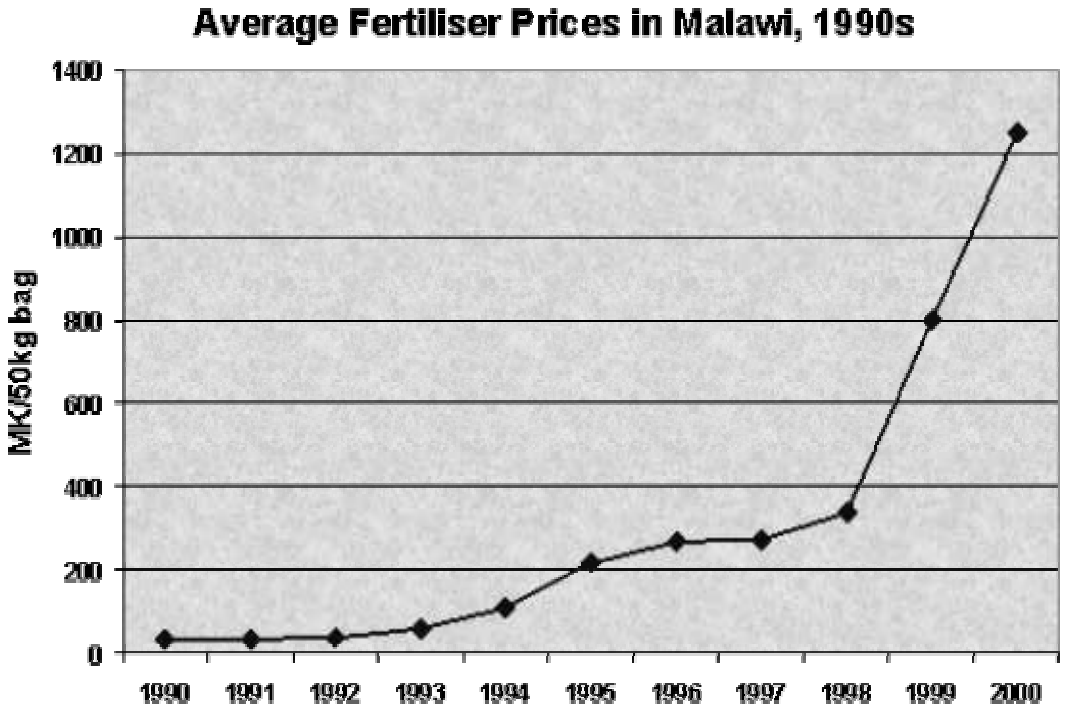
Appendix 3:

MAIZE OUTPUT INDEX						
	Malawi	Zambia	Zimbabwe	Mozambique	Tanzania	RSA
1988	100.00	100.00	100.00	100.00	100.00	100.00
1989	101.71	67.29	94.48	103.13	125.40	166.15
1990	85.47	53.16	95.03	140.63	119.05	130.73
1991	97.44	63.57	79.56	100.00	100.00	140.63
1992	38.46	27.14	22.65	50.00	92.86	46.35
1993	129.91	93.68	90.06	196.88	99.21	118.75
1994	78.63	55.76	91.71	162.50	105.56	148.44
1995	115.38	52.79	33.15	200.00	123.02	71.88
1996	123.08	77.70	93.92	293.75	126.98	140.63
1997	84.62	59.85	74.03	312.50	96.83	111.98

Appendix 4:

Table 2.2										
	1988	**1989**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**
Productivity	1170	1190	1000	1140	450	1520	920	1350	1440	990
Land on Maize	1,217	1,269	1,343	1,394	1,360	1,338	1,130	1,230	1,245	1,238
Output	1,413	1,455	1,238	1,428	570	1,938	1,173	1,721	1,836	1,262
	Productivity:	Kg per ha								
	Land under maize:	000 ha								
	Output in	000 tonnes								

Appendix 5:


Average Fertiliser Prices in Malawi, 1990s
MK/50kg bag
1400
1200
1000
800
600
400
200
0
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000