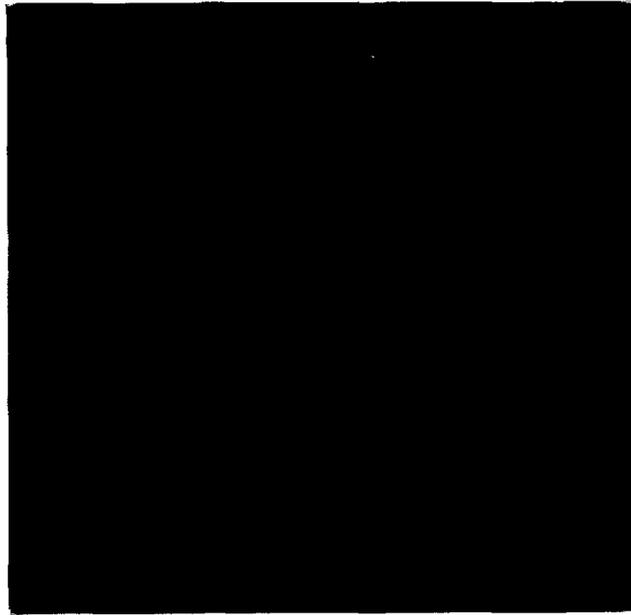


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**MALAWI:
FOOD SECURITY IN A
MARKET-ORIENTED ECONOMY**

Research Report No. 1011

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LIST OF ACRONYMS

ADD	Agriculture Development Division
ADMARC	Agricultural Development and Marketing Corporation
AES	Agro-economic Survey
APAP	Agricultural Policy Analysis Project
CPI	Consumer Price Index
CRS	Centre for Social Research
EMOP	Emergency Operation (WFP)
EP&D	Economic Planning and Development
EPA	Extension Planning Area
EU	European Union
FAO	Food and Agriculture Organization
FBS	Fertilizer Buffer Stock
FEWS	Famine Early Warning System
FFW	Food for Work
GDP	Gross Domestic Product
GoM	Government of Malawi
ha	Hectares
IDA	International Development Agency
kg	Kilograms
M4E	Monitoring for Empowerment
MASAF	Malawi Social Action Fund
MK	Malawian Kwacha
MoALD	Ministry of Agriculture and Livestock Development
MRFC	Malawi Rural Finance Corporation
mt	Metric Tons
NEWS	National Early Warning System
NGO	Non-governmental Organization
NSO	National Statistic Office
NSSA	National Sample Survey of Agriculture
PWP	Public Works Program
SCF	Save the Children Fund (U.K.)
SFFRFM	Smallholder Farmer's Fertilizer Revolving Fund of Malawi
SGR	Strategic Grain Reserve
UNDP	United Nations Development Program
UNICEF	United Nation's Children Fund
USAID	United States Agency for International Development
WFP	World Food Program

PREFACE

This report was prepared during a five-and-a-half week stay in Malawi between April 17, 1996 and May 24, 1996. Paul Siegel of the World Bank worked closely with the team for four weeks, providing useful suggestions and comments. In addition, Renard Mapemba of EP&D and Ian Kumwenda of MoALD provided generous amounts of their time in spite of very busy schedules to exchange views and perceptions on food security in Malawi.

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EXECUTIVE SUMMARY

Over the past ten years **there have been fundamental changes in Malawi's political and economic structures. These changes provide opportunity to use the market as part of a food security strategy for the country.**

Food security is an issue of household income and poverty, not of food production. Food security is defined as *sufficient food consumption by all people at all times for a healthy and productive life*. Chronic food insecurity is a long-term problem caused by lack, at the household level, of income or assets to produce or buy food adequate for the household. Transitory food insecurity is a short-term food security problem caused by a shock to the food production or economic system, where income or resources necessary to adjust to the shock are not available.

The food security strategy in Malawi should reflect the country's newly developed market economy. A market economy provides the best opportunity for growth and development in Malawi. Food security policy needs to be directed to facilitating development of this market economy. A market-oriented approach to food security is based on competitive markets that increase productivity in the economy and foster increased household income. Government and donors must avoid interventions that, in the name of food security, undermine the market and delay achieving the long-run objective of eliminating food insecurity.

In addition to markets, government can also play a critical role to assure food security in the country. While markets are the main distributor of benefits in an economy, government establishes the rules by which the market operates, assures a level playing field in the marketplace, provides essential public goods and services, and deals with underlying issues of resource distribution.

There are many poor households in Malawi that suffer food insecurity. The food insecure in Malawi can be divided into three categories: smallholders, estate workers/tenants, and the urban poor. The basis of much of their food insecurity is the 30 years of previous government economic policy that has skewed income distribution in the economy and limited opportunities.

Market liberalization has provided short-term benefits to food-insecure smallholders who have some access to resources. A profile of five smallholder households shows that those households that have access to resources to purchase inputs, and hence can plant tobacco and hybrid maize, have benefitted from liberalization. Those households without resources have initially gained much less benefit and are increasingly marginalized. For some smallholders, there is inadequate asset accumulation within the household to assure production increases within the near term. As markets and income opportunities expand, this situation may change. Some resource-poor households will need to use markets to seek food security through non-farm activities.

For transitory food insecurity, the issue is not the national food gap but loss of income for poor households. The traditional way of looking at food security in Malawi is through "food

gap" calculations. There are many problems with using a food gap approach to defining food security. Production and consumption decisions are made in a market economy in relationship to price signals in the market. Food gap analysis does not capture this relationship. An assumption in food gap analysis is that food goes to those who need it. This assumption is not valid. Food is distributed according to market forces. Food gap analysis also assumes constant consumption patterns, which are also not to be found. Consumption varies, depending on relative prices. The fundamental error in using a food gap model to deal with food security is to think that if food is available, people can consume it according to need.

A market-based approach to looking at food security, on the other hand, takes production and food availability as only one component of the problem. More important are relative prices, income and income distribution, and a series of elasticities reflecting the demand, supply, and price responses in the market to changes in the food sector. The focus is on price movements, not changes in quantities of food.

There is a strong link between transitory food insecurity and chronic food insecurity. If chronic food insecurity did not already exist in the country, transitory food insecurity would be a much less serious problem. Solutions to both transitory and chronic food insecurity require a focus on household income. Ideally, efforts to respond to transitory problems should enhance efforts to deal with the chronic problem.

Households that are not chronically food-insecure and have resources can save in good years and liquidate assets and savings in poor years. The key to poor households' ability to survive harvest shortfalls is the diversity of income sources available to them. Better off households are diversifying both their food and cash crop production and are increasingly moving into cash cropping. Effective commodity and labor markets make coping mechanisms more successful.

Drought is the major shock to the food system that causes transitory food insecurity. Malawi's response to drought has been reactive, e.g., release of food, rather than proactive, e.g., crop diversification, encouragement of small-scale irrigation, and effective use of early warning systems. Public works projects have a role in providing income (cash or kind) in response to transitory food insecurity. To be effective, these projects need to be available ("on-the-shelf") for rapid response. Free food distribution programs provide a resource transfer to the poor but can be inefficient. If there is an effective safety net program in the country, then transitory food insecurity can be addressed by stepping up safety net coverage in response to drought.

Traditional public sector market-level interventions, i.e., price bands, Strategic Grain Reserve, etc., mostly benefit a small number of food-insecure households and generally exclude the poorest households. In an agricultural economy, production instability not only affects the supply of food on the market but also has an impact on household income and effective demand. Price stabilization may be an element for dealing with transitory food insecurity, but it does not assure food security at the household level. Many poor households are outside the market. Price stability is useful for food security for households participating in the market to

the extent that stable prices offset losses of income resulting from production shortfalls. The Strategic Grain Reserve (SGR) is one of several means for stabilizing market prices. Other means are imports and exports. The relative size and composition of the SGR should be based on the cost of operating the SGR and import and export parity prices of relevant food staples. Food aid should be principally regarded as a way to save foreign exchange and should be encouraged in that capacity as a substitute for commercial imports. In a liberalized market, food aid should be released, to the extent possible, through private channels at free market prices.

The report looks at **three possible actions government can take to support food security:** direct or indirect market interventions, encouragement of market development, and market development with income redistribution.

Direct or indirect market intervention to support food security is usually a mistake. Market interventions by the state are not sustainable, create increased donor dependence, and perpetuate an inefficient economic structure with distorted allocation of resources. Interventions that distort the market make the goal of reaching food security in Malawi more difficult to attain.

Encouraging competitive market development is the best short-term answer to food security in Malawi. Food insecurity in Malawi is related to income and poverty. Solving the problem of food insecurity requires increasing household income through greater productivity in the economy. This productivity can come from transforming the economy from one based on subsistence to one based on exchange. Such a shift requires lowering the risk inherent in market exchange, particularly in the food market, to enhance availability and lower the cost of food to the household. The most urgent priority for action to achieve these objectives is development of competitive markets. Important areas to support in this regard are: broadening participation and the extent of the food market and lowering transaction costs, enhancing differentiation of food products in the market, increasing viable investment opportunities for smallholders, establishing a viable land market, expanding the trucking fleet, especially with small capacity trucks, and improving the quantity, quality, and dissemination of market price information.

Long-term solutions for food security in Malawi are market development coupled with more equitable distribution of income. Food security is related to household income. Ultimately, more equitable distribution of wealth is required before Malawi's people can be food secure. Income redistribution, however, is a difficult problem that can only be solved through political will.

1. INTRODUCTION

As late as the mid-1980s, questions about food security in Malawi were not officially allowed. The official posture at the time was that Malawi was an agricultural success story with a dynamic estate sector that was producing an enviable rate of growth for the economy. At times the country could even export food. The fact that, even with this high level of agricultural production, a large segment of the population had stunted growth because of chronic malnutrition was not considered a politically appropriate subject to raise.

Today, however, there are numbers of studies and assessments related to food security in Malawi. Beginning in 1989, for example, the World Bank prepared a food security assessment for Malawi, and as late as several weeks ago, the Ministry of Agriculture (MoALD) with the assistance of the FAO finished the final draft of an up-dated food security assessment. The present report builds on these studies and many other related reports (see Annex B). The intention of this report is to examine the food security situation in Malawi considering the many changes that have occurred as the country has moved from a centrally controlled to a market-oriented economy. Many approaches to food security created in the past are no longer appropriate. This examination should help provide guidance to policy makers on how better to deal with the food security question.

This report was undertaken to develop an understanding of Malawi's food security situation among the Government of Malawi (GoM) and its donor partners. The report establishes concepts that can serve as a basis for additional efforts to develop specific plans of actions to carry out these concepts. The report itself does not present a specific action plan. The final product of this and follow-on efforts should be a more effective, market-oriented program to assure food security for Malawi's population.

The report is structured in the following manner: After an introduction, Chapter 1 continues with a brief review of the changes that have taken place in Malawi's economic and political institutions that necessitate consideration of a market-oriented approach to the food security situation. After some comments on terminology, the Chapter provides a brief review of a market-oriented approach to food security. This background material is followed in Chapter 2 by an analysis of the impact of markets on household food security in Malawi. Chapter 3 presents an analysis of the national food situation, contrasting a market view with a more traditional "food gap" analysis. Next in Chapter 4, the report looks at current public interventions supporting food security. Finally, in Chapter 5, the report examines three possible approaches that could be taken by government and donors to address food security, and it evaluates their appropriateness within a market economy.

1.1 Recent Changes in Malawi's Political and Economic Situation

Table 1 provides an overview of some political and economic changes that have occurred in Malawi in the last ten years. As can be seen, the extent of change is profound. These changes

provide the foundation for the establishment of an effective market-based economy within which to deal with food security in the country. New options and possibilities for both the household and the national economy are now available.

Besides changes in the political and economic situation in Malawi, other events in Malawi also influence achievement of a market-oriented food security strategy. In a rain-fed agricultural economy, drought is an ever present danger. Two of the last four years have seen droughts or significant drops in rainfall in Malawi, with resultant drops in food production. While slowly being improved, transportation links to international commodity markets from Malawi are still very expensive. The Beira and the N'cala rail links through Mozambique represent the best long-term possibility for affordable linkages to international markets. These rail lines and port facilities are only just beginning to operate after repairs to the damage caused by the civil war in Mozambique.

1.2 Food Security in a Market Economy

Since the fall of the Soviet Union and its command and control economic structure, market-oriented paths to economic development and planning have become almost universally accepted by both government officials and academics. In the agriculture sector in Malawi, for example, a recent government statement noted that "the role of government has been transformed from that of the main actor in the centrally regulated economy to that of the facilitator of development in the market-oriented economy" (MoALD 1995). The reasons for this shift to the market as the source of growth are well documented. A properly functioning market is the most efficient way of allocating resources in an economy. The market oriented economies have also had the strongest economic growth and have been best able to provide the greatest well being to their people. In addition, markets are the economic equivalent to liberal political democracy, an ideal that is also gaining widespread acceptance.

While there is general acceptance of a market-oriented approach to development, how this approach is actually carried out in a daily manner varies. Markets are not perfect. While moving from a centrally regulated to a market economy, many "dislocations" occur. This is an economic euphemism for unemployment or lack of access by a household to resources necessary for its basic livelihood. Mitigating these problems, while not hindering the basic move toward a market economy, is difficult, and programs attempting it have to be well conceived.

1.2.1 Food Security Terminology

Although the term "food security" is freely used in Malawi, there is some confusion about what the term actually means. The widely accepted definition of **food security** is: *enough food consumption by all people at all times for a healthy and productive life*. At its most basic, food security concerns individuals. Individuals consume food and, if their bodies are healthy, this food provides them with energy and nutrients to live, grow and contribute to the well being of society. When individuals cannot obtain an appropriate amount of the right type of food or if their bodies

Table 1.1 Political and Economic Changes In Malawi

Situation in 1985	Situation in 1995
Political	
One party, autocratic rule with limited political freedom	Freely elected multi-party democracy
Economy	
Centrally regulated smallholder sector with direct state intervention, market based activity in estate export sector only	Market-based economy for all crops except maize, which has indirect state intervention to stabilize its price
Development Policy	
Smallholder sector used to subsidize investments directed toward estate sector. Estate sector expanding to capture lucrative export tobacco market.	Movement toward redressing policy imbalance between estate and smallholder sector while not limiting overall economic growth
Economic Policy	
All prices fixed and controlled by the state	All crop prices, except those for maize, fully liberalized
Ethnic restrictions on areas of economic activity	Removal of all ethnic barriers on economic activity
Agricultural Policy	
Focus on maize as the primary food. Restrictions on markets of all food and cash crops	Growing focus on smallholder diversification including drought resistant crops
Direct marketing of burley tobacco by estates only. ADMARC cross subsidizes urban food sales from smallholder tobacco monopsony and other cash crops	Burley auction market opened to smallholder clubs and intermediate buyers. ADMARC loses tobacco monopsony for smallholders
State credit program dictates crop patterns for smallholder	Dynamic response of smallholders results in flexible and diverse cropping patterns
Official market of inputs and outputs of smallholder sector goes through ADMARC at low fixed prices	Alternative market supply channels for inputs and for markets is creating new opportunities

cannot adequately absorb this food because of disease or other causes, then the individual becomes malnourished and may starve.

Economists, donors and national policy makers, however, usually do not focus on individuals in considering food security policy. Focus on individuals requires so many variables that it is impossible to formulate viable policy options. The **household** is usually the smallest unit considered in issues of food security. It must be remembered, nevertheless, that the household is an abstraction from actual individuals. Assumptions about health, intra-household distribution of food and other considerations need to be continually reviewed and reassessed.

Households can be aggregated into communities, communities aggregated into societies, and societies aggregated into nation-states. For planning and policy purposes, the larger this aggregation becomes the more distant policy makers are from the needs and behaviors of individuals. This distance and abstraction from the problem may be required to develop coherent and achievable objectives in a given society and economy. Such abstraction, however, can also lead to a fixation on specific elements of the food security situation that, while analytically useful, may be only marginally relevant to the actual food security situation faced by the country's population. To a certain extent this has been the case in Malawi.

It is not unusual in studies of food security to make a distinction between two kinds of food security: household food security and national food security. Under the first category, **household food security**, analysts examine the prevalence of inadequate food consumption and malnutrition in the population and examine remedies aimed at increasing household productivity and income.

Within the second category, **national food security**, studies focus on food market issues, trends and stability in nationwide demand and supply, the extent of self-sufficiency in food production, the adequacy of inventories held in storage, and other variables, to examine ways to increase food availability and/or supplement household income. National food security should not focus too heavily on food production (see Chapter 3). Food production is an important variable in regard to food availability in the market. Food security, on the other hand, refers to the household's *ability to access and use* food. Thus food security is an income issue, not a production issue.

A second distinction in defining food security relates to whether the food security problem is transitory or chronic. **Transitory food insecurity** usually refers to short-term food supply problems caused by shocks to the food production system. **Chronic food insecurity**, on the other hand, refers to long-term lack of adequate income or assets at the household level to produce or buy adequate food for the household.

1.2.2 Elements of Food Security

Current economic literature on food security points out three basic elements needed to assure food security within a population. The first element is the existence in the country of a viable marketplace, for both food and non-food items, linked to the world economy. Usually this marketplace is assumed to be in place. In Malawi, assumptions about the marketplace need to be fully examined.

The second element concerns the economic situation at the household level. This element relates to the question of poverty and the ability of the household to grow or purchase appropriate food required to satisfy the household's nutritional needs. Household income, or income equivalent from other household resources, is central to the analysis and solution of the food security problem.

The third element required for food security is increasing the productivity of the economy. Increased productivity in the economy ultimately solves household income issues. To achieve sustained productivity growth in the Malawian economy will require a structural transformation from an economy that is to a large extent based on subsistence-oriented, household-level production to an integrated economy based on specialization and exchange. For many Malawians, specialization and exchange will entail deriving their livelihood from off-farm sources. Some of this shift has taken place in the estate sector but it still remains a distant prospect for much of the smallholder sector.

In the interim, specific measures need to be taken to address the income issues of the chronically malnourished household. It is critical that these measures not hinder the long-term objectives of increased productivity in the economy and free function of the marketplace. Ideally, poverty alleviation measures and safety nets should enhance and expand these long term objectives.

The dynamics of these three elements — a viable marketplace, growth of a productive economy, and fostering of household income — form a market-oriented paradigm that can be used to analyze and evaluate specific food security programs and policies in Malawi. This paradigm is neither new nor revolutionary. It is the result of over twenty years of economic research and discussion. Nevertheless, using this paradigm may provide new and possibly startling approaches on how to develop and implement policies and programs to enhance food security in the country. This paradigm shifts policy from a focus on specific quantity of food available (a food gap approach) to a broader focus on issues of supply, demand, and responsiveness of the market to satisfy food security needs. The implementation mechanism is not government institutions, but the marketplace. The approach is indirect rather than direct. The cost-effectiveness of any given action proposed to achieve a policy objective becomes increasingly important. In addition, as the market adjusts to new conditions effective safety nets of programs and policies are required to protect the most vulnerable part of the population from the more adverse effects of shifts in the marketplace.

1.2.3 Structural Transformation for Food Security

As mentioned above, a market-oriented response to increasing productivity in the economy requires a structural transformation of the economy. Malawi cannot remain a country whose economy is dominated by subsistence smallholder farmers. With the country's ever increasing population, a continuation of the present economic structure will lead to a Malthusian disaster. The economy must move, over the next several decades, from being largely based on subsistence-oriented household production centered around local markets to an integrated economy based on specialization and exchange within a world-wide market.

Today, Malawi has a dualistic economy. On one side is an estate sector, a few corporations and a bureaucratic structure that concentrates most of the wealth of the country in a few hands. Most of these structures are linked to the elite of the previous government. The estate sector is dominated by tobacco, sugar and tea produced under labor-intensive conditions. On the other side of the economy is a large smallholder sector whose primary production is maize, tubers and, to a more limited extent, vegetables and pulses. Wages are low in the country, as is the productivity of labor. More than half the country lives in poverty, and over fifty percent of the children are stunted from malnutrition. The characteristics of the smallholder sector and the urban poor are seen in Section 2.1.

Except for the sale and production of export crops, markets in Malawi are extremely thin and unreliable. Until recently, all legal transactions related to the sale of products from and inputs to smallholders had to go through ADMARC. While this situation is changing, ADMARC still has a dominant presence in the market and, though legal restrictions for trade have been lifted, ADMARC's legacy still prevails in the minds of smallholders, traders, producers and Government. Because of this, rural food markets are dependent on either extremely thin and unreliable local markets or ADMARC. For most poor people, acquiring food and household goods is done primarily through personalized systems of exchange based on local neighbors, villages and kinship groups. It has been pointed out that dependence on personalized systems of exchange "perpetuates chronic vulnerability to food insecurity" (Jayne et al., 1994) by limiting the range of opportunities open to exchange goods and services. This limited opportunity reduces the ability of the poor to seek out the best possible source of goods and markets for selling or trading their goods and services. In addition, personalized systems of exchange are also limited in geographic dispersion. Thus, a personalized system increases vulnerability to local natural disasters such as disease and drought.

How do farmers shift from subsistence-oriented production to specialized production? The answer to this question largely relates to risk-management of food at the household level. To undergo this shift, fundamental to the structural transformation of the economy, requires lowering the risk inherent in market exchange. This means that policy makers must work with markets and various exchange possibilities to make them more efficient and reliable. For example, only to the extent that there is an assured food market will farmers commit themselves to cash crops and other

forms of income-generating commercially-oriented production. The weaker the food market, the less likely that specialization will occur.

1.2.4 The Role of Government in Food Security

In addition to markets, government also plays an appropriate role in assuring food security. The view is often expressed that government should stay out of the direct selling and buying of commodities and concern itself with traditional public goods, e.g., building roads or establishing rules to govern contracts. While this idea may be true to a certain extent, the more fundamental issue is how to establish an effective governance system in the country that can not only build roads, but maintain them, not only govern contracts, but establish the optimal set of rules for regulating and facilitating markets and contracts. Effective governance systems are needed to identify and then put into effect collective action to solve problems in the food system that are beyond the scope of individual private action. Market forces alone will not guarantee increasing productivity and ultimate food security. Not only does one have to get the prices right, one also has to get the rules right. Getting the rules right occurs through a political process within a society in which costs and benefits are allocated. Government has to play a pro-active role in this process.

In addition, it needs to be noted that private firms do not like competitive markets. The principal strategy of most enterprises is to distort the market in their favor to gain a monopolistic surplus. Paradoxically, it is the public sector that can be the best friend of the market. Maintaining a level playing field in the marketplace is a central role of the state.

Finally, it needs to be recognized that even in the best of economic conditions some people will still not be able to take care of themselves and their family. For those who are unable to achieve a minimum flow of resources and benefits from the market or to compete in a level playing field, there is a role for government or non-governmental organization (NGO) intervention.

2. THE MARKET AND HOUSEHOLD FOOD SECURITY IN MALAWI

2.1 A Typology of Household Food Security in Malawi

Chronic food insecurity in Malawi is primarily a problem of poverty. Households are food insecure because they do not have access to enough food to meet their requirements. In Malawi, over 85 percent of the population lives in the rural sector and depends for their income on agriculture, either directly, through production, or indirectly, through providing labor, goods or services to farmers. The link between access to food and agricultural production is very strong because agricultural production is the source of most households' income.

Thus, to assess household food security, the starting point is the assessment of household income and resources. Households are vulnerable to food insecurity primarily because their income sources are inadequate (chronic food insecurity) and/or because their incomes are vulnerable to exogenous shocks (transitory food insecurity). In Malawi, income distribution is very unequal, largely because of policies in effect during the past thirty years. Unequal income distribution, combined with low level of average income, or GDP per capita, means that many households in Malawi are food insecure.

Nutrition indicators are often used in food security assessments. These have to be interpreted with caution. Nutritional status is an outcome of the interaction of household food security, intra-household food distribution, maternal and child care practices and health status. Child care practices and health status are linked to household income, but they are also strongly influenced by public or collective provision of health and education services. The high incidence of malnutrition suggests the depth of the problem, but not all the malnutrition is directly food-related. While acknowledging the importance of child care and health factors, this report will focus on factors affecting household food security.

Broadly speaking, the food insecure in Malawi can be divided into three categories: smallholders, estate workers / tenants and the urban poor. There has been a significant amount of work undertaken on the characteristics of food insecure rural farmers, but there has been much less analysis of the other two categories (Peter 1992, 1994, 1995, UNDP 1993, World Bank 1995, SCF 1996). Almost all the quantitative analysis of food insecure households is based on data collected before 1993. This analysis reflects outcomes of the previous heavily regulated economic system. Since the early 1990s, the liberalization process has changed the opportunities available to all households, including the food insecure, particularly in the rural areas. Little of this process is, as yet, documented, and it will take time before it can result in major changes in the numbers of food insecure. However, the liberalization changes should be kept in mind when considering the implications of the following assessment.

2.1.1 Smallholders

The most recent analysis of poverty among rural smallholders in Malawi is based on data from the 1992/93 National Sample Survey of Agriculture (NSSA), as analyzed in the World Bank's Poverty Profile (World Bank 1995). This study focused on those households in the bottom 40 percent of the income distribution. In broad terms, this corresponds to the chronically food insecure in Malawi.¹

Poverty is relatively more prevalent among smallholders than among urban dwellers. There is also a strong geographical bias in the distribution of poorer households. The South contains over half of the country's population but two-thirds of the poorer households. Assuming the same income distribution as 1992/93, there are about 400,000 very poor smallholder households (the bottom 20 percent) and an additional 400,000 poor smallholder households, for a total of 800,000 poor and very poor households that are food insecure.

Poorer households have distinct demographic profiles. They are likely to be female-headed. The poorer the household, the larger the household size and the higher the dependency ratio. In other words, poor households have more people and fewer able-bodied workers to support them. Female-headed households have a smaller average household size than do male-headed households, but they have a higher dependency ratio.

There is a close relationship between the area of land cultivated by a household and its poverty level. Three quarters of poor households cultivate less than 0.5 of a hectare, and almost all cultivate less than one hectare. Cultivating a small area of land, however, cannot be equated with being poor. Some households who cultivate less than 0.5 hectares are effectively part-time farmers. Their major source of income is off-farm employment.

Most poor smallholders have few assets, use low levels of purchased inputs, and have low access to credit. Poor households grow relatively less hybrid maize and more local maize than the average, while planting more of their land to maize than better-off farmers. Better-off farmers grow more high value crops. Poor households often own little livestock.

Nearly all poor households have difficulty meeting their food requirements from their own production. On average they produce about 65 percent of their food requirements. The poorest may produce less than 40 percent of their requirements. The land available to them for cultivation is insufficient to produce enough local maize for their needs; they cannot afford to purchase the inputs necessary to put all their land under hybrid maize; and they grow virtually no cash crops. Such households rely on off-farm employment, and in particular *ganyu* (part-time agricultural labor) to provide the rest of their food needs. Many households have to reduce their consumption levels in the pre-harvest period.

¹This section is abstracted from the various studies referred to in Annex C.

Female-headed households face particular problems. They have limited labor available for off-farm employment, in part due to their higher dependency ratios, but also because of the considerable time required for domestic activities such as collecting water and wood and pounding maize. Off-farm income is an even smaller share of total income for these households than for poor households.

In drought years, the number of food insecure rises, depending on the incidence and severity of the production shortfall. In a major drought, the number of the food insecure could rise by up to an additional 30 percent of the smallholder population.

A recent study (SCF 1996) shows that the poorest households employ a variety of coping mechanisms in response to drought. The degree of diversity in income sources is important — the more diversity, the more effective the household's coping ability. The survey appears to show that one main effects of drought is to increase the scale of market activities, particularly for the purchase of food. Households which would normally not purchase maize, certainly not from crop sales, have to use what income they can generate to supplement their own production. The main source for this income is *ganyu*, but there is usually less *ganyu* available in drought years, as better-off farmers are also affected. Household food security for the poorest is very much dependent on the functioning of the rural labor market. For the poorest households, there is also a rise in the amount of barter and the percentage of *ganyu* paid in food rather than cash increases.

The main problem for poor smallholders is their lack of resources. They have few assets, and it is very risky for them to borrow for agricultural production, even if they have access to credit. The outlook for these households is bleak unless their resource base is increased. To do so, they must produce a surplus, through switching to higher value crops, or finding more lucrative off-farm employment opportunities. This is particularly true for poor female-headed households, about 10 percent of the rural population, who are caught in a particularly vicious poverty trap. Their labor is barely sufficient to fulfill domestic demands and to cultivate their inadequate landholdings, but they are forced into *ganyu* to find food in the peak cultivation period, thereby reducing still further their ability to grow food for their family. To break out of this trap, these households have to be given the means to diversify away from the agricultural sector.

2.1.2 The Estate Sector

There are fewer sources of information on the estate sector, which has been excluded in the past from most of the major surveys carried out in Malawi. Most of the information comes from a few surveys undertaken in the late 1980s and updated from field observations (Mkandwire et al., 1989, GoM 1993).

In 1989, the number of tenant farm households was estimated at 105,000. At that time, the total number of people dependent on the estates as tenants, permanent workers, and their families was around a million. There has been rapid expansion of the estate sector in recent years, with a proportionate increase of people dependent on estates.

Data on income levels are less reliable for the estate sector than for the smallholder sector. The figures reported, however, suggest that estate income levels may be similar to those for rural smallholders. Whereas some tenant farmers may do very well, others have difficulty making enough income to feed their families. These are most likely to work on small estates. Where tenants have access to land for subsistence farming, this land provides an important additional source of income. What data exist indicate that this access to land is more likely to occur on larger estates, and therefore is unlikely to benefit poorer estate tenants. The situation for poor tenants may have improved somewhat with the introduction of the intermediate buyer system, which has provided competition for the estates as tobacco outlets. This could force estates to offer better terms to their tenants.

Permanent estate workers are frequently paid less than other wage earners. Where this is the case, they are likely to suffer from food insecurity.

Children of estate tenants and workers show high levels of malnutrition. Data from 1995 showed that estate children had slightly higher levels of stunting than average, and almost 50 percent higher rates of wasting. These high levels of child malnutrition are a concern. These may result from poor environmental conditions and lack of health services, combined with low household income. High labor demands on tenant spouses may also negatively affect child care.

2.1.3 The Urban Poor

Major cities in Malawi have the lowest prevalence of poverty, and an urban household is half as likely as a rural household to be poor. The main exception to this is Lilongwe, where there is twice the number of very poor households as in any other Malawian city. This large number of poor households is reflected in higher rates of malnutrition in Lilongwe than in other urban areas.

Studies of low income urban households carried out between 1989 and 1991 show a high percentage of income spent on food and income levels not much above those in the smallholder sector (Roe 1992, Chilowa and Shively 1989). It is difficult, however, to quantify what overall percentage of urban households this would represent.

There is some evidence that low income urban households may have stronger links with the rural economy than have been previously acknowledged, and that they may therefore, be vulnerable to drought. As with rural households, however, their main problem is simply lack of resources.

2.1.4 Current Trends

The discussion above focuses on the characteristics of poverty in Malawi in the late 1980s and early 1990s. The situation, however, is not static. Policy changes in the early 1990s are opening up new opportunities to smallholders in particular, but also in the area of agricultural

wage labor. Offsetting these opportunities are a number of factors which need to be addressed if the already low living standards of the poor are not to fall further.

Population growth is high, at 3.3 percent per annum. This growth has resulted in a decreasing resource base per head of population. In 1968/69 the average area of land cultivated per household was 1.54 ha. This had declined to 1.1 ha by 1984/85 and to 0.75 ha by 1994. This small amount per household makes it even more important that the land available be used efficiently.

As will be discussed below, maize production is not keeping pace with population growth. To the extent that maize is being replaced by higher value crops or by more drought resistant crops this drop in maize production is not necessarily a problem. Except for root crops, however, agricultural yields are static, depressing growth in the smallholder sector.

Environmental degradation is reducing soil fertility. Deforestation and poor husbandry are resulting in soil erosion. To maintain crop yields, less fertile soils require increasing amounts of fertilizer which poor smallholders can barely afford.

At present there are estimated to be 225,000 cases of AIDS in Malawi. The World Bank estimates that by the year 2000, 2 million people will be HIV positive, and there will be about 35,000 children orphaned. AIDS will inevitably increase dependency rates in the rural area, and, in particular, will probably increase the number of very poor female-headed households as they lose adult members and take in orphans from the extended family.

Decisive action should be taken to address issues of food security. Ways must be found to increase household productivity and hence income, both on and off-farm, to offset these negative trends and to set the scene for self-sustaining growth. The policy changes already undertaken are important elements in a market-led response to these trends (see below), but the impetus must be maintained.

2.2 Market Liberalization and Household Food Security

Beginning ten years ago and increasing rapidly over the last three years, there have been many changes in the economic environment which could be classed together under the general heading of market liberalization. These have had major implications for household food security.

- There has been a move away from administered prices for almost all commodities, including agricultural inputs, cash crops and maize.
- Restrictions on cropping patterns have been removed, allowing smallholders to grow a wider variety of cash crops, in particular, the highly profitable burley tobacco.

- The intermediate buyer program has increased the options for smallholder tobacco sales and has led to an increase in prices for both smallholders and tenants.
- There has been a major increase in the extent of private sector trade and a reduction in the importance of ADMARC.

These changes have greatly affected the income earning opportunities for households, particularly in the rural sector. They have also affected the relative prices households face for the commodities they sell and purchase. Price changes in turn affect cropping patterns and consumption choices. Seasonal price changes in the private sector should create greater incentives both for intra-seasonal storage in the private sector and for on-farm storage.

With the increasing withdrawal of ADMARC from remote rural markets, concern has been expressed about the availability of commodities in these market and how fast private traders will move to fill the void left by ADMARC. In the short run the withdrawal may increase transaction costs, in particular for maize. On the other hand, it is difficult to estimate the extent to which thin markets are currently a problem, as conditions in the market are changing quite rapidly.

In some parts of the country other changes can be seen in increased smallholder production of burley tobacco. This production has increased the demand for casual agricultural labor. In time, this demand may cause some upward pressure on rural wage rates, though as yet there is little evidence of such a development.

As with all major changes, there are likely to be winners and losers, though market liberalization is by no means a zero-sum game. In the medium term, most households should gain from increased opportunities. Other households, however, are likely to bear some short-term costs as they adjust to changing market conditions.

Surveys in Zomba in the initial period of market liberalization, 1986 - 1993, show that smallholders who had switched into tobacco growing had made substantial gains over the period (Peters 1992, 1993). The gains, in turn, were increasing demand for local goods and services. However, households in the bottom 25 percent of the sample appeared to have had to work harder to maintain their average supply of maize.

2.3 Smallholder Profile

Since 1993, relative prices have changed dramatically, due to devaluation and input market liberalization. Profiles of five smallholder households have been developed to show the impact that changes in relative prices have had on different household types. These profiles are not statistically representative, but they have been developed to illustrate the main combinations of

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land area and cropping pattern. The basis for the profiles is simplified farm budget data², and the models are static, not behavioral; i.e., they do not allow farmers to change production and consumption patterns in response to price changes. Only five crops are included, and maize is the only staple food crop. In reality, cropping patterns would be more complex. In spite of the simplification, the profiles allow us to identify short-term losers and gainers.

Table 2.1 shows characteristics of the five households, the relative importance of these household types in the rural economy, their cropping patterns and how they fared over the five-year period from 1990/91 to 1994/95.

Overall, families who have access to purchased inputs and hence can plant tobacco and hybrid maize have done well with liberalization. Their income has increased, both in current and in real terms, to such an extent that they can acquire enough savings to withstand a drought year. These families often have above average farm size. The household which grows cotton is an intermediate case. Until 1994/95, nominal income was stagnant. In the last year, however, the cotton market was opened up to competition and prices rose substantially. This household would normally be food secure, but, until last year, it would not have sufficient reserves for a bad year. However, if cotton prices stay high, this situation may change.

Households which are maize deficient and have no resources to invest in improved maize varieties have lost out due to rising market prices, although, as they have very little marketed output, the size of this loss is limited. These households tend to have below average size. One type of household which is not represented in the models above is the very poor family who has virtually no interaction with the market. There are indications that the poorest rural households in Malawi, whose number is difficult to estimate, exist in a world of their own production and barter. They perform *ganyu* largely for maize, and they barter any spare vegetables or pulses for food. Market liberalization has almost certainly had very little impact on them.

If these findings are representative, they raise important issues about how poor rural households can be given some ability to participate in markets on better terms than they are doing now. Unless they can develop the ability to buy inputs, raise cash crops, and otherwise improve their productivity, they are fated to a life of increased marginalisation if they continue to depend on agriculture for their major income source.

The main hope for these households to break away from poverty and become food secure is through employment or other income generating activities. The principal form of employment in the rural area is *ganyu*. Other income generating activities will primarily come through off-farm activities such as petty trading, food processing and catering. Poor households' ability to

² Details on methodology and data sources are given in Annex C.

Table 2.1 Results of Household Simulation

Household 1 (28 percent)	Household 2 (13 percent)	Household 3 (15-20 percent)	Household 4 (15-20 percent)	Household 5 (6 percent)
Characteristics				
Male-headed	Female-headed	Male-headed	Male-headed	Male-headed
4 adult equiv.	3.5 adult equiv.	4.4 adult equiv.	4.4 adult equiv.	5 adult equiv.
2 working adults	1 working adult	2 working adults	2 working adults	3 working adults
Cropping Pattern				
0.4 ha. land	0.29 ha. land	1.0 ha. land	1.0 ha. land	2.0 ha. land
0.35 ha. local maize	0.25 ha. local maize	0.6 ha. local maize	0.5 ha. local maize	0.7 ha. local maize
0.05 ha. groundnuts	0.4 ha. groundnuts	0.25 ha. hybrid maize	0.2 ha. hybrid maize	0.7 ha. hybrid maize
		0.15 ha. tobacco	0.3 ha. cotton	0.4 ha. tobacco
		purchased inputs	purchased inputs	purchased inputs
Food Security				
produces 304 kg maize, 35 percent of requirement, 4 months worth.	produces 217 kg maize, 28 percent of requirement, 3.5 months worth	surplus maize producer	self-sufficient in maize	surplus maize producer
produces 19 kg groundnuts = 50 kg maize, 90/91 = 14 kg maize, 94/95	produces 15 kg groundnuts = 40 kg maize, 90/91 = 11.5 kg maize, 94/95	Income (current) 174 MK in 90/91 1803 MK in 94/95 (1468 MK tobacco)	Income (current) 110 MK in 90/91 431 MK in 94/95 (361 MK cotton)	Income (current) 639 MK in 90/91 5619 MK in 94/95 (3915 MK tobacco)
Chronic food insecurity	Chronic food insecurity	Normally food secure	Normally food secure	Normally food secure
Transitory food insecurity	Transitory food insecurity	Can cope with poor years	Insufficient reserves for poor years	Can cope with poor years
Outcome				
Loser	Loser	Winner	OK	Big winner

Source: see Annex C

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find employment or engage in income generating activities depends on two factors: general growth of the rural economy and resources available at the household level for investment in off-farm activities.

If no intervention is made into the rural economy, the process of off-farm diversification will be slow. There are some hopeful signs in the injections coming from growth in tobacco income. There are indications that this growth is having some multiplier effects in terms of increased demand for labor, goods, and services (Peters 1995). Increased diversification into other cash crops may have similar effects. A transfer program to poor smallholder

households, whether in cash, voucher, or kind, would provide a stimulus to the process. This situation would be particularly effective if it were implemented in such a way as to avoid market distortions and disincentives to private trade.

It is unlikely that poor female-headed households can take advantage of any rural growth without some assistance because of the position in which they are trapped. Some kind of transfer program could undoubtedly assist them, but these households are extremely vulnerable and would benefit from additional support. An additional or alternate option would be to increase the coverage of some of the targeted schemes which already exist in Malawi. Run by NGOs and donors, these provide combinations of resource transfers, access to credit and technical support and training. These programs undoubtedly cost considerably more than a straight transfer program, but some of them at least appear to have been successful in providing female-headed households with profitable off-farm alternatives. These programs are discussed in more detail in Annex F, on safety nets.

3. NATIONAL FOOD SITUATION AND FOOD SECURITY

3.1 Assessing Food Insecurity: The Food Gap Calculation

Current practice in promoting food security in Malawi has put much emphasis on actions which influence the national market supply of food, particularly of maize. The tendency has been to act on the basis of observed trends in the national "food gap" — a measure of the discrepancy between national food production and what is believed to be the total nutritional requirement of Malawi's growing population.

Food gap calculations are mostly used for estimating short term import requirements or desired changes in food stocks held by or on behalf of the Government. They are also used for identifying policies which could best diminish food insecurity, for instance policies which could lead to the expansion of production of one crop or another.

The FAO (Johnson 1996) has recently completed a detailed analysis and projection of the food gap in Malawi to the year 2005 for the Ministry of Agriculture and Livestock Development (MoALD). The methodology in this analysis used a standard nutritional food gap approach (see below). Food demand was calculated using age and sex distribution of the population with associated food needs based on an estimated per capita per day energy requirement of 2,325 kilocalories. Supply was calculated using a maize equivalent value based on caloric value for all food crops now being produced in the country. Estimates of production in both smallholder and estate sectors were included. Projections of demand and supply were based on a series of assumptions noted in the footnote below.³ The results of these calculations are seen in Table 3.1.

This analysis indicates the possibility of a continual food gap ranging from about 250,000 to 630,000 metric tons over the next ten years. Before donors or government make decisions based on these estimates of the present and projected estimates of the food gap, it is essential to clarify the underlying assumptions driving these estimates and their limitations.

There are two problems with this food gap analysis. First, the assumptions of the analysis determine its outcome, and these assumptions can lead to a wide range of results. Secondly, the

³ Projections of demand were based on estimated population growth of 3.3 percent per annum to the year 2000 and 3.0 percent to the year 2005. Projections of supply are based on two scenarios, one optimistic, the other less optimistic. The less optimistic scenario projects no change in the area planted in maize but an increase of 2.5 percent a year in the amount of area planted in hybrids and 5 percent a year increase in area planted in composites. It is also assumed that area under rice cultivation will increase by 3 percent a year. Area under other crops is assumed to increase annually as follows: sorghum by 2 percent, wheat by 3 percent, millet by 1 percent, pulses by 5 percent, groundnuts by 2 percent, soyabeans by 15 percent to the year 2000, then by 10 percent, cassava by 2 percent and potatoes by 3 percent. Yields are calculated on higher averages in either the 1991-1995 or 1989-1993 cropping period. The more optimistic scenario uses the same yield and hectareage figures as the less optimistic scenario but assumes area under hybrid maize will increase at 5 percent per annum.

food gap analysis is peripheral to the basic food security issue. Emphasis on a food gap often distorts food security policy away from the central issue, which is income.

Table 3.1 Projected Food Gap in Malawi 1995/6 to 2004/5

'000 Metric Tons Maize Equivalent

Scenario	Crop Year									
	95/6 Est.	96/7	97/8	98/9	99/0	00/1	01/2	02/3	03/4	04/5
Optimistic	(23)	(245)	(307)	(333)	(367)	(377)	(394)	(411)	(435)	(442)
Less Optimistic	(24)	(302)	(344)	(388)	(440)	(470)	(509)	(549)	(595)	(631)

Source: *An Analysis of the Extent, Cause and Effects of Food Insecurity in Malawi with an Approach to Improving Food Security*, March 1996.

3.1.1 Evaluation of the Food Gap Calculations

As seen in Table 3.1, the projected food gap jumps from 24,000 to 302,000 mt between 1995/6 to 1996/7. The former figure is based on actual estimates of production while the latter figure is based on the assumptions used for the projections. The estimates of "gap" are driven by a host of assumptions of demand and supply. Changes in these assumptions can shift the size of the gap by hundreds of thousands of metric ton maize equivalent. Present calculations of the food gap, for example, are based on growth in food production that barely exceeds one percent per annum. A growth rate of 2.5 percent, which is certainly within reach, could reduce the food gap by about 300 thousand tons by the end of the projection period. It is estimated that in maize alone the untapped potential for improved efficiency in the use of fertilizer recommendations is on the order of 20 percent (World Bank 1995).

Both the less and the more optimistic projections in food production do not capture the actual changes that are already occurring which affect agricultural growth. The food gap calculations do not incorporate the impact of relative price changes and the related supply and demand changes in response to these price changes. These responses are the basis of a higher rate of growth. As liberalization proceeds, growth in production is likely to occur, both because of the greater efficiency with which farmers can use resources and also because government, freed from some of its former obligations to manipulate the market, can now turn its attention and resources to the development of infrastructure and the encouragement of technological change.

The estimated size of the food gap is also biased on the upward side. No account is taken, for example, of *dimba* cultivation. *Dimba* are gardens on small tracts of cultivated land situated in valley bottoms, usually along river beds. In a recent FEWS Food Security Report, it is estimated that at minimum 105,000 tons of maize produced on *dimba* land are missed in the

smallholder crop estimates (FEW February 1996). The production of maize and other food crops on estates has also not been measured. Estimates of this production have been consistently low. In addition, while there is evidence of considerable production on public lands, no estimate of this amount is available. Finally, with the traditional focus on maize, past and potential expansion of other food groups has been underestimated. This is particularly true of rootcrops. It is estimated that a shift from local maize to cassava could increase caloric-based food production per hectare by 316 percent with little change in inputs or cash requirements (Simmons 1995). In addition, present estimates of cassava production is collected in tonnage on a dry weight bases. Calculation of maize equivalents of this tonnage in the food gap, on the other hand, has been done on a fresh weight bases. The maize equivalent of fresh weight cassava is only a third of dry weight. All of these biases seriously call into question the validity of the food gap estimate.

3.1.2 Relevance of Food Gap to Food Security

An analysis of a food gap is not very relevant to food security. Among the problems of using a food gap as a guide for food security is that the estimated food requirements generated by a food gap analysis are based on an assumption that everybody in the population gets his or her due share as determined by nutritional criteria. Reality is hardly like this. In fact, the distribution of food in the population is more likely to be governed by market forces, including the distribution of income, assets and prices, than by nutritional considerations. There are some who can afford to, and actually do, consume more than their nutritional needs, and certainly in Malawi there are many others who are unable to produce or to acquire enough food to meet their nutritional needs. In so far that people have to depend on public distribution, it is equally unlikely that government and donors can either afford or fine-tune the distribution of food in line with each person's nutritional needs.

Secondly, the food gap calculations of food requirements are also based on the assumption that the share of total dietary energy obtained from particular food or groups of food remains constant over the years. In fact, these shares are likely to vary a great deal as people make their choices on the basis of changes in relative prices and relative abundance. More likely than not, in a year with poor grain harvests, the share of total energy people obtain from grains is likely to be lower than usual while the share of other food groups is higher than usual.

Thirdly, apart from year to year fluctuations, the use of data from earlier years about the sources of dietary energy from different sources misses the currently observed tendency for the relative importance of cereals in the diets to decline as increasing population pressure on limited land resources makes the traditionally consumed foods unaffordable.

It must be clearly understood that policies which make use of such national food gap calculations can be seriously biased in at least two ways. In Malawi there are indications that both biases have actually occurred. For one, the observation that a national food gap does not exist, for example, in a good production year, can easily create the illusion that food security has been achieved when it has not been; thereby reducing resolve to address the special needs of people

whose nutritional needs remain unmet. And, perhaps much worse, if anyone really attempted to fill the "food gap" with imported food supplies without actually seeing to it that these are used to fill the calculated "nutrition gap", the excess food could play havoc with the functioning of an orderly market, throwing traders into confusion, depressing the price to producers, reducing incentive for domestic food production, and possibly causing increased undernutrition among the rural population.

There is some evidence that market supplies have been at times excessive in Malawi so that prices were lower than needed to cover costs of production, while malnutrition has remained widespread. Full silos and acutely undernourished children is not what policy makers intended. The lesson, of course, is that food security policy might be more effective if the focus of attention is not so much on filling a national "food gap", but on filling the "income gap" of the food insecure population.

3.2 Assessing Food Security: A Market-Based Approach

A market-based approach to assessing food security is concerned with the economic indicators that lead to change in demand and supply for food in the economy. The focus is on how market conditions affect household food security. As supply fluctuates, prices rise and fall accordingly, assuming fairly fixed short-term demand for food. Over time, people adjust demand in accordance to relative prices among food goods and shift consumption to lower priced foods. By following price and quantity movements, a fairly clear picture of overall food availability can be determined. This food availability is the equivalent to the so-called food gap.

In much of policy analysis, the question asked determines to a great extent the type of answer received. If the questions related to food security ask about a food gap, the response will concern need to fill a production short-fall with imports or food aid, i.e., a quantity of food. If, however, the question asked is how a production short-fall affects food security, a much different response occurs. Now the focus is on food security and not on some given quantity of food. In this case, the response deals with questions of effective demand, food prices, and income levels. The analysis looks at the responses (elasticities) of prices, income and supply to the changing market situation resulting from the production short-fall. This is a market-based approach to assessing questions of food security.

For government to address transitory food insecurity issues, it needs much more than information of impending changes in the national food gap. Information by regions on production and prices not only of maize but of other foods is required. Much of this information is already collected. The primary improvement needed is for the information to be interpreted for appropriate action. An analysis might be organized along the lines of segmented markets described in Annex D. For illustration, the analysis presented in that annex is based on segmenting the maize market into two largely independent parts. One segment is maize-deficit farming households and the other segment is maize-surplus farming households.

4. PUBLIC INTERVENTION FOR FOOD SECURITY

In a modern democracy, food security is an essential public good. People expect the government to establish appropriate policies and programs to assure that the population has adequate food. Because of this expectation, public intervention to help assure food security is a high priority for all governments. How such intervention takes place varies by country. The following are observations on public intervention for food security in Malawi.

4.1 Linkage Between Transitory and Chronic Food Insecurity Linkage

As mentioned earlier, transitory food insecurity and chronic food insecurity have different causes. Transitory food insecurity is caused by an exogenous shock to the production system, whereas chronic food insecurity results from lack of assets and income at the household level. In a more developed exchange-based economy, a drought may cause a temporary drop in food supply. Such a drop can easily be filled by imports, and it has limited impact on effective demand for food. In Malawi, a country with a large part of its population engaged in rainfed subsistence agriculture, a drought causes not only a fall in production and a deficit in food supply in the economy, but also a drop in effective demand, as rural income is linked to agricultural production. Without a chronic food-insecure situation already existing in the country, transitory food insecurity would be much less a problem.

Transitory and chronic food insecurity in Malawi are linked. Both require focus on household income. Supplying food to the poor in a drought, either through a food for work program or directly, is a de facto income transfer as much as it is an increase in food supply. Because of the linkage between transitory and chronic food insecurity, it is critically important that any activity related to a transitory problem not damage or curtail efforts of the longer-term market-led approach to deal with chronic food insecurity issue. Ideally, efforts to respond to the transitory problem would enhance efforts to dealing with the chronic problem. Unfortunately, donor and government responses to the recent droughts may have unintentionally hindered or interrupted the development of markets in the country. Results just now coming in from an analysis of the impact of the free inputs provided under the Drought Recovery Program should indicate the extent to which these disruptions have occurred.

Donors and government have a selection of options for dealing with both transitory and chronic food insecurity. The level and type of interventions undertaken depend on the resources available and on the will of both donors and government to deal with a sometimes massive problem. Under the best circumstances, response to transitory food insecurity could be done through the expansion of resources provided to existing on-the-ground programs that deal with aspects of chronic food insecurity. An approach of this type would provide a quicker response to the transitory situation with lower overhead costs for project planning, preparation and start-up than a new and separate program would require. This approach could also help assure that response to the transitory problem also address the longer-term chronic problem. Programs that

could fall into this category include food-for-work projects and possible direct income transfer activities.

4.2 Public Programs to Deal with Transitory Food Insecurity

The performance of markets and public interventions can either mitigate or aggravate transitory food insecurity and its ill effects. In a well functioning market, prices reflect the relative scarcities in markets. Consumers make adjustments according to these prices to mitigate the potentially harmful effects of food scarcity on their diet. A rise in prices reflecting scarcities also signals supply incentives. During a drought, for example, there would be incentive to grow drought resistant crops.

Until now, the response of the Malawian government and donors to drought has largely been reactive. The first indication of potential problems comes with the experience of a poor rainy season. Crop estimates are made, and on this basis, the size of the production gap is identified. This "gap" is divided into the amount required to stabilize the commercial market — commercial imports — and the amount required to distribute directly to the affected sections of the population. Stocks in country and the amount of grain available in the Strategic Grain Reserve (SGR) are calculated, and an appeal is made for the food aid required. Commercial food aid has been distributed through ADMARC and emergency food aid has, until last year, been distributed free to targeted beneficiaries⁴. In 1995/96 a Food for Work (FFW) component was introduced.

These programs are clearly costly and involve considerable non-food resources. Both the release of food through ADMARC and the free distribution programs are likely to have an unpredictable effect on the developing private maize market. Although there are limits to what can be done to "drought-proof" the Malawian economy in the short run — the most effective drought-proofing is development and growth, with concomitant diversification and reduced reliance on the agricultural sector — there are actions that government can take to reduce the impact of drought on both the household and the economy.

As has already been stated, vulnerability to drought is increased by dependence on agriculture, and, within the food sector, dependence on a relatively drought-susceptible crop such as maize. As at the national level, the more diversified the household's sources of food and income, the less vulnerable it is to drought. Over the last few years, smallholder farmers are taking action themselves to diversify cropping patterns away from such a heavy reliance on maize as there was in the 1980s. More land is being planted to drought resistant crops such as cassava.

The government can support this trend toward diversification by ensuring that agricultural extension messages not focus on maize alone. In addition, improved husbandry techniques, including elements of soil and water conservation and better use of organic material can be

⁴ A discussion of the targeting procedures used is contained in Annex E.

promoted by extension staff. However, in a market economy, on-farm husbandry and cropping patterns will be determined by the smallholder's own perception of risk and profit. The main role that government can play is to ensure that state and market institutions are not biased in favor of maize and that information on appropriate technologies is disseminated and the technologies are available.

Malawi already has a well-established network of information systems, in particular the Famine Early Warning System (FEWS) and the National Early Warning System (NEWS). These systems have already adapted in response to the changing economic environment, in particular to increased private sector activity, and will doubtlessly continue to do so. The main need in Malawi at present is not for more data collection but for a quicker and more effective response to information already collected. This response should have two elements: a mechanism whereby government and concerned donors can come quickly to a common view on the magnitude of any impending problem; and a set of contingency plans drawn up in advance which outline possible appropriate actions.

Thought should also be given to ways in which early warning information can be disseminated to the private sector, including both farmers and traders. The private sector can often respond more quickly than government can to impending market shortages, and it can often do so in a more cost-effective fashion.

As meteorological forecasts improve over time, more options will become available to offset the costs of drought. Better use can be made of international commodity markets. Information may even come in time to affect planting intentions. However, even now, in the areas discussed above, government can take action to assist smallholders to reduce their own vulnerability to drought.

4.3 Price Stability and Food Security

During Malawi's centrally planned interventionist era, fixed maize prices and stabilization mechanisms such as the Strategic Grain Reserve (SGR) had a prominent role in the economy. These mechanisms have limited value for food security, particularly for the very poor. In a market economy the role of price stabilization and the mechanisms to support it need to be reevaluated.

Subsistence farms are little affected by price changes because they do little trading in the market. For a large share of the population, maize production constitutes not only a main source of food but also their main source of income. Consumption in these households is in direct proportion to the level of production. The price of maize has little significance for them. A maize-deficit farming household which in a drought year loses half of its normal production is likely to suffer with an equivalent loss in its ability to purchase or consume maize, irrespective of what happens in the market for maize. Income of such a household to purchase maize has been

cut in the same proportion as has its supply of maize. Other sources of income, such as sale of other crops or of labor, are also likely to be equally adversely affected by the drought.

Enforcement of a completely stable price would be entirely inconsistent with the functioning of a free market in which the primary decisions are made by free agents on the basis of relative price changes. In addition, public interventions to increase price stability can be effective only to the extent that there are enough resources to implement them. Given the very limited resources that can be devoted to this end in Malawi, it is probably correct to say that only extreme price instability should be cause for intervention.

The other important thing to note in this context is that it very useful to maintain a clear distinction between: 1) stability over the seasons of any particular year and over different locations in the country and 2) stability between one year and the next. For the former, it seems that the present arrangement of ADMARC's operating side by side with private traders provides adequate assurance that prices will be relatively stable within the limits of price differentials imposed by the cost of interseasonal storage and spatial transfer costs. ADMARC plans to maintain a price structure which is consistent with full recovery of these costs. The role of government here is primarily to provide for adequate road infrastructure and support for the development of improved storage technology. It is particularly important in the interim period, until there is more competition in the marketing of agricultural commodities, for the GoM to play the important role of collecting and disseminating effectively information on prices prevailing in markets.

The Strategic Grain Reserve, as well as interventions in foreign trade in the context of a liberalized market, are meant to be used exclusively for making a contribution to inter-year price stability. The only way to raise or reduce the market price of maize in a liberalized market is to remove from the market excessive supplies or to inject into the market additional supplies. There are only two ways of accomplishing these interventions: storage operations or intervening in exports and imports.

To decide which is more economical, storage or foreign trade transactions, it is necessary to evaluate the cost of storage against the cost of stabilizing through trade. In order to estimate the cost of storing, besides having to know the annual storage costs, it is necessary to know the probabilities of how far apart in time extreme shortfalls or excesses are likely to occur. The probability of a shortfall in production such as has occurred, for instance, in Malawi in 1991/92 is not only low, but the probability for such a shortfall to be preceded by a year with a similarly large surplus to store is even much lower. The long time spans for which supplies need to be stored for effective protection against extreme events, coupled with high interest rates, make storing quite cost ineffective compared with selling surpluses into other markets and buying them back when needed. This principle is true even if such trading transactions also involve high costs.

It should be noted in passing that no model used for evaluating stabilization through storage interventions would suggest that year end stocks should be held after a year of short supplies. The question is only whether to accumulate stocks after a year of surplus production.

Similarly, to keep a buffer stock for imported grain or fertilizer is a luxury that is entirely unjustified, except in times of international emergencies.

Food aid can be an additional resource, as a substitute for commercial imports, in price stabilization policy. To the extent that donors can give foreign exchange directly rather than donate commodities, foreign exchange is preferable. It allows for a much more coherent management of government resources and makes for greater transparency in food markets. If foreign exchange cannot be donated, then it is important that the full commercial value of food be deposited in a government account. This deposit again serves the purpose of market transparency. Government can choose to distribute food aid at a subsidized price, for example at the ceiling price, if a price band is in place. However, the full cost of this choice should be reflected in the government budget. If there is no government intervention, then the possibility of auctioning food aid to the highest bidder should be examined. Auctioning would have the advantage of distributing the food at least in part through the private sector. The funds realized from the monetization of food aid could then be used to fund other food security related programs.

There has been much discussion recently on the use of a price band to stabilize maize prices. As noted earlier, a price band, or any other price stabilization mechanism, has limited value in support of food security. A realistic price band should closely dovetail export and import parity prices, as they are likely to prevail. Fortunately, the "isolation" of Malawi's food market is no longer what it used to be. The gap between export and import parity is at most on the order of \$120 per ton (1.80 MK per kg). The most important concern about the price band and food security relates to the price band's impact on allowing sufficient trading margins to encourage expansion of traders into the food market (see Section 5.1).

4.4 Transitory Food Insecurity and Safety Nets

Appropriate response to transitory food insecurity depends, to some extent, on the severity of the production shock. When faced by a drought of the magnitude of 1991/92, some form of distribution program is inevitable. Such a program does not have involve a direct distribution of food, however. As food markets develop and deepen, the possibility of using some type of food voucher or food stamp program should be considered. This type of program can actively develop markets, as opposed to having a disruptive influence.

It may be possible to address lesser income and production shocks by increasing the scope and level of resources provided to existing safety net programs. Increasing resources would have the advantage of reducing start-up costs and enabling timely response. Often free food distribution programs are introduced because there does not seem to be time for a more considered response.

At present there is only one national safety net program⁵ in Malawi, WFP's supplementary feeding program, targeting malnourished children in Nutrition Rehabilitation Units. While this is a well-targeted program which provides important support to children and families, it is not sufficiently broad in scope to form a basis for a response to drought. However, the recent introduction of public works programs, including FFW programs, by WFP and MASAF, could form a basis for a more general safety net.⁶ Income transfer programs also fall into this category.

To be suitable as a basis for a response to transitory food insecurity, a safety net program should be capable of national coverage, should be capable of being stepped up and down in scale as conditions require and should not disrupt the development of markets. It should be appropriate for as wide a section of the affected population as possible and be cost-effective in delivering resources to the target group.

⁵ A more full discussion of safety nets is contained in Annex F.

⁶ Public works programs are discussed in Annex G.

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5. ALTERNATIVES TO DEAL WITH CHRONIC FOOD INSECURITY

There are many ways government can support and enhance food security within their countries. Of these, three possible alternatives should be noted in terms of their appropriateness and effectiveness for increasing the food security of Malawi's population. These three alternatives are direct or indirect market intervention, encouragement of market development, and market development with income redistribution.

5.1 Direct or Indirect Market Intervention

Intervention into the market by government, either directly or indirectly, has been for the past 30 years the standard response to food security problems in Malawi. Even today, Malawi's politicians continue to promise to protect the population from hunger through subsidies, free hand outs, and manipulation of prices in the market. There is a common fear and distrust of the market among many in government and a belief that if there is a problem, the state must solve it. In many government agencies and organizations there is an institutional culture that seeks to protect and control the population through government action. Governmental concern for the well being of its population is laudable and highly desirable. When this concern is translated into undermining the ability of the population to provide for its own well being in accordance with basic social justice, then this laudable concern becomes a liability and detriment to the society.

Examples of market intervention by the state are abundant. The most obvious example is the tendency of government policy makers to look to ADMARC first whenever there is any threat related to food or food production. Reliance on ADMARC as the operational arm for food security policy has been, and to a certain extent still is, the standard approach of government. Such reliance is often justified on the grounds that private markets are too thin and too unreliable to support food security policy. Ironically, exclusive reliance on ADMARC, makes this opinion about private markets a self-fulfilling prophecy. Those who do not think the market will work put into place actions and policies which assure that the market will not work.

The implementation of a price band is a significant step forward from the previous fixed administrative prices. If, however, the band is set too narrowly in the belief that this will protect producers and consumers, there is not enough margin for private traders to operate in the market, given the risk and cost involved. Curtailing incentives for traders to enter into the market, causes trade in maize to be done by a small number of traders who can effectively dictate price level through monopsonistic and oligopsonistic behavior. The government is then faced with two unpalatable options. Either the government must allow prices to be artificially low for producers or high for consumers as traders take their monopolistic profits, or government must try to intervene to support the price band and face ever increasing burdens on the treasury. Thus, while government tries to do something good, i.e., protect people, a bad situation occurs.

There are numerous other examples of market distortion though government intervention into the market. Panterritorial pricing attempts to deny the existence of transportation costs to get

goods to markets thus limiting entry into the market by traders and transporters. Regulated transportation rates limit entry into the sector resulting in monopolistic behavior and excessive transportation costs. Restriction on export of maize results in revenue loss to government through illegal border trade and both lower prices to producers and higher prices to consumers than would be the case with more open cross-border markets.

The manner in which the so called free inputs part of the Drought Recovery Program was implemented is another example of how programs intervene in markets rather than use them. By giving out predetermined packages of fertilizer and seed primarily through ADMARC, the input program retarded the development of the private input market. The extent of this distortion is now being studied, but preliminary data indicate that the program was a significant blow to the private seed market and was non-supportive of the fertilizer market. To be fair, it should be noted that this free input program was created at the last minute in response to what was perceived as an emergency situation. In situations of urgency the governmental response is to fall back onto traditional methods of implementation and intervene directly into the market. As long as this sort of reaction occurs, market development is going to be delayed.

This does not mean that there is not a legitimate role for government in the food security area. A laissez faire approach to markets is not the answer to Malawi's food security problems. As seen in Section 1.2.4, there is an essential role for government in facilitating the market. In addition, government has to protect those in society who cannot protect themselves.

Market intervention by government is a role that for many policy makers is a traditional and comfortable one that satisfies a perceived duty of government. Such intervention also can be pointed to as helping, in the short term, vulnerable sections of the society. In the past markets could play only a very limited role in the society and that only for a selected segment. Today, markets and market mechanisms are a viable and important tool for government in achieving policy objectives. The old approach, which never was valid, is no longer necessary. Market intervention by the state is not sustainable and is dependent, ultimately, on donor financial support. This donor support, in turn, bolsters donor dependence. Even worse, continual government intervention into the market perpetuates an inefficient economic structure with distorted allocation of resources.

5.2 Encourage Market Development

Within the context of solving chronic food insecurity within a market economy, three priorities stand out — markets, exchange mechanisms, and technology. Markets are the foundation of this approach. Exchange mechanisms both facilitate market development and allow specialization in the economy which, in turn, leads to productivity growth. Technology is the fuel that makes this whole system work.

The basic premise of this report is that chronic food insecurity can be solved only through increasing productivity and through growth of the national economy. The answer to food

insecurity is reduction of poverty through development. Within the scope and resources of this report the whole of Malawi's development cannot be considered. There are many basic development issues the report cannot and should not address. Nevertheless, aspects of programs in priority areas to support food security within a market context can be briefly examined to see possible future directions these programs should take.

The following comments on how to deal with chronic food security issues should be viewed as a framework for future actions, not necessarily as specific actions to be taken immediately. This presentation attempts to describe where government and donors should be heading in each of the concerned areas to fully implement a market-oriented approach to establishing food security in Malawi. The report also notes possible pitfalls to be avoided by policy makers. This framework can serve as a guide for additional study to develop action plans and policy directions.

5.2.1 Markets

There are two basic types of markets that are important to food security in Malawi. First and most basic is the food market in the country. Second is a group of markets related to the factors of production, namely capital markets, land markets, labor markets and inputs markets.

Food Markets. The concept of a food market entails a wide range of activities from the purchase of food from the producer, processing, storage, distribution and differentiation of the product until it is finally sold and consumed. From a food security perspective, important elements needed in the food market include low transaction costs within the marketing system, expanded differentiation of food available to consumers, particularly the poor, and assured availability of food on the market. As mentioned earlier, traditionally the food market in Malawi has been very thin and unreliable. The situation, however, is now changing.

Even with all the studies done in Malawi on food security issues (Annex B), the concept of a competitive food market is relatively new in Malawi and has undergone limited analysis. Much basic information about the food market is not well understood. For example, ADMARC's rule of thumb is that about 20 percent of the maize crop is marketed through their branches. Yet, this level of purchases has only occurred once in the last five years during the bumper crop of 1993. In other years, ADMARC's purchases were less than half of that percentage. Little is known about food marketed or traded in the private sector outside of ADMARC. In 1995, it was estimated that the private sector bought about three percent of the maize crop, less than half of ADMARC's seven percent (EP&D 1996). For food crops other than maize, even less is known of private sector trade. From studies reported in the Poverty Profile, it is known that food crop sales, trade, and exchange are critical to the poor for cash income. Such food crop sales include not only maize but beans, cassava and a host of other locally grown crops. Important issues which need to be examined in future research are the flow, timing and volume of these transactions. This research should include questions related to the flow of food from the rural to

urban area, the movement of food among regions, ADDs, EPAs, and local markets; cross-border flow of food; and the shift in food consumed or marketed over the calendar year.

ADMARC historically has been the dominant player in the food (primarily maize) market. To decrease this dominance, broadening and deepening the food market by increasing the number of traders competing in the market is critical. Widening the maize price band to reflect import and export parity price will allow greater spread of marketing margins to attract more traders into the maize market (Gray 1995). Expanding the number of traders will lower transaction costs and provide better prices to both producers and consumers. Once the maize market becomes more efficient, with larger numbers of buyers and seller, a price band may no longer be necessary.

Other means of broadening the food market include the following: 1) Expanding availability of storage facilities in the countryside possibly through renting or selling of some of ADMARC's warehouses. On-farm storage should also be expanded. A recent study indicates that losses in on-farm storage are low, at five to seven percent. 2) Maintaining and expanding removal of artificial restrictions on trading. A great deal has already been done in this area but vigilance is needed to maintain these advances. The only remaining significant trading restriction is on export of maize. This restriction should be examined closely for removal as soon as possible. Liberalization of food trade on a regional basis could provide higher producer prices, greater price stability, lower marketing margins and greater variety of food on the market to benefit consumers. 3) Markets run on expectations of future events. The action of government plays a significant role in sending to the market signals that create these expectations. An announcement of a maize price band, for example, sends signals that establish one type of expectation in the market. Subsequent government actions that do not support this announcement, send different and possibly conflicting signals to the market. Conflicting signals create uncertainty in the market. Uncertainty retards market expansion and development. Government policy announcements need to be realistic in terms of resources required and available for implementing the policies announced.

Appropriate food processing at both intermediate and final stages is needed, particularly in the rural areas. Evidence from neighboring countries (Jayne and Rubey 1993), for example, indicates that widespread use of small scale hammer-mills can make available a differentiated variety of food products tailored to low income consumers. In Malawi, consumers indicated a cost-related preference among differentiated food in a study on *ufa woyera* and *mgaiwa* (Mkandawire 1993). In Mozambique, differentiation of food products resulted in a greater number of varieties of affordable food on the market thorough use of local processing and introduction of yellow maize. This variety had a direct and positive impact on the food security of the poor (Jayne et al., 1995).

In Malawi, at the moment, food markets are generally not working as well as they should. A goal for Malawi policy makers should be free, active and highly competitive food markets.

Factor Markets. Factor markets are central to increasing agricultural and non-agricultural productivity and incomes of rural households. How well these markets function will determine

how fast and how equitably economic growth will occur. These factor markets include markets for capital, land, labor and inputs.

Capital Markets

Most of the larger estates have always had access to commercial credit. But for the smallholder sector, even before the failure of the SACA, only about 20 percent of smallholders had access to formal credit (Msukwa et al., 1994). Estimates of formal credit coverage under the reorganized MRFC range from eight to twenty percent. For most smallholders, traders and even smaller estates, credit is viewed as a problem. Current interest rates are about 50 percent. Rural inflation is estimated at between 60 and 80 percent in 1995 (EP&D 1996). At these levels of inflation, a 50 percent interest rate is actually negative. For small farmers, however, nominal interest rates are still a problem. Official inflation figures do not accurately reflect many small farmers' actual consumption behavior and are not relevant in the pricing structure they face.

More importantly, a focus on credit problems and financial market weakness may hide a more fundamental problem related to capital markets: a lack of viable investment opportunities for smallholders and small traders. True investment opportunities are needed to create demand for widespread credit, not vice versa. Investment opportunities for full input maize production, for example, are marginal at present price ratio of inputs to farm gate prices. Not surprisingly, credit is hard to find for maize production and marketing. Investment opportunities in tobacco, on the other hand, are very good, and the credit system is working better with this crop.

As markets improve, investment opportunities both on and off-farm should also improve. It is likely that the capital market will come forward to serve this improving investment climate. It is extremely important for donors and government to avoid the temptation, under these circumstances, to shift price ratios artificially or administratively to achieve what may be seen as a positive economic or social outcome. Efforts to raise producer prices for maize administratively to increase production, for example, will only lead to market distortion and misallocation of resources.

From a market-oriented point of view, a particularly cost effective form of credit is dealer credit. To a limited extent this form of credit is now being seen at the distributor/dealer level where hybrid maize seed is distributed through use of delayed payments. The use of dealer credit should be encouraged in other Malawian contexts, particularly at the smallholder level.

Land Markets

It is generally held that land is a scarce commodity in Malawi, with more than 40 percent of smallholders having less than 0.5 ha of land. At the same time, rough estimates are that over 100,000 ha of arable estate land is unutilized (Mkandawire et al., 1990). A viable market is the most effective way of allocating a scarce resource such as land to its highest economic use. Land issues, however, are always political and difficult to deal with. Nevertheless, at this juncture in

Malawi's history, this may be an opportune time to begin addressing the critical issue of creation of a viable land market in the country. The recently created Presidential Commission of Inquiry on Land Policy could be a useful tool for beginning this process.

At present there is an informal market in leases for land in the estate sector. Creation of a more formal market for buying and selling leases should be undertaken. Once a land lease market is in place, a market-determined value of leases could be established. This value, in turn, could serve as a basis for rent payments.

In the smallholder sector, thought should be given to how conversion of customary land holdings to a smallholder leasehold arrangement could be undertaken. Experience in other African countries suggest that a gradual approach to this issue should be taken. In addition, full participation in, and use of, the political process is essential (Bruce and Migot-Adholla 1993). With restrictions being lifted on smallholder production of burley tobacco, the pressure to convert customary land into leasehold estates has lessened. Nevertheless, establishment of a transaction market for land would, over time, still shift real resources to smallholders. Smallholders, for example, could use their lease as collateral for loans at commercial banks. A viable land market for smallholders could also provide a rational and equitable way of consolidating smallholder plots into economically viable sizes.

Labor Markets

The market for labor in Malawi, like many of the other markets in the country, is thin and fragmentary. In the rural area the most common labor market is *ganyu*. It is estimated that about 70 percent of the active rural population engage in *ganyu* at least part of the year. About 14 percent of the rural population work as permanent laborers or as tenants. While concerns have been raised about the social value of *ganyu*, it needs to be recognized that *ganyu*, defined as casual farm labor paid in cash or kind, is essential to increasing rural productivity and income. An expansion of demand for casual farm labor is very desirable. On the other hand, there are a number of examples of exploitation, particularly of the very poor, in some use of *ganyu*. The issue is to deal with the abuses under *ganyu*, not to condemn *ganyu* itself. For the very poor, *ganyu* may be their only safety net (see Annex F). Piece work *ganyu* paid in kind is difficult to compare with other income generating activities. Increasing transparency in this type of activity would allow the rural population to make better choices in the use of their labor (Weber).

Over time, questions of the labor market will not be solved until there is increasing demand for labor. Caution is needed on establishing legislation to "protect" labor before an active labor market exists. Such legislation, while socially desirable, is likely to retard growth in the labor market and to distort labor/capital ratio in investments. As demand increases for labor, labor's ability to seek more rights and protection from abuse in the market should grow.

Inputs Markets

Since 1994 private traders have been allowed, with numerous restrictions, to import and distribute inputs to smallholders. The estate sector, on the other hand, could always get inputs from whoever provided the best prices and service. It was not until January 1996 that a series of licensing and compulsory approvals required for private trading of inputs to smallholders was removed. Even though liberalization of regulations on the input market has occurred, vigilance is still needed to assure that backsliding does not happen. The changes in the input market have occurred too recently to be sure that they are permanent and that reintroduction of unnecessary regulation does not occur.

A number of questionable policy decisions have cooled expansion of the input market. Foremost among these has been the free input program for drought relief that has been established in the last two years. Another potential damper on full expansion of the fertilizer market is the continual existence of a large buffer stock of fertilizer (FBS managed by SFFRFM). With full liberalization of the fertilizer market for smallholder, the continual justification of the existence of the FBS should be examined. Traders are rightfully wary of taking the risk necessary to enter a market if there is a threat that a large supply of a commodity related to that market could be dumped on the market. The input market also suffers the same problems of credit, transportation and storage that face other commodity markets in the country.

5.2.2 Exchange Mechanisms

Exchange mechanisms refer to the means by which goods and services are exchanged within the economy. In a simple subsistence economy, exchange often is done locally at a personal level or through kinship or ethnic linkages. In a modern economy, exchange usually takes place through impersonal exchanges regulated by law, sometime over great distance and time.

Transportation. Without efficient and inexpensive linkages of goods and services between buyers and sellers throughout the country, exchange is minimal. The poor state of the road network is often blamed for the high cost of transportation in Malawi. Yet the road network among major cities is relatively good. Even in rural areas, roads are usually passable in dry weather. While there are some remote areas that badly need improved roads, the biggest problem in the transportation sector is that for a number of years the sector has been unduly protected from competition. The consequence of this protection is that transportation costs in Malawi are twice as expensive as those in neighboring countries (World Bank 1996). Fortunately, the level of this protection is now changing. In 1995, a ban on second-hand trucks and spare parts was removed. In January 1996, statutory domestic freight rates were removed. Additional efforts to expand the size of the fleet, especially for small capacity trucks and various forms of local transportation, need to be made in order to have a more competitive market.

Contracts and Law. Exchange is ultimately based on law. Buyers and sellers need to be able to make and enforce legal contracts. Critical to expanded use of contracts is the need for quick and inexpensive dispute resolution. In addition, appropriate grades and standard are also essential for uniform contracts and for clear understanding of what is being purchased or sold.

Information. Accurate and current information on market prices is critical for a well functioning market. Present data collection and dissemination efforts in Malawi include: MoALD's Agro-economic Surveys(AES), statistics and indices prepared by the National Statistic Office (NSO), and price data collected under the FEWS Vulnerability Survey. Criticism has been made of the present system for collection and dissemination of market price information. Much of this criticism relates to limited coverage of price collection activities and to how effectively price information is being disseminated. In general, the AES system appears to be a good base on which to build a more comprehensive price information structure.

5.2.3 Technology

Technology is basic to efforts to increase productivity and to advance the structural transformation needed in Malawi's economy. Technology does not exist in a vacuum but needs the necessary support facilities and education of the population to assure its wide-spread adoption and utilization.

Education. Both basic and continuing education are essential for the structural transformation of the economy. There is a need to expand educational opportunities and choices to include not just public programs but various private programs as well. The recent expansion of primary education will be an important contribution to future market development and food security. An educated work force with educated consumers and producers is extremely important to a well functioning market. With the rapid expansion of primary education, however, resources for other education activities will be limited. Efforts will need to be made to find cost-effective alternatives to standard educational activities. The market may play a limited role in education through dealer/supplier education of their customers through advertisement, field days and demonstrations. Closer links between the extension service and private input dealers may be advantageous to both in their efforts to educate smallholders on the choosing and using of technology.

Sources of Technology. As previously indicated, agricultural production is not only the main source of food for the population, it is also its main source of income. Technology is a critical part of increasing agricultural productivity, which, in turn, increases both food production and income. Adoption of technology will depend on the return that technology provides the household versus its cost. By having access to the widest varieties of technology, farmers and non-farm business can obtain the best and least expensive technology appropriate to their needs.

Technology should come from both public and private sources, ideally with competition between both. An example of this competition has already taken place in the hybrid maize market. An introduction of a triple cross semi-flint hybrid maize (NSCM41) in 1983 was made by National Seed Corporation through a licensing arrangement. This release helped motivate new research from the Agricultural Research System that led to the release of flint hybrid varieties MH17 and MH18 in 1990. In addition to formal research programs, efforts should be made to encourage petty patents and other technology-generating procedures for local processing and manufacturing within the informal sector. This use of technology could have a significant impact on increasing labor demand.

As seen in Chapter 2, even with strong market development in the economy, some households will not be able to provide adequate means to sustain their families. As economic growth expands through market-led development, fewer of these households should need assistance. To keep popular support for market development and to protect those household that are slipping through the system, an effective safety net should accompany and support market development. Annex F provides details of present safety net structures in the country and suggests ways to improve them.

5.3 Market Development and Income Redistribution

The ultimate solution to the food security problems of Malawi's population is through market development, as described above, and through more equitable distribution of income and resources in the country. While development of markets is relatively easy in terms of existing governmental structures and resources, income redistribution is, politically and economically, extremely difficult. Nevertheless, if the income distribution issue is not ultimately dealt with, Malawi's population will never be food secure. The central message of this report is that food security is a question of income. Thirty years of government policy that supported the development of a small privileged elite at the expense of the majority of the population has created an income distribution situation in the country that is among the most inequitable in the world (World Bank 1995). Without adequate income, a significant number of households in Malawi cannot hope ever to become food-secure.

Inequitable distribution of income in the country not only affects food security, it also has an impact on the speed and efficiency at which markets which support food security can develop. As mentioned in Section 2.2, a number of household have such limited assets that they are unable to participate in and benefit from the liberalization of the markets that has occurred in the past few years. In addition, with such a highly skewed distribution of assets and income in the country, development of a competitive, open marketplace is threatened. Malawi could find itself shifting from the tyranny of government policy supporting the economic elite minority to the tyranny of an oligopolistic market supporting that same economic minority. There is a need to empower the poor majority to become active participants in the market.

How a more equitable transfer of income and assets can be made from one segment of the society to another is politically and technically difficult. Experience underlines the need to focus on economically-based approaches rather than those based on issues of social justice. Increased economic growth in the country will make the transfer of resources easier, as taxation and other income transfer policy instruments that presently do not exist become available to government. The development of a land market seems an obvious necessity for more equitable and rational distribution of the most essential factor of agricultural production. It will take some time before a viable land market can be established. In the interim, government may want to look at more direct income transfer mechanisms to target select elements of the economy that could most effectively use additional resources to expand entry into the market, thus creating a basis for increased household productivity and income. Any mechanism to redistribute income should, to the extent possible, support and expand market development. At the very least, these mechanisms should not distort or curtail markets and prices.

In the final analysis, income redistribution is a question of political will and resources. Of these two, political will is by far the most important. The distribution of assets in a society is one of the most contentious of any public policy issues a government faces. Thirty years of history cannot be corrected in a single stroke. Vested interest are well entrenched and powerful. But if the government and people of Malawi want food security for the population, then the difficult issue of income redistribution has to be addressed.

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ANNEXES

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ANNEX B: BIBLIOGRAPHY

- Alwang, Jeffrey and Paul Siegel. January 1996. *Smallholder Agriculture in Malawi: Constraints to Achieving Poverty Alleviation Through Agricultural Intensification* (Draft). Washington: World Bank.
- Ardouin, Julian. July 1994. *A National Survey of the Road Transport Industry in Malawi*. RTIB Services Limited.
- Babu, S. C. and G. B. Mthindi. 1994. "Household Food Security and Nutrition Monitoring: The Malawi Approach to Development Planning and Policy Interventions." *Food Policy*. 19:3 218-284.
- Benesi, Ibrahim, Issac Minde, Frade Nyondo and Tom Trail. December 1995. *Adoption Rate and Impact Assessment Study of the Accelerated Multiplication and Distribution of Cassava and Sweet Potato Planting Materials as a Drought Recovery Measure in Malawi*. International Institute of Tropical Agriculture. Lilongwe.
- Benyon, Jonathan and John Wood. November 1993. *A Review of National Objectives for Establishing Food Security Reserves in Southern Africa*. Natural Resources Institute. Kent, England.
- Bruce, John and Shem Migot-Adholla. 1994. *Searching for Land Tenure Security in Africa*. Dubuque, Iowa: Kendall/Hunt Publishing.
- Carvalho, Joe, David Gordon, David Hirschmann, David Martell, and Emmy Simmons. March 1993. *Mid-Term Evaluation of the Agricultural Sector Assistance Program (ASAP)*. Nairobi, Kenya.
- Chilowa, Wycliffe and Gerald Shively. December 1989. *Expenditure Patterns and Nutritional Status of Malawi's Urban Poor*. Center for Social Research. University of Malawi.
- Coulter, Jonathan. April 1995. *Maize Marketing and Pricing Study: Mozambique*. Natural Resources Institute. Kent, England.
- Department of Economic Planning and Development. September 1990. *Food Security and Nutrition Policy Statement Supplement to the Statement of Development Policies*. Office of the President and Cabinet. Lilongwe.
- Diagne, Aliou, Manfred Zeller, and Charles Mataya. December 1995. *Rural Financial Markets and Household Food Security: Impacts of Access to Credit on the Socio-economic Situation of Rural Households in Malawi*. Bunda College of Agriculture Rural Development

Department and International Food Policy Research Institute submitted to MOWCACSSW and GTZ. Bunda, Malawi.

Dil, Lee Ann. May 1996. *Rural Appraisal: Use of Primary Schools, Vulnerable Group Feeding, and Food for Work as Channel of Maize Distribution*. World Food Programme. Lilongwe.

Donovan, W. Graeme. July 1994. *Malawi: Economic Reform and Agricultural Strategy*. AFTES Working Paper No. 10. Washington: World Bank.

Economist Intelligence Unit. 1996. *Malawi: Country Report*. London.

Eele, Graham, Roger Hay, and John Hoddinot. "Household food security and nutrition." *Understanding the Social Effects of Policy Reform*. Washington: World Bank.

Falcon, Walter. November 1995. *Food Policy Analysis, 1975-95: Reflections by a Practitioner*. International Food Policy Research Institute. Lecture Series 3. Washington.

FEWS. February 1996. *Malawi Monthly Food Security Report*. Lilongwe.

Famine Early Warning System. November-December 1995. *Rapid Food Security Assessment*. Lilongwe.

Famine Early Warning System. April 1996. *Malawi's Food Security Data Archive*. Ministry of Agriculture and Livestock Development. Lilongwe.

Ferguson, Anne, Ann Millard, and Stanley Khaila. 1990. "Crop Improvement Programmes and Nutrition in Malawi: Exploring the Links." *Food and Nutrition Bulletin* 12:4

Food Studies Group. August 1994. *World Food Programme: Malawi Country Strategy Outline*. University of Oxford.

Gesellschaft für Agrarprojekte. 1993. *Malawi Agricultural Land / Food Potential and Population / Nutritional Survey*. Hamburg, Germany.

Goldman, Richard, Anne Conroy, John Kumwenda, James Lawrence, Joseph Mhango, and Michael Westlake. June 1994. *Fertilizer Policy Study: Market Structure, Prices, and Fertilizer Use by Smallholder Maize Farmers*. Harvard Institute for International Development and Economic Planning and Development Department, Office of the President and Cabinet, Government of Malawi.

Government of Malawi. November 1995. *National Plan of Action for Nutrition*. Lilongwe.

- Government of Malawi. October 1993. *The Labour Market and Wages Policy in Malawi*. Lilongwe.
- Gray, John. October 1993. *Agricultural Food Export Study: Stocking Trade and Pricing for Food Security*. Development Support Group. Lilongwe, Malawi.
- Gray, John. April 1995. *Development of a Framework for Maize Price Stabilization and of the Maize Price Information System*. Development Support Group. Geneva/Brussels.
- Hahn, Herwig and Friederike Beling. 1993. "Regional Food Security and Nutrition Security: What Difference Does it Make? *Regional Food Security and Rural Infrastructure*. International Symposium. Giessen/Rauischholzhausen, Germany.
- Howard, Julie and Catherine Mungoma. 1995. *Zambia: Factors Affecting the Development and Adoption of New Maize Varieties Before and After Market Liberalization*. MSU International Development Working Paper. Paper No. 4. East Lansing: Michigan State University.
- Jaffee, Steven, Richard Mkandawire, and Sandra Bertoli. April 1991. *The "Migrant Smallholders": Tenant and Laborer Participation, Remuneration, and Social Welfare Within Malawi's Expanding Estate Sub-Sector*. The Social Analysis of Policy Change in East Africa Project. Institute for Development Anthropology. Binghamton, New York.
- Jayne, T.S. and Stephen Jones. 1996. *Food Marketing and Pricing Policy in Eastern and Southern Africa: Lessons for Increasing Agricultural Productivity and Food Access (Draft)*. MSU International Development Working Paper, Working Paper No. 56. East Lansing: Michigan State University.
- Jayne, T.S., D.L. Tshirley, John Staatz, James Shaffer, Michael Weber, Munhamo Chisvo, and Mulinga Mukumbu. 1994. *Market-Oriented Strategies to Improve Household Access to Food: Experience from Sub-Saharan Africa*. MSU International Development Working Paper, Development Paper No. 15. East Lansing: Michigan State University.
- Jayne, T.S. and Munhamo Chisvo. 1991. "Unravelling Zimbabwe's Food Insecurity Paradox: Implication for Grain Market Reform in Southern Africa" *Food Policy*. August.
- Jayne, T.S., L. Rubey, D. Tshirley, M. Mukumbu, M. Chisvo, A. Santos, M. Weber, and P. Diskin. 1995 *Effects of Market reform on Access to Food by Low-Income Households: Evidence from Four Countries in Eastern and Southern Africa*. MSU International Development Working Paper, Development Paper No. 19. East Lansing: Michigan State University.

- Jayne, T.S. and Lawrence Rubey. 1993. "Maize Milling, Market Reform and Urban Food Security: The Case of Zimbabwe" *World Development*. 21:6 975-988.
- Jayne, T.S., Mulinga Mukumbu, John Duncan, John Staatz, Julie Howard, Mattias Lundberg, Kim Aldride, Bethel Nakaponda, Jake Reffis, Francis Keita, and Abdel Kader Sanankoua. 1996. *Trends in Real Food Prices in Six Sub-Saharan African Countries*. MSU International Development Working Papers, Working Paper No. 55. East Lansing: Michigan State University.
- Johnson, J. S. March 1996. *An Analysis of the Extent, Causes and Effects of Food Insecurity in Malawi, with and Approach to Improving Food Security*. Policy and Coordination Occasional Paper No. 1. Smallholder Agricultural Productivity Programme. Lilongwe.
- Jones, Ian, Macleod Nyanda, and Ephraim Chirwa. September 1995. *Report of the Evaluation of the Malawi Mudzi Fund*. Center for Social Research. University of Malawi.
- Kelly, Valerie, Jane Hopkins, Thomas Readon, and Eric Crawford. 1995. *Improving the Measurement and Analysis of African Agricultural Productivity: Promoting Complementarities between Micro and Macro Data*. MSU International Development Working Paper, Development Paper No. 16. East Lansing: Michigan State University.
- Kelly, Valerie, Bocar Diagana, Thomas Reardon, Matar Gaye, and Eric Crawford. 1996. *Cash Crop and Foodgrain Productivity in Senegal: Historical View, New Survey Evidence, and Policy Implications*. MSU International Development Working Paper, Development Paper No. 20. East Lansing: Michigan State University.
- Kennedy, Eileen and Howarth Bouis. 1993. *Linkages Between Agriculture and Nutrition: Implications for Policy and Research*. International Food Policy Research Institute. Washington.
- Land and Agriculture Policy Centre. January 1996. *Issues in Maize Marketing: An Update (Draft)*. Johannesburg.
- Lele, Uma and Robert Christiansen. 1989. *Markets, Marketing Boards, and Cooperatives in Africa: Issues in Adjustment Policy*. MADIA Discussion Paper 11. Washington: world Bank.
- Malawi Social Action Fund. May 1996. *What is MASAF?* Lilongwe.
- Mann, Charles. July 1995. *Early Early Warning: Maize Production Estimates for 1995/96 Under Alternative Input and Weather Scenarios*. Food Security Working Paper. Ministry of Economic Planning and Development. Lilongwe.

- Ministry of Agriculture and Livestock Development. 1993. *Agriculture Sector Study: Interim Report*. Coda and Partners. Fort Lee, New Jersey.
- Ministry of Agriculture and Livestock Development. October 1995. *Participatory Rural Appraisal Report on Beneficiaries Assessment of Smallholder Food Security Project*. Planning Division. Lilongwe.
- Ministry of Economic Planning and Development. July 1995. *Food Security and Nutrition Bulletin*. Volume 6 Number 1. Lilongwe.
- Ministry of Agriculture and Livestock Development and Ministry of Statutory Corporations. September 1995. *Overview and Assessment of State Owned Enterprises in the Agricultural Sector*. Economic Policy Unit. Lilongwe.
- Ministry of Agriculture and Livestock Development. 1995. *The Agricultural and Livestock Development Strategy and Action Plan*. Lilongwe.
- Mkandawire, Martin. 1993. *Mgaiwa Survey: A Survey Work on Factors Affecting the Consumer Preference on Use of Mgaiwa Verses Ufa Woyera Among Rural Houses*. Monitoring and Evaluation Unit, Blantyre Agricultural Development Division. Blantyre.
- Mkandawire, Richard, Steven Jaffee, and Sandra Bertoli. 1990. *Beyond "Dualism": The Changing Face of the Leasehold Estate Subsector of Malawi*. The Social Analysis of Policy Change in East Africa Project. Institute for Development Anthropology. Binghamton, New York.
- Mloza, Felix. September 1989. *A Market Study on the Acceptability of Mgaiwa as a Targeted Food Subsidy*. Office of the President and Cabinet. Department of Economic Planning and Development. Lilongwe.
- Msukwa, Louis, Wycliffe Chilowa, Henry Bagazonzya, Antony Mawaya, Flora Nankhuni and Thomas Bisika. March 1994. *Smallholder Credit Repayment Study*. Centre for Social Research. University of Malawi. Zomba, Malawi.
- Msukwa, Louis. March 1994. *Food Policy and Production: Towards Increases Household Food Security*. Center for Social Research. Zomba, Malawi.
- Mtawali, Katundu. 1993. "Malawi." *Agricultural Policy Reforms and Regional Market Integration in Malawi, Zambia and Zimbabwe*. Edited by Alberto Valdes and Kay Muir-Leresche. International Food Policy Research Institute. Washington, DC.
- Nakhumwa, Teddie and Isaac Minde. April 1996. *Informal Cross-Border Trade in Malawi*. Agricultural Policy Research Unit. Bunda College of Agriculture. Lilongwe.

- Ng'ong'ola, D.H. June 1995. *Analysis of Structural Adjustment Programs in Malawi with Emphasis on Agriculture and Trade*. Agriculture Policy Research Unit. Bunda College of Agriculture. Lilongwe.
- Ngwira, Austin B.A. January 16, 1996. *Coping Mechanism: A Literature Survey*. Multisec Consulting Company submitted to CONGOMA. Lilongwe.
- Pearce, Julie, Austin Ngwira, and George Chimseu. March 1996. *Living on the Edge: A Study of the Rural Food Economy in the Mchinji and Salima Districts of Malawi*. Save the Children (UK). Lilongwe.
- Peters, Pauline. August 1992. *Monitoring the Effects of Grain Market Liberalization on the Income, Food Security and Nutrition of Rural Households in Zomba South, Malawi*. Harvard Institute for International Development. Cambridge, Massachusetts.
- Peters, Pauline. October 1993. *Maize and Burley in the Income and Food Security Strategies of Smallholder Families in the Southern Region of Malawi, 1993*. Harvard Institute for International Development. Cambridge, Massachusetts.
- Peters, Pauline. August 1995. *Persistent Drought and Food Security: Assessing the Inputs Programme of 1994/5 and Lessons for the Drought Inputs Recovery Programme of 1995/6 and Developments in the Liberalization of Marketing Maize and Burley: Implication for Food Security*. Harvard Institute for International Development. Cambridge, Massachusetts.
- Pickney, Thomas. January 1996. *Maize Policy in Malawi: Price Stabilization and the Strategic Reserve*. Center for Development Economics. Williams College. Williamstown, Massachusetts.
- Quinn, Victoria, Mable Chiligo, and J. Price Gitinger. July 1988. *Household Food and Nutritional Security in Malawi*. Symposium on Agricultural Policies for Growth and Development. Lilongwe.
- Reardon, Thomas, Eric Crawford, Valerie Kelly, and Bocar Diagona. 1995. *Promoting Farm Investment for Sustainable Intensification of African Agriculture*. MSU International Development Working Paper, Development Paper No. 18. East Lansing: Michigan State University.
- Reardon, Thomas and Steven Vosti. 1995. "Links Between Rural Poverty and the Environment in Developing Countries: Asset Categories and Investment Poverty." *World Development*. 23:9 1495-1506.

- Roe, Gillian. July 1992. *The Hidden Economy: An Exploration of the Income Generation and Survival Strategies of the Urban Poor*. Center for Social Research. University of Malawi.
- Rook, John. March 1966. *Food Security Management in Southern Africa: Is There a Role for Strategic Grain Reserves in Liberalising Grain Markets?*. Washington: World Bank
- Rotberg, Robert, Shirley Burchfield, Richard Goldman, Lester Gordon, Theo Lippeveld, Michael Roemer, and Christopher Shaw. November 1994. *Trickle-Up Growth: Development Strategy for Poverty Reduction in Malawi*. Harvard Institute for International Development. Cambridge, Massachusetts.
- Rubey, Lawrence, Richard Ward, and David Tschirley. July 1995. "Incorporating Consumer Preference into the Design of Maize Technology Development Strategies". Paper No. 9. Workshop *"The Emerging Maize Revolution in Africa: The Role of Technology, Institutions and Policy"*. East Lansing, Michigan.
- Rukuni, Mandivamba and Carl Eicher. 1987. *The Food Security Equation in Southern Africa*. MSU International Development Papers. Reprint No. 5. East Lansing, Michigan.
- Schwartz, Gayle, Samu Samu, and Stanley Khaila. March 1994. *Aspects of Participation in Economic Policy Reform The Malawi Case Study: An Analysis of Participation in the Agriculture Sector*. Agricultural Policy Research Unit. Bunda College of Agriculture. Lilongwe.
- Sen, Amartya. 1985. "Food, Economics, and Entitlements." *Lloyd's Bank Review*. No. 160:1-20.
- Serageldin, Ismail, and Pierre Landel-Mills. 1993. *Overcoming Global Hunger: Proceeding of a Conference on Actions to Reduce Hunger Worldwide*. Environmentally Sustainable Development Proceeding Series No. 3. Washington: World Bank.
- Simons, Scott, Basil Longy, Alan Mauer, Valerie Vantreese, and Galvin Olney. April 1994. *Analysis of Policy Options and Impacts for Phase II of the Agricultural Sector Assistance Program in Malawi*. Agricultural Policy Analysis Project, Phase III (APAP III) Technical Report No. 1001. Abt Associates Inc.
- Simons, Scott. December 8, 1995. *Increasing Productivity Through Cropping Shifts*. Memorandum to Gale Rozell, USAID. Lilongwe
- Smale, Melinda and Paul Heisey. June 1995. *Technology Development and Technical Change in Malawi's Maize Production: Potential and Constraints (Draft) Paper No. 5*
- Smale, Melinda. 1995. "'Maize is Life': Malawi's Delayed Green Revolution." *World Development*. 23:5 819-831.

- Tchale, Hardwick and Joseph Dzanja. May 1966. *Agricultural Private Trading and Food Security in Malawi (draft)*. Bunda College. Lilongwe.
- Tschirley, David, Cynthia Donovan, and Michael Weber. April 1996. "Food Aid and Food Markets: Lessons from Mozambique". *Food Policy*.
- Tyler, P.S. and C.J. Bennett. *Grain Market Liberalization in Southern Africa: Opportunities for Support to the Small-scale Sector*. Natural Resources Institute. Kent, England.
- Tyler, P. S. and C. J. Bennett. December 1993. *Preparing Private Traders for Participation in a Liberalized Maize Market in Malawi*. Natural Resources Institute. Kent, England.
- United Nations in Malawi. 1993. *Malawi: Situation Analysis of Poverty*. Lilongwe.
- United States Agency for International Development. March 1995. *Food Aid and Food Security Policy Paper*. Washington.
- United Nations in Malawi. *Situation Analysis of Poverty in Malawi*. Lilongwe.
- United States Agency for International Development. September 1991. *Malawi Agricultural Sector Assistance Program: PAAD*. Lilongwe.
- United States Agency for International Development. September 1994. *Malawi Agricultural Sector Assistance Program: PAAD Amendment*. Lilongwe.
- Vella, Venanzio. February 1996. *Nutrition Strategy for Southern Africa*. AF1HR.
- Von Braun, Joachim, Tesfaye Teklu and Patrick Webb. 1991. *Labor-Intensive Public Works for Food Security: Experience in Africa*. International Food Policy Research Institute. Working Papers on Food Subsidies, Number 6. Washington.
- Von Braun, Joachim and Rajul Pandya-Lorch. May 1991. *Income Sources of Malnourished People in Rural Areas: Microlevel Information and Policy Implications*. International Food Policy Research Institute. Working Papers on Commercialization of Agriculture and Nutrition, Number 5. Washington.
- Von Braun, Joachim, Howarth Bouis, Shubb Kumar, and Rajul Pandya-Lorch. 1992. *Improving Food Security of the Poor: Concept, Policy, and Programs*. International Food Policy Research Institute. Washington.
- Weber, Michael. April 18, 1996. *Potential Food Security Issues in Malawi*. Notes prepared for Food Assessment Team. Michigan State University. East Lansing, Michigan.

- Westlake, M.J. July 1995. *Papers on Aspects of Maize and Fertilizer Market Liberalization*. Ministry of Economic Planning and Development. Lilongwe.
- World Bank. April 1996. *Staff Appraisal Report: Malawi Social Action Fund Project*. Washington: World Bank.
- World Bank. December 1995. *Malawi: Drought Risk and Drought Risk Management*. Discussion Paper for the 1995 Consultative Group Meeting. Washington: World Bank.
- World Bank. November 1995. *Malawi Human Resources and Poverty: Profile and Priorities for Action*. Washington: World Bank.
- World Food Programme. 1995. *Tackling Hunger in a World Full of Food: Task Ahead for Food Aid*. Rome.
- World Bank. 1995. *Labor and the Growth Crisis in Sub-Saharan Africa*. Washington: World Bank.
- World Bank. 1995. *Malawi Agricultural Sector Memorandum: Strategy Options in the 1990s*. Washington: World Bank.
- World Bank. 1992. *Malawi Country Strategy Mission: A Smallholder Based Strategy for Massive Reduction of Poverty, Accelerated Growth and Structural Transformation*. Washington: World Bank.
- World Bank. May 1992. *Malawi Population Sector Study*. Washington: World Bank.
- World Bank. 1990. *Malawi Food Security Report*. Washington: World Bank.
- World Bank. 1988. *The Challenge of Hunger in Africa: A Call to Action*. Washington: World Bank.
- World Bank. 1986. *Malawi: Improving Agricultural Marketing and Food Security Policies and Organization - A Reform Proposal*. Washington: World Bank
- World Bank. March 1966. *Strengthening Malawi's Cotton Subsector (Draft)*. Washington: World Bank.
- World Food Programme. April 1996. *Food Security Through Targeted Food for Work (Revised Draft)*. Lilongwe.

ANNEX C: HOUSEHOLD TYPOLOGY OF FOOD SECURITY IN MALAWI

1. A Typology of Household Food Security in Malawi

Chronic food insecurity in Malawi is primarily a problem of poverty. Households are food insecure because they do not have access to enough food to meet their requirements. Their income is insufficient. In a country like Malawi, where 85 percent of the population lives in the rural sector and depends on agriculture either directly, through production, or indirectly, through providing labour, goods or services to farmers, for their income, the link between access to food and agricultural production is very strong. This is because agricultural production is the basis of most households' source of income.

To assess household food security, the starting point is the assessment of household income and resources. Households are vulnerable to food insecurity primarily because their income sources are inadequate (chronic food insecurity) and/or because their incomes are vulnerable to exogenous shocks (transitory food insecurity). In Malawi, income distribution is very unequal, largely as a result of bad policy in the past thirty years. This, combined with the low level of average income or GDP per capita, means that many households in Malawi are food insecure.

It is difficult to estimate precisely the number of food insecure households in Malawi. The generally accepted definition of food security is "access to enough food at all times for a healthy active life". This covers three elements: physical access, production and availability on the market; economic access, enough resources to grow or purchase food; and stability, a combination of market stability and sufficient income, whether in cash or kind, that savings in good years can cover shortfalls in poor years. Household food production is only one indicator of food security and has to be interpreted in conjunction with household cash income, the prices faced by households and the size of the household.

Nutrition indicators are often used in food security assessments. These have to be interpreted with caution. Nutritional status is the outcome of the interaction of household food security, intra-household food distribution, maternal and childcare practices and health status. Childcare practices and health status are linked to household income, but they are also strongly influenced by public or collective provision of health and education services. The high incidence of malnutrition (48 percent of children under five were moderately or severely stunted and 7 percent were moderately or severely wasted in 1995) indicates the depth of the problem, but not all of this will be directly food-related. While acknowledging the importance of the childcare and health factors, the focus of this report will be on factors affecting household food security.

Broadly speaking, the food insecure can be divided into three categories: smallholders, estate workers/tenants and the urban poor. There has been a significant amount of work undertaken on the characteristics of food insecure farmers (Peters 1992, 1994, 1995, UNDP, 1993, World Bank, 1995, SCF, 1996) but much less analysis of the other two categories. Almost all the quantitative analysis of food insecure households is based on data collected prior to 1993.

This reflects the outcome of the previous heavily regulated economic system. Since the early 1990s, the liberalisation process has changed the opportunities available to all households, including the food insecure, particularly in the rural areas. Little of this process is, as yet, documented, and it will take time before it results in major changes in the numbers of food insecure. However, these trends should be kept in mind when considering the implications of the following assessment.

1.1 Smallholders

The most recent analysis of poverty amongst rural smallholders in Malawi was undertaken by the World Bank (1995) based primarily on data from the 1992/93 National Sample Survey of Agriculture (NSSA). The study focused on those households below the 40th percentile of per capita annual incomes, the poorer, and those falling below the 20th percentile, the poorest. The estimates of income include the value of subsistence production and off-farm earnings, including income in kind.

In 1992/93 MK, the income cut-off points are MK117 for the 40th percentile and MK54 for the 20th percentile. To illustrate where this falls in terms of absolute poverty, the per capita annual income per adult equivalent necessary to purchase 200 kg of maize in 1992 prices is MK 98 (the calorie needs line), and to buy a minimum level of basic needs, including clothing and shelter, is MK 158. 43 percent of the rural smallholder population fall below the basic needs line and 30 percent below the calorie needs line. Income distribution is highly skewed in rural Malawi, and 80 percent of the population have per capita incomes below MK241. The estimates of the number of poor or food insecure are relatively insensitive to the definition used and usually identify between 40 percent and 50 percent of the population.

Poverty is relatively more prevalent amongst rural smallholders than urban dwellers. 85 percent of the population lives in the rural areas⁷ but their share of the poorest is higher at 95 percent. There is a strong geographical bias in the distribution of poorer households. The South contains 51 percent of the population but 66 percent of the poorer households. Table C1 shows the distribution of households by ADD.

Poorer households have distinct demographic profiles. They are more likely to be female-headed. There is a one in three chance of a male-headed household being amongst the poorest 40 percent but a one in two chance for a female headed-household. The poorer the household,

⁷ The analysis above excludes the estate sector, which is not covered by the NSSA. Estate tenants and permanent workers are estimated to make up 14.5% of the rural population.

the larger the household size and the higher the dependency ratio. For households below the 20th percentile, average household size is 5.07 persons and the dependency ratio⁸ is 1.36. For households above the 40th percentile the average household size is 4.12 and the dependency ratio is 0.92. In other words, poor households have more people and fewer economically active household members to support them. Female-headed households have a smaller average household size, but a higher dependency ratio.

Table C1. Distribution of Households below Poverty Percentiles by ADD, 1995

ADD	percent Households below 20th percentile	percent Households below 40th percentile	No. of Households below 20th percentile	No. of Households below 40th percentile
Karonga	12.0	29.6	5611	13841
Mzuzu	20.7	40.3	31846	61999
Kasungu	2.5	8.5	6456	21949
Salima	14.4	32.6	21369	48378
Lilongwe	21.3	43.0	83719	169011
Machinga	23.2	43.7	95025	178990
Blantyre	26.3	51.3	125510	244815
Shire Valley	22.5	41.7	31818	58969
Total			401353	797953

Source: World Bank, 1995 and FEWS

There is a close relationship between the area of land cultivated by a household and its poverty level. 74 percent of households below the 40th percentile cultivate less than 0.5 of a hectare and 95 percent cultivate less than one hectare. However, cultivating a small area of land cannot be equated with being poor. Some households who cultivate less than 0.5 hectares are effectively part-time farmers, whose major source of income comes from off-farm employment. In this respect they differ from poor smallholders who may also be dependent on off-farm income to make ends meet, but who would see crop cultivation as their main activity and whose off-farm

⁸ The ratio between household members aged 15 to 64 and household members under 15 and over 65 years of age. The higher the dependency ratio the fewer economically active members of the family relative to the rest.

income generating activities have, in general, very poor returns. Table C2 shows the numbers of farm households by area of land cultivated by ADD.

Poor smallholders tend to have few assets, to use lower levels of purchased inputs than the average and, unsurprisingly, have low access to credit. They grow relatively less hybrid maize and more local maize than average, but in total they plant a higher percentage of their land to maize than better-off farmers, who grow more high value crops. They own relatively little livestock.

Virtually all poor households have difficulty meeting their food requirements from own production. On average they produce about 64 percent of their food requirements and the poorest may produce less than 40 percent of their requirements. The land available to them for cultivation is insufficient to produce enough local maize for their needs, they cannot afford to purchase the inputs necessary to put all their land under hybrid maize, and they grow virtually no cash crops. Households rely on off-farm employment, and in particular ganyu (casual agricultural labour) to provide the rest of their food needs, but many households have to reduce their consumption levels in the pre-harvest period.

Table C2. Distribution of Households by Cultivated Area and ADD, 1995

ADD	<0.5 Ha	0.5-1.0 Ha	1.0-2.0 Ha	> 2.0 Ha	Total
Karonga	21977	14028	9352	1403	46760
Mzuzu	48461	44615	41538	19231	153844
Kasungu	30987	69720	105871	51644	258221
Salima	69748	44520	25228	8904	148399
Lilongwe	125775	145428	94332	27513	393048
Machinga	167931	147452	81918	12288	409589
Blantyre	288720	128850	50108	9544	477223
Shire Valley	69292	36767	26868	8485	141413
Total	822891	631380	435215	139012	2028497

Source: World Bank, 1995 and FEWS

Female-headed households face particular problems. They face considerable labour constraints in off-farm labour supply, in part due to their higher dependency ratios, but also because of the considerable time spent in domestic activities such as collecting water and wood and pounding maize. Off-farm income is an even smaller share of total income for these



households than for poor households in general. As ganyu is often paid on a piece rate basis, it is likely that women get an overall lower income from ganyu than male ganyu workers.

It is almost a tautology to say that the main problem for poor smallholders is a lack of resources. They have few assets and it is very risky for them to borrow for agricultural production, even if they had access to credit. Unless they can produce a surplus, through switching to higher value crops, or finding more lucrative off-farm employment opportunities, or their resource base is increased, the outlook for these households is bleak. This is particularly true for poor female-headed households, about 13 percent of the rural population, who appear to be caught in a particularly vicious poverty trap. Their labour is barely enough to fulfill domestic demands and cultivate their inadequate landholdings, but they are forced into ganyu to find food in the peak cultivation period, thereby reducing still further their ability to grow food for their family. To break away from this trap, these households have to be given the means to diversify away from the agricultural sector.

1.2 The estate sector

There are fewer sources of information on the estate sector which is not yet included in most of the major surveys carried out in Malawi. Most of the information comes from a few surveys undertaken in the late 1980s, updated from field work. (Mkandwire et. al., 1990, GoM 1993). This predominantly refers to tenants on tobacco estates.

There has been rapid expansion of the estate sector in the last decade. Employment on estates grew at 8 percent per annum during the 1980s. The number of tenant farm households was estimated at 105,000 in 1989. When dependents are taken into account, the total number of people dependent on the estates as tenants, permanent workers and their families in 1989 was around a million.

Surveys indicate that tenant farmers get paid in cash once a year, but many households get food rations provided by the estate, the value of which is deducted from their cash payments. The average food ration is 384kg of maize per household as opposed to the average requirement of 945 kg. There is considerable variation in the level of cash payments tenant farmers earn. In general smaller estates tend to pay tenants less. In the 1989 survey carried out by Mkandwire et al. the average cash payment to tenant farmers was MK621 (roughly MK120 per adult equivalent), though for tenants on estates of less than 15 hectares, that fell to MK 373 (MK80 per adult equivalent). A 1994 estimate of tenant farmer income gave the figure of MK704, or 140 per adult equivalent (HIID 1994).

There is less information on the income of permanent estate workers. The 1989 survey shows that almost 50 percent of permanent workers were paid less than the rural minimum wage, and that smaller estates paid less than large estates. This was confirmed by a mission in 1992/3. The annual income of these workers may be even less, as many are employed for seven months or less in the year.

Children of estate tenants and workers show high levels of malnutrition. UNICEF's MIS study, in 1995, showed that estate children had slightly higher levels of stunting than average, and almost 50 percent higher rates of wasting.

Estates are quite geographically concentrated, particularly in the Central region. Almost 40 percent of the total are located in Kasungu, Mchinji and Lilongwe. In fact nearly half the population of Kasungu is made up of tenant households, which is undoubtedly a factor in Kasungu having the highest malnutrition rates in the country, in spite of having a low vulnerability index in the FEWS indicators.⁹

The data available on income are less reliable for the estate sector than for smallholders. However the figures reported indicate that income levels in the two sectors may be similar. Whereas some tenant farmers may do very well, others have difficulty making enough income to feed their families. These are most likely to work on small estates. Where tenants have access to land for subsistence farming this provides an important additional source of income. What data exist indicate that this is more likely to occur on larger estates, and therefore is unlikely to benefit poorer estate tenants. The situation for poor tenants may have improved somewhat with the introduction of the intermediate buyer system, which has provided competition for the estates as tobacco outlets. This could force estates to offer better terms to their tenants. The high levels of child malnutrition are a concern. These may result from poor environmental conditions and lack of health services, combined with low household income. High labour demands on tenant spouses may also affect childcare practices.

1.3 The Urban Poor

Major cities in Malawi have the lowest prevalence of poverty, and an urban household is half as likely as a rural household to be poor. The main exception to this is Lilongwe, where there is twice the level of households below the 20th percentile as in any other Malawian city. The main information on urban poverty comes from work done by the Centre for Social Research in Zomba in the late 1980s and early 1990s.

The urban population was estimated at 11 percent of the total in the 1987 census. Most work on poverty estimation has put the size of the urban population at about 9 percent, but UNDP estimates that by 1993 urban population growth rates were such that the urban population comprised 15 percent of the total.

A 1989 study (Chilowa and Shively 1989) surveyed 200 poor urban households, measured their income and expenditure and nutrition levels in children. Household expenditure was

⁹ FEWS have developed a composite vulnerability index, for use in targeting social programs. However, since the estate sector has been largely excluded from monitoring systems up until now, because of lack of an appropriate data collection structure, in areas like Kasungu where estates are important, the information included in the vulnerability index is inevitably very partial.

estimated at MK124 monthly, or MK24 per capita. This is equivalent to MK288 per annum. 68 percent of the budget was spent on food. A 1991 study of low income urban households shows an average monthly household income of MK136. It is difficult to compare these figures to the ones given by the World Bank in its poverty profiles, not only because the years are different, but because poverty lines for urban households are generally estimated to be higher than for rural areas. Certainly these households are not wealthy, and those at the bottom of the distribution would be on a level with poorer rural households, but it is difficult to quantify what percentage overall of urban households would be in that position.

The nutritional data indicated a lower level of stunting than the national average, but a higher level of wasting, or acute malnutrition. This is consistent with the results from the 1995 MIS survey, which show 8.7 percent wasting, as opposed to a national average of 7 percent. This rises to 13.2 percent when the figures for urban Lilongwe are taken separately.

A 1991 survey (Roe 1992) highlights the importance of food as a source of income in the urban informal sector, both in terms of selling and processing and through food production. 70 percent of low income households either had a garden in the immediate area or at home in the rural sector. Links were maintained with the extended family. Those households that consumed food from their garden usually had enough to last for eight months. A quarter of them had sold food in the previous year. This means that low income urban households may be more vulnerable to drought than has previously been acknowledged. However, as with rural households, the main problem is simple lack of resources.

2. Transitory Food Insecurity

Transitory food insecurity, i.e. food insecurity resulting from an exogenous shock, which is anticipated to be temporary, can result from climatic shocks, drought or flooding, from political shocks, civil war or trade blockades, and from economic shocks such as unanticipated devaluation. In Malawi the major cause of transitory food insecurity, and the one most commonly discussed, is drought, which has been more frequent in the last decade.

As with chronic food insecurity, transitory food insecurity basically reduces to an issue of poverty. If there were no poverty, there would be minimal transitory food insecurity. For example, in general, smallholders farming more than 2 hectares do not suffer from transitory food insecurity. Their income may be reduced when there is a production shortfall, but they have sufficient income reserves to ensure access to food. As discussed above, landholding size is a rather crude and overly simplistic indicator of rural food insecurity. Nonetheless, as an initial attempt to quantify the extent of the problem, it could be argued that smallholders farming less than 0.5 ha suffer from chronic food insecurity and make up 41 percent of rural households. In a major drought, however, the number of food insecure could be increased by the 31 percent of households who farm between 0.5 and 1 hectare.

In recent years a literature has grown up around the issue of how people, the chronically food insecure and those who are vulnerable to food insecurity, respond to stress in the food system. The strategies employed are generally referred to as coping mechanisms. There are a number of sources of information about coping mechanisms in Malawi. Peters has examined the responses of households in Zomba to drought, and how this has affected decision-making over time (Peters 1994, 1995). Save the Children Fund UK has recently undertaken an in depth study of response to the 1993/94 drought in Salima and Mchinji (SCF 1996) and the Famine Early Warning System reports on information collected by the new M4E system on income generating activities and coping mechanisms.

The SCF study has most detail about the relative importance of different coping mechanisms. The two areas in which the study was undertaken, Salima and Mchinji, have somewhat different characteristics, largely for agroclimatic reasons. Mchinji is usually self-sufficient in maize, whereas Salima normally imports maize. Salima produces maize, cotton, rice, groundnuts and cassava. Tobacco has been produced there only very recently. The main crops in Mchinji are maize, tobacco and groundnuts. In Salima, almost 50 percent of households in the survey areas were identified as poor (the division of households in to poor, intermediate and better-off was done in conjunction with the community, on the basis of those households generally considered to be poor) whereas in Mchinji the incidence of poverty was only 30 percent.

Nonetheless, the poor in the two districts had much in common, both in normal years and in the immediate post-drought year of 1993/94. Even in normal years many of the poorest households did not farm all the land they had available, either because of an absolute labour shortage or because they had to divert labour to ganyu. Better-off households failed to farm all their land because they had insufficient cash to hire labour. In normal years, households with a grain shortage fill the gap by going for ganyu. They also eat green maize. Better-off households support poorer households by providing employment opportunities and sometimes making gifts of maize. In normal years income from crop sales goes almost entirely for non-food purchases

In 1993/94, a drought year, the poorest households got, on average, 6 - 8 weeks of grain from ganyu and 3 weeks each from government hand-outs and relatives. The coping mechanisms that poor households employ in normal years, ganyu and food transfers, were eroded to the extent that better-off households were also affected by drought. The key to poor households' ability to survive significant harvest shortfalls is the degree of diversity in income sources - the more diversity, the more effective the household's coping mechanisms. Most poor households employed between six and eight different coping mechanisms. In both districts there was an increase in ganyu and other income generating activities. Unlike normal years, crop sales were used mainly to buy maize in Salima and even in Mchinji a third of poor households used their crop income for maize purchases. In both districts poor households stretched maize stocks by reducing consumption and diluting the maize meal with maize bran. More meals were eaten without nsima. More green maize was eaten in the pre-harvest period. There was an increase in theft and prostitution, and in Mchinji, which is near the border, smuggling.

Nonetheless, in both districts, the previous year's harvest was still the most important source of maize, on average, in spite of the effect of drought. This was undoubtedly severe. In Mchinji, two thirds of poorest households are normally self sufficient, but in the drought year this fell to 5 percent. The range of harvest fell from 4 - 65 bags down to 0 - 20 bags. In Salima, almost a third of households had no maize crop at all. The range of harvest for poor households is normally 4 - 32 bags, but in 1993/94 the highest harvest was 12 bags. The majority of all households had run out of maize by December.

Intermediate and better-off households were also affected by drought. They had less maize and fewer crops to sell. Some of them had to resort to ganyu. However, for most they could use their crop sales to purchase maize. They were also more likely to sell livestock to purchase maize and inputs. In Salima, better-off households did not use crop income for maize, only livestock sales. Intermediate households were more likely to be able to afford to engage in petty trade, which was generally a profitable income generating activity.

The survey appears to show that one of the main effects of drought is to increase the scale of market activities, particularly for the purchase of food. Households which would normally not purchase maize, certainly not from crop sales, have to use what income they can generate to supplement their own production. The main source for this is engagement in ganyu, but there is usually less ganyu available in drought years, as better-off farmers are also affected. Household food security for the poorest is very dependent on the functioning of the rural labour market.

Intermediate and better-off households also have to make adjustments, but they are very much less likely to become food insecure as they have a greater range of assets and income generating opportunities they can call on. There is a concern, however, about the effect of successive droughts on livestock holdings, which may, over time erode the level of assets in the rural economy.

Peters' work emphasises rather more the strategies households are employing to reduce their vulnerability to drought (Peters 1995) and is based on surveys undertaken in Zomba and Machinga. She identifies three major strategies: diversification of cropping patterns, husbandry techniques and the introduction of new crops. Diversification takes place particularly into drought resistant crops such as cassava, sweet potato and sorghum, which move from being secondary crops to being equal to or even surpassing maize in response to a drought year. Dimba gardening becomes more important in drought years are used for horticultural crops in the dry season, particularly for sale. These two strategies have been affected by the recurrent drought and short rains experienced in the 1990s. The third strategy is the introduction of new crops, such as hybrid maize and tobacco, chillies and chick peas. Hybrid maize is earlier maturing and therefore deals better with drought. Cash crops such as burley tobacco produce income which can be saved to cover maize purchases in a bad season. Tobacco is also less adversely affected by a short rainy season.

Basically smallholders are both protecting the level of their income and moving into cash cropping to shift dependence from own production to greater dependence on the market. They are to some extent diversifying out of subsistence production to increase the options open to them in bad years.

FEWS is just beginning to monitor the prevalence of different "survival systems" in Malawi. Initial work, based on the November 1995 RaFSA survey, divides survival systems into three categories: self-sufficiency methods; income generating activities; and coping strategies, which involve social transactions, borrowing, selling of assets and consumption reduction. 18 EPAs primarily use self-sufficiency methods, 44 EPAs use income generating methods and 14 use coping mechanisms. There is no obvious relationship between dominant survival system and vulnerability to poverty, as even EPAs who depend on coping mechanisms have often coped for decades and have well adapted lifestyles. The monitoring of survival strategies is ongoing and may, in future, provide useful information about vulnerability to drought.

The information on transitory household food insecurity is quite diverse, but two elements stand out. Firstly, there is a strong link between transitory food insecurity and chronic food insecurity. Households with resources can save in good years and liquidate assets and savings in poor years. Secondly, for both better-off households and poor households the variety of coping mechanisms and survival systems available are vastly increased and improved by effective commodity and labour markets.

3. Market Liberalisation and Household Food Security

Over the last ten years there have been a number of changes in the economic environment which could be classed together under the general heading of market liberalisation. These have had major implications for household food security.

- There has been a move away from administered prices for almost all commodities, including agricultural inputs, cash crops and maize prices.
- Restrictions on cropping patterns have been removed, allowing smallholders to grow a wider variety of cash crops, and in particular the highly profitable burley tobacco.
- There has been a major increase in the extent of private sector trade and a reduction in the importance of ADMARC.

This has had a direct effect on the income earning opportunities for households, particularly in the rural sector. It has also affected the relative prices households face for the commodities they sell and purchase. This in turn affects cropping patterns and consumption choices. Seasonal price changes in the private sector should create greater incentives both for intra-seasonal storage in the private sector and on-farm storage.

Concern has been expressed about the availability of commodities on the private market, particularly with increasing withdrawal of ADMARC. In the short run this may increase transactions costs in particular for maize purchasers. It is difficult to estimate the extent to which thin markets are currently a problem, as conditions are changing quite rapidly.

In some parts of the country, increased smallholder production of burley tobacco has increased the demand for casual agricultural labour. In time, this may bring about some upward pressure on rural wage rates, though as yet there is little evidence of this.

As with all major changes, there are likely to be winners and losers, though market liberalisation is by no means a zero-sum game. In the medium term, most households should gain from increased opportunities, but some households are likely to bear short-term costs.

The only survey work which sheds direct light on this process is Peters' work in Zomba (Peters 1992, 1993). The first study looked at changes in the study area between 1986/87 and 1990/91, during the initial period of market liberalisation.

There had been an average real increase in household income of 26 percent over the period, but the average masked substantial gains for the top income households and losses for low income groups. There had been an increase in maize harvests of 48 percent on average. All households except those cultivating under 0.5 hectares had made maize production gains through increased use of fertiliser and hybrid maize. Tobacco growers had, on average, over 50 percent higher income than non-tobacco households, though they also cultivated more land. Peters describes the overall picture as one of increased income specialisation and differentiation. However, households in the bottom 25 percent appeared to have had to increase their effort in order to maintain their average supply of maize.

A follow-up survey in 1993 showed there had been an explosion in burley tobacco growing. Income from burley tobacco was increasing demand for local goods and services and some households were using their tobacco savings to fund entry into petty trading. Some growers were paying a quasi-rent to use a part of the dimba for the establishment of tobacco nurseries. Thus the process of specialisation and differentiation was continuing.

Care must be taken not to extrapolate too much from these studies to the present situation. The sample of households studied were better-off than average for the area, because of the need to have representation of tobacco-growing households. More importantly, relative prices have changed dramatically since 1993, due to devaluation and input market liberalisation.

Profiles of five smallholder households have been developed to show the impact that changes in relative prices have had on different household types. These profiles are not statistically representative, but have been developed to illustrate the main combinations of land area and cropping pattern.

The basis for the profiles is simplified farm budget data, and the models are static, not behavioural, i.e. they do not allow farmers to change production and consumption patterns in response to price changes. In effect, a number of typical cropping patterns were identified, and their changing profitability was traced over a five year period. Only five crops are included and maize is the only staple food crop. In reality, cropping patterns would be more complex. Data came from gross margin calculations made by MoALD, the AES data sets put together by FEWS and information contained in Alwang and Siegel (1996). No allowance was made for the cost of credit. Producer prices were treated as though they were farmgate prices, whereas there would, in reality, be transport costs to take into account. To this extent the net cash incomes given for households 3-5 are overestimates. In spite of the simplification, however, the profiles allow us to identify losers and gainers.

The models were run twice, once using actual average smallholder yields over the period 1982/83 - 1994/95, to give some idea of whether or not households were chronically food insecure, and once using actual yield variation, to give some insight in to transitory food insecurity. The other main factor driving the results is variation in prices faced by smallholders, which can be directly related to the process of market liberalisation.

Household 1 is a male-headed household, comprising four people in total, with two working adults. It cultivates 0.4ha of land, 0.35 to local maize and 0.05 to groundnuts. (28 percent of rural smallholder households are male-headed cultivating less than 0.5 has of land). The family food requirement is equivalent to 800kg of maize a year. In a normal year, the household will produce 305kg of maize, just under 40 percent of its requirements, and 19kg of groundnuts. After just over five months, or longer if they stretch consumption, the family will run out of food. The rest of the year's food supplies has to be made up from off-farm income opportunities, most probably ganyu. Table C3 shows how the amount of maize this household has access to from its own production, both directly and through sales, has changed over time. This household almost certainly does not have access to anything like an adequate food intake. Market liberalisation has eroded what little purchasing power it had, and unless there has been dramatic improvement in off-farm employment opportunities, which seems unlikely, this family has definitely been negatively affected. In years of poor harvest, the situation gets even worse. This is comparable to the situation of a number of poor families identified in the SCF study on coping mechanisms.

Household 2 is a female-headed household, comprising 3.5 consumption units. In addition to the female head of household, there is one elderly person with limited labour capacity. This household cultivates 0.29 has, with 0.25 under local maize and 0.04 under groundnuts (13 percent of rural households are female headed, farming less than 0.5ha). The family food requirement is equivalent to 700 kg of maize a year. In a normal year this family will produce 217kg of maize, about 20 percent of its requirements, and 15kg of groundnuts.

Table C3. Household 1 - Farm Budget

	1990/91	1991/92	1992/93	1993/94	1994/95
Production Using Average Yields					
Local Maize (kg)	304.15	304.15	304.15	304.15	304.15
Groundnut (kg)	19.3	19.3	19.3	19.3	19.3
Groundnut Sales (MK)	15.99	14.83	21.89	25.71	39.90
Maize Purchases (kg)	49.97	34.25	33.78	34.56	14.35
Maize from farming (kg)	354.12	338.40	337.93	338.71	318.50
Production Using Actual Yield Variations					
Local Maize (kg)	305.2	113.4	328.3	206.15	268.45
Groundnut (kg)	23.35	8.5	24.75	16.65	17.35
Groundnut Sales (MK)	20.24	2.73	30.06	20.47	34.05
Maize Purchases (kg)	63.26	6.31	46.40	27.51	12.25
Maize from farming (kg)	371.46	119.71	374.7	223.66	280.7

This family will run out of maize after three and a half months. Its options are even more limited than the previous household as it has less labour power. Table C4 shows how its situation has changed over time.

Table C4. Household 2 - Farm Budget

	1990/91	1991/92	1992/93	1993/94	1994/95
Production Using Average Yields					
Local Maize (kg)	217.25	217.25	217.25	217.25	217.25
Groundnut (kg)	15.44	15.44	15.44	15.44	15.44
Groundnut Sales (MK)	12.79	11.86	17.51	20.57	31.92
Maize Purchases (kg)	39.98	27.40	27.02	27.65	11.48
Maize from farming (kg)	257.23	244.65	234.27	234.90	228.73

	1990/91	1991/92	1992/93	1993/94	1994/95
Production Using Actual Yield Variations					
Local Maize (kg)	218.0	81.0	234.5	147.25	191.75
Groundnut (kg)	18.68	6.8	19.8	13.32	13.88
Groundnut Sales (MK)	16.19	2.19	24.05	16.37	27.24
Maize Purchases (kg)	50.61	5.05	37.12	22.01	9.80
Maize from farming (kg)	268.61	86.05	271.62	169.26	201.55

Household 3 is male-headed, comprising 4.4 consumption units which include two adults. It farms 1.0 has. (similar to approximately 15-20 percent of the rural population), with 0.6 has under local maize, 0.25 has under hybrid maize and 0.15 ha under tobacco. Tobacco was only introduced in 1991/92. Previous to that 0.4 has were under hybrid maize. Household 3 uses purchased inputs. Table C5 shows how this family has fared since 1990/91.

Table C5. Household 3 - Farm Budget

	1990/91	1991/92	1992/93	1993/94	1994/95
Income Using Average Yields					
Local Maize (kg)	521.4	521.4	521.4	521.4	521.4
Hybrid Maize (kg)	1002.8	626.75	626.75	626.75	626.75
Maize sales (kg)	644.2	268.15	268.15	268.15	268.15
Net Value of Tobacco Sales (MK)		348.32	508.93	310.35	1468.11
Cash Income (MK)	173.93	427.96	624.24	436.38	1803.30
Income Using Actual Yield Variations					
Local Maize (kg)	523.2	194.4	562.8	353.4	460.2
Hybrid Maize (kg)	1163.2	326.75	769.5	342.25	457.25
Maize Sales (kg)	806.40	-358.85	452.30	-184.35	37.45
Net Value of Tobacco Sales (MK)		246.31	347.08	60.42	753.66
Cash Income (MK)	217.73	90.93	541.57	-76.74	800.47

Household 3 is a surplus maize producer, but once crop liberalisation introduced the possibility of growing burley tobacco, some land was switched from hybrid maize to tobacco. Nominal cash income has grown substantially, though income dipped in 1993/94 due to an increase in input costs. Even when actual year to year yield variations are taken into account, this household has enough income to save in good years and dissave in bad years. It should be regarded as food secure in both chronic and transitory terms.

Household 4 is similar to household 3 in all respects, except in its cropping pattern. This household is probably located in an ADD such as Salima or Shire Valley and grows cotton as a cash crop. Cotton was never proscribed for smallholder farmers, so there is no change in cropping pattern throughout the period. Table C6 gives an abbreviated family budget.

Table C6. Household 4 - Farm Budget

	1990/91	1991/92	1992/93	1993/94	1994/95
Income Using Average Yields					
Local Maize (kg)	434.5	434.5	434.5	434.5	434.5
Hybrid Maize (kg)	501.4	501.4	501.4	501.4	501.4
Maize Sales (kg)	55.9	55.9	55.9	55.9	55.9
Net Value of Cotton Sales (MK)	94.60	96.72	101.18	110.74	361.29
Cash Income (MK)	109.69	113.32	125.22	137.01	431.17
Income Using Actual Yield Variations					
Local Maize (kg)	436.0	162.0	469.0	294.5	383.5
Hybrid Maize (kg)	581.6	261.4	615.6	273.8	365.8
Maize Sales (kg)	137.6	-456.6	204.6	-311.7	-130.7
Net Value of Cotton Sales (MK)	127.94	6.85	100.15	70.66	280.29
Cash Income (MK)	165.10	-190.86	188.13	-161.24	-83.05

Household 4 is self-sufficient in maize and sells cotton. The returns to cotton have been quite low - nominal income has been stagnant until last year. However, in 1994/95, the cotton market was liberalised. A new player, ES Marketing, entered the market, which had an immediate effect on the seed cotton price. This is shown in a tripling of the cash income from cotton for this family. By all accounts, the high prices are continuing this year. Over the past five years, this household has not had sufficient gains from market liberalisation to tide it through bad years, without major consumption adjustments. If the high prices for cotton continue, this could change.

Household 5 is male-headed, comprising five consumption units of whom three are adults. Thus their food requirements are equivalent to 1000kg of maize a year. The family farms 2 has, which puts it in a class with 6 percent of rural households. The family grows 0.7 ha of local maize, 0.7 ha of hybrid maize, 0.4 ha of tobacco and 0.2 ha of groundnuts. Fertiliser and pesticide are used. Their budget is shown in Table C7.

Table C7. Household 5 - Farm Budget

	1990/91	1991/92	1992/93	1993/94	1994/95
Income Using Average Yields					
Local Maize (kg)	608.3	608.3	608.3	608.3	608.3
Hybrid Maize (kg)	2757.7	1754.9	1754.9	1754.9	1754.9
Maize Sales (kg)	2366	1363.2	1363.2	1363.2	1363.2
Net Value of Tobacco Sales (MK)		928.86	1357.16	827.61	3914.96
Cash Income (MK)	638.82	1333.73	1943.34	1468.32	5618.96
Income Using Actual Yield Variations					
Local Maize	610.4	226.8	656.6	412.3	536.9
Hybrid Maize (kg)	3198.8	914.9	2154.6	958.3	1280.3
Maize Sales (kg)	2809.20	141.70	1811.20	370.60	817.20
Net Value of Tobacco Sales		656.84	925.55	161.11	2009.76
Cash Income	758.48	698.92	1704.37	335.29	3031.26

Household 5 is a surplus maize producer, though the amount of maize sold has fallen since tobacco has been introduced as a crop. It is assumed that the family keeps the groundnut for consumption (In fact, the 0.2 has could be planted with any additional food crop without affecting the overall picture). As with household 3, there is a dip in income in 1993/94 with the increase in cost of inputs. This family probably hires in labour, which has not been included in the model, but this is unlikely to reduce cash income by more than 10 percent. Again, this household may suffer an income loss in poor years, but cannot be regarded as suffering from transitory food insecurity.

Overall, families who have access to purchased inputs, and hence can plant tobacco and hybrid maize have done well out of liberalisation. These families tend to have above average farm size. Households which are maize deficit, and have no resources to invest in improved maize varieties have lost out. These households tend to have below average size. One type of household

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which is not represented in the models above is the very poor family who has virtually no interaction with the market. There are indications that the very poorest rural households in Malawi, it is difficult to estimate their precise number, exist in a world of own production and barter. They perform ganyu largely for maize and they barter any spare vegetables or pulses for food. Market liberalisation has almost certainly had very little impact on them. Households 1 and 2 are only negatively affected insofar as they sell groundnuts. If they bartered, their position might not have changed.

The results from this very simple model are in line with the findings from a recent LP model which looks at the same issue, though the LP model allows changes in cropping patterns in response to price changes (Alwang and Siegel 1996)

If these findings are representative, then this raises important issues about how poor rural households can be given some ability to participate in markets on better terms than they are doing at present. Unless they can develop the ability to buy inputs, raise cash crops and otherwise improve their productivity, then they are fated to a life of increased marginalisation if they continue to depend on agriculture for their major income source. For some of these households, the only viable option will be a movement to increased involvement in off-farm income generating activities.

ANNEX D: MODEL OF MAIZE PRICE INSTABILITY IN MALAWI

It is often appropriate to assume a close link between production instability and price instability. Contrariwise, in Malawi, high instability in maize production is not likely to translate into high price instability. With some reflection, the reason seems obvious. In a country where a high share of the population is engaged in the production of maize or related activities, a change in production is likely to cause a simultaneous change in the demand and supply in the same direction.

The implications are that 1) food security of many rural households that live at the margin of sufficiency is likely to be threatened primarily by loss of income (for maize producing farmers in the form of maize), not by price instability in the market and 2) that the usual price stabilizing interventions (e.g., publicly operated storage operations or compensatory foreign trade interventions) might easily overshoot their mark, unless much caution is used. Moreover, some of the money that is spent on price stabilization might be better used for income stabilization measures.

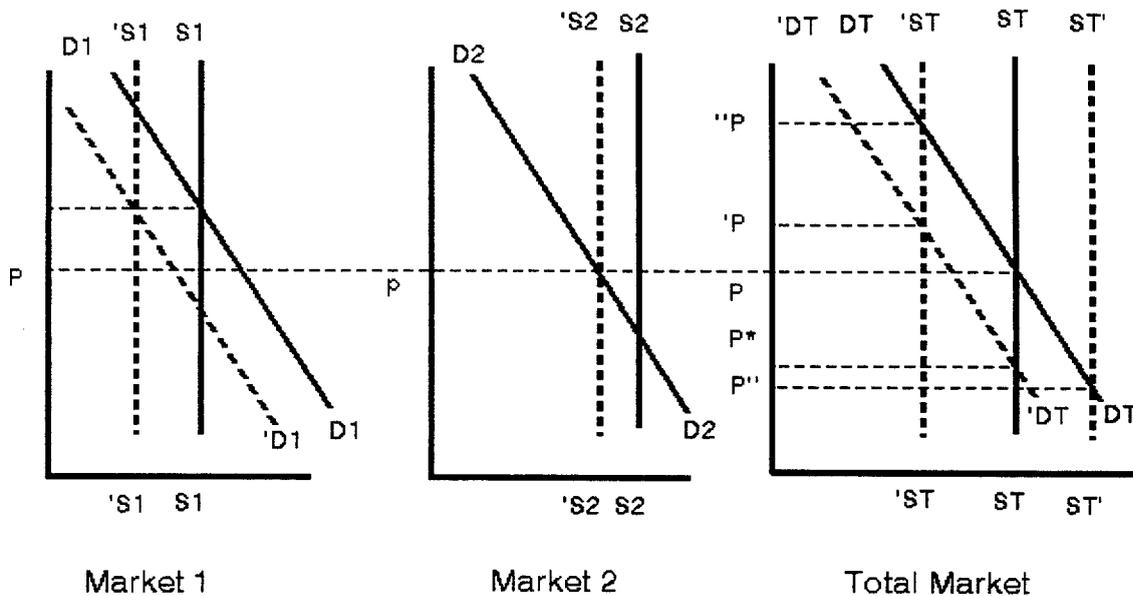


Figure D1

Figure D1 illustrates quantity and price relations in the maize market in Malawi. But, it is only an illustration, because the exact form and parameters of the demand functions of different groups in the population are not known. A more precise analysis of the extent to which production instability translates into price instability in Malawi maize can be made only with better empirical estimates of the correlations between maize production, income and demand.

The right panel in Figure D1 represents the supply of and demand for maize in Malawi. The Demand in a normal year is shown as line DT and normal production is shown by the vertical line ST. Price in a normal year is given by the intersection of ST and DT at price P. In a country where the production of the commodity would not affect its demand, production instability would be traced along the demand line DT. For instance, if production drops to 'ST, the price would rise to 'P and an equal rise in production would drop the price to P''. The extent to which instability in production translates into instability in price depends only on the shape of the demand curve, particularly its slope. Expressed more generally, the translation of instability in production into instability of price is a function of the demand elasticity of the commodity. The more inelastic the demand, the higher the price instability for a given instability in production.

To illustrate the more realistic structure of the maize market in Malawi, the market for total maize, represented in the right panel of Figure D1 is segmented into two component markets: Market 1, the market for maize of the maize deficit rural population, and Market 2, the market for maize of the maize surplus, rural and urban population. The total supply in a normal year is the sum of production (horizontal summation) in the first and second market, $ST = S1 + S2$. Total demand DT, in a normal year is similarly the sum of D1 and D2.

Consumption in market 1 consists mostly of the maize produced in Market 1, the production by maize deficit farming households, but also comes in part from purchases. Market 2 produces in excess of its demand. For the illustration, production in Markets 1 and 2 equals consumption in Markets 1 and 2 (self-sufficiency).

The purpose of segmenting the market is to note what happens in the two markets when production declines (or increases) and the implications for the total market.

In Market 1, demand of maize deficit households (without relief aid) is assumed to decline to the full extent of the change in their own production, i.e. from D1 to 'D1 as production declines in a drought year from S1-'S1. Actually this is an optimistic assumption, because the demand for purchased maize by the households of this market is likely to decline too, as opportunities for earning cash income (from the sale of other crops and/or their labor) also decline for the same reason that maize production has declined.

In Market 2 demand is assumed to remain unchanged as production decreases from S2 to 'S2. While many of the urban households and certainly some of the maize surplus producers may also realize a decline in income when maize production declines, it is assumed that their demand for maize will not decline significantly.

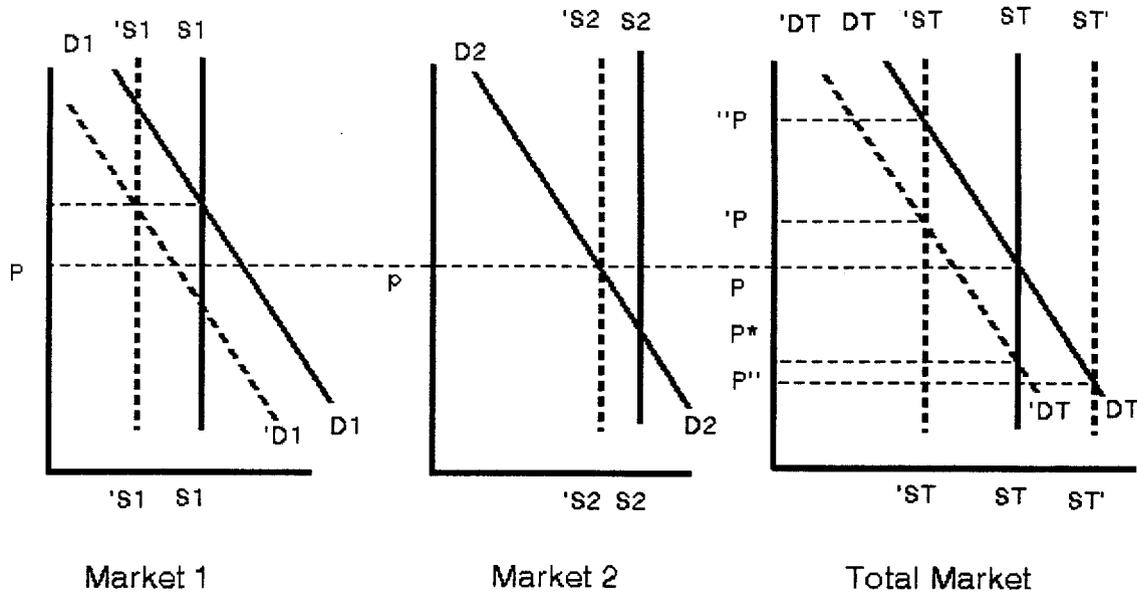
To observe the full impact of the changes in production on the price, note (in the right panel) that total supply declines from ST to 'ST and that the corresponding total demand shifts to the left from DT to 'DT. The price is now 'P, the intersection of 'ST and 'DT. Given price instability in the range of 'ST and ST', the price fluctuates between P'' and 'P, if demand would stay constant, as it would in a country in which maize is not so dominant a source of income and effective demand for maize.

Note that a substitution of imports or releases from an SGR to the full extent of the loss in production would have resulted in ST intersecting with 'DT at a price P* which is far less than the price in a normal production year. In this case, intervention would have resulted in an increase rather than a decrease in price instability, with particularly undesirable consequences for maize producers. If this were to happen, maize producers may receive a lower price when production declines and a higher price when production is higher. The consequence of such price intervention would cause farm income to become more unstable.

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ANNEX E: TARGETING THE FOOD INSECURE IN MALAWI

1. Principles of Targeting

The ideal targeting mechanism would have the following characteristics: it would identify all those who should be included in a program while excluding those who should not be eligible; it should be administratively simple and inexpensive to implement; it should not identify more participants than there are resources to cover; it should be politically acceptable to government; and it should fit in with the notions of equity prevalent in the communities concerned. There is nowhere in the world that such a mechanism has been implemented. All targeting mechanisms are compromises between the various characteristics listed above. Mechanisms which are simple and cheap to implement tend to either include too many recipients or exclude some of the most needy of the target group. Mechanisms which have high levels of precision tend to be demanding on information and expensive to administer.

There is an extensive literature on targeting which puts considerable emphasis on trying to find "self-targeting" mechanisms, i.e. programs and projects which will, by their very nature, primarily attract only the intended beneficiaries. These have the advantage of reducing administrative costs for targeting. Examples are the delivery or subsidisation of commodities which are almost entirely consumed by low income groups of the population, and FFW programs where the combination of providing a food wage, and the level of that wage, mean that the program is not attractive to better-off households.

There is no obvious self-targeting mechanism available in Malawi for either chronic or transitory food insecurity programs. This is in part because of the relatively high percentage of the population who are food insecure. It is very difficult to find a project which would only be attractive to a subset of that population. As discussed in Annex G, FFW programs tend to be oversubscribed, and the work is rationed out in an ad hoc way which may or may not promote the objectives of the program. There is relatively little information on consumption patterns of the food insecure, but they seem to differ from the food secure principally in terms of amount. In any case, it would be undesirable to introduce an explicit food subsidy. Commodity targeting would only be relevant in terms of using a less attractive commodity to make a food transfer program less attractive to the better-off.

This means that targeted programs to improve food security in Malawi will have to use some kind of information based process as a targeting mechanism, with the administrative complexity this implies.

2. Experience of Targeting in Malawi

The main experience with systematic targeting in Malawi has been in connection with relief programs. Up until the development of FEWS starting in 1993, the onus was on the 24 District Commissioners to identify the needs of smallholders in their area. For example, in 1992/93,

national criteria were established, to register smallholders whose crops were severely affected, female headed-households without sources of income, elderly or handicapped heads of household and chronically sick or destitute households. The registration process was carried out in advance and districts were phased in according to perception of need. The overall amount of relief food necessary was identified at the national level, and DCs had to distribute the amount of food they were allocated as best they could. It should be noted that the national criteria used would identify not only those affected directly by the drought but also some of the chronically food insecure whether or not they were directly drought affected. This illustrates one of the difficulties, both politically and practically, of targeting in response to a specific shock when there is a high level of chronic food insecurity in normal years.

Once FEWS got underway, efforts were made, in conjunction with WFP, to develop a more objective, statistical basis for relief targeting. The first step was to disaggregate crop estimates to the lowest possible level, the Extension Planning Area (EPA). Then all crops were translated in terms of per capita daily kilocalories produced. This was then compared to the historical average for the EPA, to give a measure of dislocation. In 1994/95, following the previous year's poor harvest, donors and NGOs put together a monitoring system which collected information on child nutrition (Middle Upper Arm Circumference measures), consumption and grain and livestock prices. These were combined to give a ranking of the most vulnerable EPAs in the country. Tonnages of food required were compiled using EPA population figures, on the assumption that not more than 85percent of an EPA would qualify for relief. The food available was then allocated according EPA ranking and the logistic ability of an EPA to receive the tonnage allocated. The system operated fairly smoothly, but there was a tendency for DCs to redirect some of the food to EPAs which had not been included in the distribution. It is often politically difficult to exclude areas from relief operations, particularly if some of the excluded population have clearly been affected.

In 1995/96, there was a more modest relief operation. This was targeted by EPA, initially using the Kilocalorie analysis from FEWS, which was replaced by a targeting system based on the results of a Rapid Food Security Assessment carried out by the Malawi Red Cross. This appraised the situation of the 78 most frequently targeted EPAs in 1994/95. The targeting indicator was developed from information on remaining on-farm stocks and the availability of food from income generating activities and coping strategies. EPAs were then identified as either food surplus or deficit. Deficit EPAs were targeted for relief food. This exercise was carried out on a monthly basis. Unlike previous relief programs, three channels were used to distribute food: distribution through schools; vulnerable group feeding where rations were distributed to people registered at MCHs (mother-child health clinics); and FFW programs.

An evaluation of the effectiveness of these channels indicated that VGF distribution was more effective in targeting the most vulnerable households, whereas school distribution reached more households, often from a wider socio-economic range of households. Sometimes the poorest children were excluded because they did not attend school on a regular basis and therefore were not registered in the school records. Complaints were also raised in the community that families

without school age children were excluded. These observations illustrate the more general point that it is often very difficult to reach the most vulnerable in a community. Simple distribution mechanisms, which have administrative and cost advantages, often exclude the poorest, because they do not fully participate in community life.

As of January 1996, a sustainable monitoring system, Monitoring for Empowerment (M4E), has been put in place. This is not linked specifically to relief food but is aimed at assisting in targeting any kind of intervention. Data are collected through the Ministries of Health and Agriculture and can be used to develop appropriate targeting indicators at the EPA level. The MASAF project is currently using three variables to prioritise EPAs for involvement in their community-based projects.

3. Appropriate Targeting Strategies

The appropriate indicators to use for targeting depend on the objective of the project or program, its proposed coverage, its design and what it is delivering. For a few programs, this will be very straightforward. For example, WFP's program of supplementary feeding through Nutrition Rehabilitation Units is nationwide, and targets severely malnourished children and their families. Food is delivered to a target clearly identified by medical staff, and there are adequate resources to cover all who fall into this category. No additional targeting mechanism is needed.

However, most programmes do not have the resources for nationwide implementation. Geographical targeting based on the FEWS monitoring system is a good starting point, particularly for programs which depend to some extent on local administrative structures for program support and administration. The FEWS system can rank EPAs according to combinations of appropriate indicators. This will enable the identification of the most appropriate EPAs in which to start program implementation.

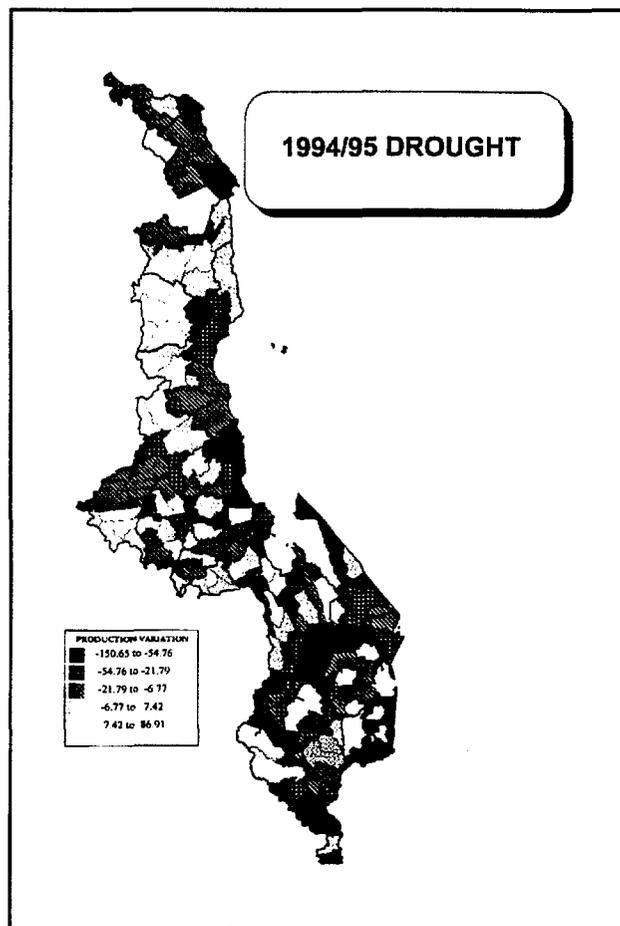


Figure E1

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It is very important to specify carefully the exact target for the program. Is it drought-affected households? Is it poor households? Or is it chronically food deficit households? The commodity or service being delivered by the program may also be relevant to the choice of targeting indicator. This is likely to be different if a program is delivering food as opposed to health services.

The ranking of EPAs in Malawi is very sensitive to the choice of indicators, as examination of the following maps shows. Figure E1 shows the impact of the short rainfall in 1994/95, in terms of the percentage variation of actual production of crops, measured in kilocalories, from the historical average kilocalorie production, by EPA. The dark areas showed significant production shortfalls of up to 150 percent reductions. The light areas were less affected, and some had significant production increases. The worst-affected areas are spread fairly evenly throughout the country. In fact, a variation on this was used to target the 1994/95 drought relief programme. EPAs whose production was less than 1800 kilocalories per person per day, and had suffered a fall in production over the historical average, were targeted for emergency relief. This identified areas where the production shortfall took the EPA below a minimum coping level.

FEWS has been developing an indicator of overall vulnerability, which is based on a principal component analysis of data series on food availability, cropping patterns, health, education, infrastructure and demographic variables. This has not yet been finalised, but Figure E2 shows its current status. This shows clusters of vulnerable EPAs along the borders with Mozambique and Zambia, with better-off EPAs along the lakeshore and in the North of the country. This gives a very different picture from the drought map, partly because the aim is to identify chronic, rather than transitory status, and also because of the inclusion of data on health and education variables. This type of indicator would be useful for programs where there was a strong community element, such as the MASAF program.

If, however, the program under consideration provided some kind of resource transfer to the household, such as food, then it might be more appropriate to rank EPAs on the basis of

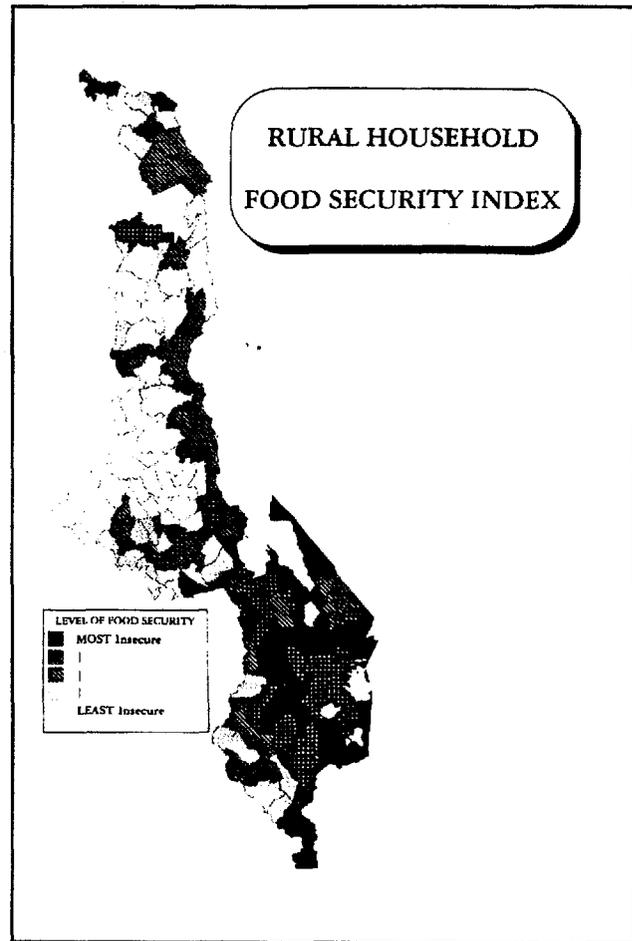


Figure E2

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chronic food deficiency, rather than including indicators which reflect the provision of public services to communities. A rural household food security index was developed from data on acreage, production, income, expenditure on food, cropping patterns, demographic variables and coping strategies. The variation in this composite index is shown in Figure E3. The results here are very different from those shown in Figure E2. There is a high concentration of food insecure EPAs in the south of the country.

The degree of variation between these maps, all of which reflect some aspect of food security, indicate the complexity of the causal factors influencing food security in Malawi, and the importance of clear program design, in terms of objectives, what the intended impact of the program is and who precisely are the intended beneficiaries and why. This will give better guidance as to the appropriate indicators to use for targeting.

Once the EPAs have been ranked, the next stage is to identify beneficiaries within the EPAs. This will probably involve the district authorities in selecting the most appropriate villages, and then local community structures to reach individual households. This is the methodology suggested by WFP in its most recent country strategy outline (WFP, 1994) and is similar to approaches used in neighbouring countries. Although it may seem cumbersome and time consuming to explain to communities and involve them in the targeting process, the more communities understand the purpose of projects the more likely it is that they will reach the intended beneficiaries. If this process is carried out in regular programs which address chronic food insecurity, then the ground work will be in place for more effective delivery for emergency programs.

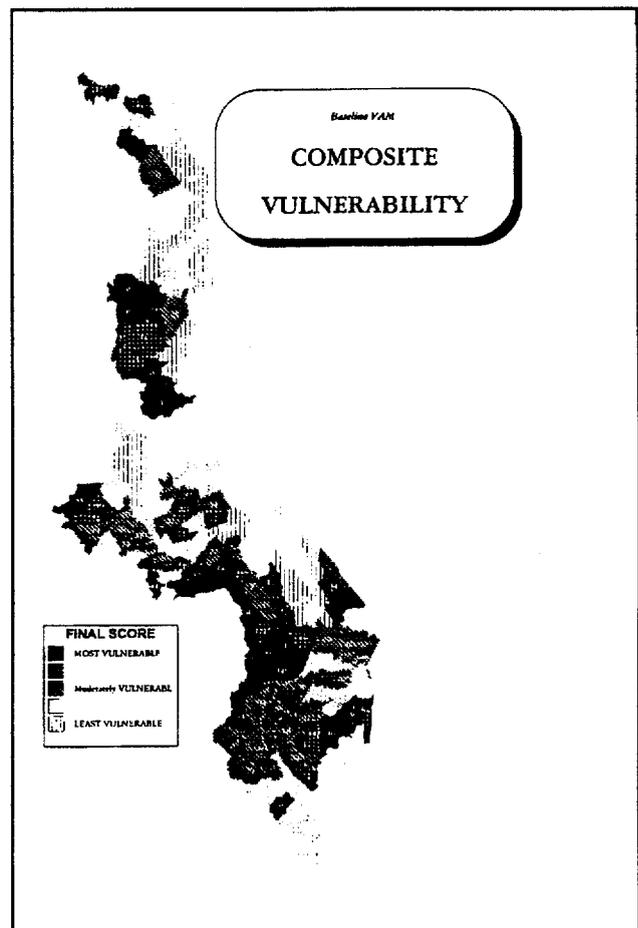


Figure E3

ANNEX F: SAFETY NETS IN MALAWI

The term, safety net, is commonly used in two different ways. The first, and original use of the term refers to a program or set of programs introduced in countries which are in the process of eliminating certain social or economic programs which have universal coverage, but where there is a desire to assure continued public assistance to the poorest. There is implicit in the term a process of moving from programs which are open to all, regardless of income level, to programs where eligibility is related to poverty, and the level of benefits may be related to the level of poverty. The safety net can be a permanent element of government policy, or it can be linked to a process of transition, to provide a short-term cushion for the most vulnerable. In developing countries, this has often been linked to the process of structural adjustment.

The concept of the safety net has also been used to refer to specific government programs which target either the chronic poor and food insecure, and/or the transitory food insecure. This can encompass nutrition, poverty alleviation, food security and emergency programs, among others.

There have been a number of major policy changes in the last decade in Malawi, as discussed earlier. Most importantly there has been a move from a largely command economy towards a more market-oriented one. In particular, there have been adjustments in the foreign exchange rate, subsidies have been removed from agricultural inputs and commodity prices, with the partial exception of maize, are determined by market forces. This has changed the relative prices faced by smallholders, and to some extent the rural-urban terms of trade. As with all changes of this nature there have been winners and losers. As indicated in section 2 of the main report, some of the poorer sections of the rural population have not, as yet, benefited from market liberalisation and may have lost as a result of changing relative prices.

There has been particular concern about the impact of the changing role of ADMARC on the poorest sections of the population, particularly in rural areas. Historically ADMARC was the main source of supply of maize on the market in both rural and urban areas. It bought and sold at administered prices throughout the country, regardless of transport and storage costs and whether an area was maize surplus or maize deficit. ADMARC's selling price of maize was both politically and economically important and it was factored into the level of the minimum rural and urban wage. ADMARC was seen as having an important social function, in maintaining both availability of maize, and, by keeping the price of maize at "acceptable" levels regardless of underlying market conditions, protecting the purchasing power of net maize purchasers. To a large extent this was financed through cross-subsidisation within ADMARC between maize transactions and dealings in other commodities.

Since 1986, there have been steps taken to liberalise agricultural input and output markets and reduce the dominance of ADMARC. In the maize market, this process has been slow and rather uneven in pace, due in part to the nature of ADMARC's continued presence, which reduces the incentives for private trade to enter the market. It is clear that, with ADMARC's current price

structure there is little incentive for the private sector to move maize around the country or to store maize throughout the season. In the last year, this disincentive has been somewhat diminished by ADMARC's financial inability to enter the market to the extent it would like. However, although the situation is changing very rapidly, and more and more private traders are entering the market, there is some way to go before Malawi has a competitive and efficient private maize trade.

There has been concern expressed both by government and some sections of the donor community about the implications of this transitional state of the market for food security. There have been suggestions that the pace of reform is too fast, and that ADMARC has still an important social role to play. In other words, ADMARC should form part of a safety net approach. While not denying the importance of the role ADMARC has played in the past, the mission would put forward two observations.

Firstly, for the very poorest section of the rural population, ADMARC's role appears to be marginal. Their main source of maize is own production. When that runs out, maize is usually obtained directly through ganyu, i.e. in kind, or through the barter of vegetables for maize. Cash incomes are very low, and when they are used to buy maize, this is often in very small amounts on local markets where the ADMARC price is only an indirect influence. Of course, many more smallholders are net consumers of maize, and will be adversely affected by higher maize prices and scarce supplies on the market. However, maintenance of the current ADMARC structure is a very costly way to implement a safety net programme, and is likely to have little direct effect on the very poorest.

Secondly, as has been stated many times already, the food security problem is one of household income. Certainly this is affected by the level of maize prices, but if it is felt that this is a sufficiently important factor to warrant intervention, it should take the form of a targeted resource transfer, not a price intervention. If there are serious problems of local food availability in the transitional state of the market, the resource transfer could be in the form of food, e.g. food for work programs.

The new government has shown strong commitment to poverty reduction, as evidenced in the launch of the Poverty Alleviation Programme in 1994. In conjunction with this, the World Bank is funding the Malawi Social Action Fund (MASAF) to the amount of \$56 million over a five year period. The overall objective of MASAF is to contribute towards poverty reduction through funding the creation of village level assets which will be directly beneficial to the poor, particularly in primary education, peripheral health services and safe water. The monitoring and assessment of this will be assisted by a Poverty Monitoring Support Facility. The MASAF project is long-term in nature. It will take time for community-level benefits to manifest themselves in increased incomes for poor households. Recognising this, the MASAF project also contains a public works component, targeted at poor and food-deficient areas in the country. This program, which is discussed at greater length in Annex G, is estimated to cost \$19.47 million, of which \$16.8 million is funded from the IDA loan.

There are a number of emergency, nutrition and poverty-oriented programs which could be regarded as safety net programs under the more general use of the term. Two of these have had national level coverage in the recent past. The first is the emergency food assistance and drought relief programmes coordinated by WFP in response to the five national or local droughts since 1987. All drought affected regions in the country have been covered according to need. WFP has also implemented a vulnerable group feeding program since 1972. This is being phased out, and by its close in 1998 will have delivered 120,000 tons of food, valued at \$36.672 million to 1.219 million beneficiaries at a total cost of \$62.157 million. This program is being phased out because evaluation has shown that over twenty years of supplementary feeding has had no discernable impact on levels of malnutrition in Malawi. Currently it is reaching 150,000 beneficiaries, using Nutrition Rehabilitation Units, Community-Based Supplementary Feeding and Mother and Child Health Centres. Neither of these programs have major long-term developmental impact.

There are a number of small scale developmental programs, run by NGOs, donors or government, many concentrating on a combination of training and credit. The largest of these is the Mudzi Financial Services Project, part of the Malawi Rural Finance Corporation, which is based on the model of the Grameen Bank of Bangladesh. At present this project is lending MK7.3million, to 600 centres of 20-25 women each, in five ADDs. Borrowers undergo extensive training to develop business plans, mainly for off-farm income generating activities. It is targeted primarily at women with less than one hectare of land, and most of the businesses funded are in petty trading, restaurants or food processing. This project is currently being expanded to national coverage, and has a pledge line of \$10million in total for credit, net of administrative costs. GTZ runs a smaller credit scheme, the Promotion of Micro-Enterprises for Rural Women, again targeted at women. NGOs such as VEZA also run targeted resource transfer schemes which encourage off-farm activities.

At present there is no nationwide state safety net, though there are a number of programs which target poor rural households. To understand how poor households cope under economic and food stress, one has to examine social safety nets i.e. the structures and institutions which exist in civil society which households can call upon in extremity. These are often complex systems of obligations which the better-off, or those with traditional positions of authority, carry towards the poor. In Malawi the major social safety net is based on the system of *ganyu*, or casual rural labour. For most poor rural households, when their grain stocks run out, they will sell any non-grain crops to buy maize or cassava, and if they have no crops to sell, then family members will go looking for *ganyu*. *Ganyu* is, in general, not very remunerative, because the supply of rural labour is far greater than the demand. It is reported that estates will sometimes employ more people than they need, to give employment opportunities to the poorest (SCF, 1996). Without this income source, many rural families would be even more food insecure than they are at present. *Ganyu* gives very poor returns to labour, particularly if the time spent looking for *ganyu* is included. For those households which are labour scarce, as is the case with many female-headed households, *ganyu* can lock the family into a vicious circle where labour time is spent on *ganyu* rather than on the farm, but it does allow them to survive. In time, the processes of

economic growth will both increase the demand for labour and reduce the supply as more people find off-farm employment, but at present *ganyu* is an essential part of the coping mechanisms of the poor.

In the present situation in Malawi, a safety net program or combination of programs could have an important role either in offering alternatives to the *ganyu* system or in supporting those who, for whatever reason, are unable to offer their labour in the market. A targeted income transfer program could provide a stand alone safety net. Alternatively a combination of programs could address different sections of the population. Public works programs could target households with able-bodied adults, in combination with some form of vulnerable group feeding.

In particular, the supplementary feeding program targeting malnourished children in Nutrition Rehabilitation Units, currently run by WFP, is an important safety net for the neediest families. This program is currently due to be phased out in three years time. However, it is a low resource (currently about 600 MT per annum) program which efficiently targets about 7% of children under five from very poor households. At present the program provides food to rehabilitate the child and to feed the family for five weeks, to allow the mother to stay with the child while he or she is undergoing treatment. Serious consideration should be given to continuing this program and possibly extending the period during which food is provided to the household.

It is unlikely that resources could be found to fund a safety net program which could ensure food security for large proportion of the Malawi population who are at risk. This means that it is particularly important to ensure that those programs which aim to provide support to particularly vulnerable sections of the population are well targeted.

ANNEX G: PUBLIC WORKS/FOOD-FOR-WORK PROGRAMS

At present there is a very limited program of public works, including FFW programs, operational in Malawi. The Malawi Social Action Fund (MASAF) is operating a pilot public works program in Ntcheu, Mulanje and Machinga. EPAs within these districts were chosen on the basis of FEWS indicator of food-deficit EPAs. In two of the districts, Ntcheu and Mulanje, the wage is given part in cash and part in food coupons. In Machinga the wage is cash only. There is as yet no centrally collated information on the number of beneficiaries reached. The pilot project started in late 1995 and the main phase of implementation is expected to start in June 1996.

As well as providing the food component of the MASAF public works projects, WFP is operating a number of FFW projects as part of EMOP 5693, the 1995/96 drought relief program. A decision was made by government that free food distribution to able-bodied adults should be replaced by FFW to reduce dependency. FFW projects started in four districts in November 1995 and by March 1996 were operating in 12 of the 24 districts in Malawi. (All 24 districts in Malawi could propose FFW projects.) A total of 235,075 participants have been registered, 115,905 men and 119,170 women. WFP is currently developing a proposal for a Quick Action Project with the aim of moving FFW as far as possible along the relief-development continuum.

Both WFP and MASAF have dual objectives in developing the public works and FFW projects proposed and about to be implemented. The projects are aimed at increasing short-term food security among the households of participating workers, with particular mention of women (MASAF indeed describes its PWP as a safety net operation). The projects are also intended to provide economically productive assets, and hence assist long-term food security. In this context, three questions should be asked:

- (a) Under what circumstances are PWPs an appropriate approach to improving food security in Malawi?
- (b) How cost-effective are they?
- © Is food a useful supplement or substitute for cash income?

(a) PWPs can be seen as contributing to the mosaic of income generating activities so essential to survival for the poorest households in Malawi. This particular form of resource transfer is often preferred by government and agencies because it is seen as a way of reducing dependence and getting away from free hand-outs. The opportunity cost of labour involved in PWPs depends on when the projects are implemented. MASAF intends to implement its projects between May and November, the off-peak season for agriculture, when there are few other employment opportunities. WFP has, up until now, implemented FFW as an emergency program and therefore has been operating in November through March, the peak agricultural season, but also the season with lowest household food stocks. However, participants are only required to spend

four hours a day on FFW, which should leave them time for working on their farms. The QAP FFW project proposal sees FFW as a substitute for *ganyu*, at least in part, and appears to propose that FFW be undertaken in the rainy season, as at other times of the year. However, the issue of FFW squeezing out work on fields is raised as an area for monitoring.

There are significant differences in approach between MASAF and WFP in their programs. WFP's FFW projects are seen as providing alternative and more attractive sources of income, in particular to *ganyu*. People do not have to travel long distances to find work and can continue to work on their farms. MASAF is more a traditional PWP, where it is intended in the main phase of the project that participants are paid a cash wage equivalent to the minimum rural wage and are expected to do a full day's work.

The ability to target is an area where PWPs are often said to have advantages. Certainly it is easy to target PWPs geographically and Malawi has an information system in FEWS which can provide up to date data on which to base this. It is also claimed that PWPs have a self-targeting element. This is true in theory. Better-off people are unlikely to undertake hard physical labour for a relatively low wage. However, the level of poverty is so high in Malawi and the availability of off-farm employment so relatively low, that even with careful EPA targeting, the extent of self-targeting is highly dependent on the wage offered. MASAF offers cash or a mixture of cash and food equivalent to the minimum rural wage. Even at this low wage, there is far more demand for participation than employment available. Workers are employed on a first come first served basis. WFP is proposing a cash/food combination equivalent to 130 percent - 160 percent¹⁰ of the minimum rural wage. The demand for these is likely to be even greater. Given that it is politically unacceptable to implement a PWP with a wage below the minimum rural wage, it is likely that any PWP will attract many more participants than can be employed. Participants are still likely to be poor, but they may not be the poorest. This means that some form of additional informal targeting or rationing must take place. An evaluation of the emergency WFP FFW projects has shown that different projects have adopted different approaches. Some have operated on a first come first served basis, in others physical productivity criteria have been adopted and in others there has been some attempt to include the most needy households (Dil, 1996). The problem of community level targeting should be recognised and tackled head-on (see Annex F).

In their proposed QAP, WFP includes a second type of FFW project, which provides incentives to workers on community based self-help projects, where the community itself is the prime beneficiary of the project's output. It is proposed that the incentive offered (WFP do not call this a wage) would be around 20 percent below the minimum rural wage. This should be more effective in targeting the poorest in the community. No such projects have yet been implemented. It will be important to monitor the types of households who find this attractive.

¹⁰ It is difficult to state categorically the value of the WFP wage, as the value of the food component varies according to the time of year and whether the food is an alternative to ADMARC or free market purchases.

PWPs, and particularly FFW, are often seen as a way of targeting poor women. Both MASAF and WFP specifically mention this. This is certainly possible, but would need careful program design. MASAF has had difficulty attracting women to its pilot projects. Initially about 50 percent of applicants were women, but most of these were old and not capable of undertaking the physical labour involved. Now there are relatively few women participating. This may be in part because the pilot projects all involve roadwork. The mission was told that there may be traditional restrictions on women working on roads along side men. However, this has not been mentioned as a problem on WFP's emergency FFW projects. The registration figures show slightly more female than male participants. The recent appraisal (Dil, 1996) indicates that in NGO administered FFW projects, supplied by WFP, women made up over 80 percent of participants, but that in the MASAF projects, where WFP supplied food, the male-female ratio started off evenly, but female participation fell as the work progressed. This was partly because a rule was introduced that only one household member could participate, and this was usually the man. Also, the foremen preferred to have male participants, and would lay women of in preference for male workers.

This means that, if female participation is an objective of a FFW program, both the community and the works supervisors will have to be carefully informed of this and actual participation, as opposed to initial registration, should be monitored.

In the short-term, PWPs will improve the food security of participating households. However, the effect is likely to be short-term. They could possibly lead to improvements in longer-term food security, depending on how the additional income is used within the household. PWPs will not provide long term employment, nor, unless they improve participants' skills, will they improve employment prospects for participants.

The long-term developmental impact of PWPs is determined by the size and impact of the resource transfer to rural areas, and the developmental impact of the assets produced. This is also true where WFP provides an incentive for community self-help projects. There may be an increased role for support to these projects particularly where they directly improve the resource base of communities, e.g. soil conservation and forestry projects.

If PWPs are to be effective as a response to transitory food insecurity, they must be capable of speedy implementation. It clearly took a few months for some EPAs to respond to the WFP emergency program this year. This is very common when emergency FFW projects are first introduced. This implies that projects or blueprints for projects have to be prepared in advance, and available to be taken down from the shelf when the need arises.

(b) As PWPs/FFW have joint objectives, there are two elements to measuring cost-effectiveness: the project's cost-effectiveness as a resource transfer mechanism and its effectiveness in producing rural community assets. Our interest here is primarily in the first.

It is reasonable to assume that PWP/FFW is no worse, and may possibly be better in reaching its target beneficiaries than other mechanisms for resource transfer. Therefore the analysis can concentrate on the amount transferred to beneficiaries as a proportion of total project cost. For both MASAF and WFP's QAP, the figures have to be taken from the project proposals and do not reflect actual costs borne.

The MASAF proposal gives a total cost of the PWP component as \$19.47million. This should provide 120,960 household years with a total of MK252million over a five year period. At current exchange rates this would imply that 86 percent of total project costs would be delivered to the beneficiaries. This appears to be unrealistically high. The project manager of MASAF gave a verbal estimate that the project aims to deliver 35 - 50 percent of total costs to beneficiaries and the rest will be spent on materials. This seems a more realistic assessment.

In the 1995/96 emergency FFW program, WFP delivered 4321 MT of food to beneficiaries, with an approximate value of \$8.7 million. The cost of delivery was approximately MK0.5million.

WFP's QAP proposal gives a total cost of \$4.057, of which 73 percent represents the value of food transferred to beneficiaries. However the project envisages inputs from NGOs and various government ministries which are not costed.

It is very difficult to estimate how cost-effective PWP/FFW projects are as a way of providing rural assets, and it is not directly relevant here. There is a large literature on the subject. It is worth noting, however, that there may be a conflict between the characteristics of eligible beneficiaries from a food security perspective and their suitability for participation in a PWP.

(c) Is there a role for food as a supplement to or substitute for cash in PWP/FFW projects? A number of issues arise in regard to this question. Firstly, how acceptable is this to participants? An argument has been put forward in Malawi that a food wage is sometimes preferred by FFW participants because of the high transactions costs involved in exchanging cash for food. MASAF, in conjunction with WFP, gave participants in their pilot projects the choice of cash, food or a combination. In Ntcheu and Mulanje, the community chose a combination of cash and food. This choice was made in November when food was relatively scarce on local markets and prices were likely to rise. By April, when local food was coming on to the market, there were requests for the wage to be paid entirely in cash. In Machinga, which shares a border with Mozambique, the community requested cash which could easily be exchanged for cheap food from over the border. Thus the preference depends on market conditions, location and time of the year. It is more difficult to store food than cash, so when food is plentiful, a food wage is not so appreciated. A food wage does have the advantage that it is inflation-proofed.

It has also been argued that a food wage is more likely to attract women and a cash wage men. Undoubtedly if there are high transactions costs in exchanging cash for food, then it is

women who are likely to bear them, but there is no direct evidence that women prefer a food wage.

The logistics costs of providing a food wage can be substantial. MASAF had to bring in the Malawi Red Cross to assist in distributing food from WFP district depots to beneficiaries. There are only a limited number of NGOs with the capacity to assist in this way, and it is doubtful whether they would see this as an appropriate role, unless they were also involved in developing and running the project.

Although it is argued that FFW projects can have benefits where there are thin and unreliable food markets, it can also be argued that bringing in substantial amounts of food to a small area can disrupt what market there is. It is difficult to assess how many FFW projects are big enough to have that kind of impact, but it must be considered as a possible negative effect. Certainly the current situation, where the FFW component is almost exclusively in the form of maize, reinforces the current dependence on maize as a staple crop in Malawi. WFP is keen to include other commodities in the food wage, provided they can be purchased in the country or the region, or can be donated. This should be encouraged. If the wage is paid in cash, households have the option of buying a wider variety of food on the market, as it is available, some of which may be lower in price.

Finally, one of the arguments that is always made for the use of food in projects is that, from the donor perspective it represents additional resources. This is because of the different ways in which aid programs are funded. This is less and less true nowadays as the supplies of food aid dry up, and donor structures are more and more flexible as between the provision of commodities and the provision of money. Food should only be used if it has something positive to add to a project.