Malawi
Agricultural Sector Memorandum: Strategy Options in the 1990s

(In Two Volumes) Volume I: Overview

March 8, 1995

Southern Africa Department
Agriculture and Environment Division

Document of the World Bank
ACRONYMS

ADB  African Development Bank
ADD  Agriculture Development Division
ADMARC  Agriculture Development and Marketing Corporation
ASAC  Agricultural Sector Adjustment Credit
ASC  Agriculture Sciences Committee
ASM  Agricultural Sector Memorandum
ASP  Agriculture Services Project
ASSC  Agriculture Sector Steering Committee
CEM  Country Economic Memorandum
CIMMYT  International Maize and Wheat Improvement Center
CMA  Credit and Marketing Assistant
DAET  Department of Agriculture Extension and Training
DAHI  Department of Animal Health and Industry
DAP  Diammonium phosphate (fertilizer)
DAR  Department of Agricultural Research
DEMATT  Development of Malawian Traders Trust
DEVPOL  Malawi Government Statement of Development Policy
DLV  Department of Lands and Valuation
DOI  Department of Irrigation
DREA  Department of Research and Environmental Affairs
DRIMP  District Roads Improvement and Maintenance Program
EC  European Community
EEC  European Economic Community
EST  Estate Extension Service Trust
EP&D  Economic Planning and Development
EPA  Extension Planning Area
FA  Field Assistant
FAO  Food and Agriculture Organization
FSRP  Fertilizer Subsidy Removal Program
GDP  Gross Domestic Product
GOM  Government of Malawi
IDA  International Development Association
IDF  Institutional Development Fund
IFAD  International Fund for Agriculture Development
IMF  International Monetary Fund
LREP  Land Resources Evaluation Project
M&E  Monitoring and Evaluation
MFNR  Ministry of Forestry and Natural Resources
MIWR  Ministry of Irrigation and Water Resources
MMFSP  Malawi Mudzi Financial Services Project
MOALD  Ministry of Agriculture and Livestock Development
MOE  Ministry of Education
MOU  Memorandum of Understanding
MRF  Malawi Rural Finance Company
NDDF  Northern Division Dark Fired (tobacco)
NEAP  National Environmental Action Plan
NEWS  National Early Warning System
NGO  Non-Governmental Organization
NRDP  National Rural Development Project
NSCM  National Seed Company of Malawi
ODA  Overseas Development Association
PIB  Professional Interviewing Board
PIPA  Public Investment Program for Agriculture
PSIP  Public Sector Investment Program
RDP  Rural Development Projects
RFSP  Rural Financial Services Project
SACA  Smallholder Agricultural Credit Administration
SDDF  Southern Division Dark Fired (tobacco)
SEDOM  Small Enterprise Development Organization of Malawi
SFFRFM  Smallholder Farmers Fertilizer Revolving Fund of Malawi
SGR  Strategic Grain Reserves
SSA  Sub-Saharan Africa
TAMA  Tobacco Association of Malawi
TRF  Tea Research Foundation
UNDP  United Nations Development Program
PREFACE

This report is based on the findings of the main Agricultural Sector Memorandum (ASM) mission in March/April 1992. During subsequent missions to Malawi involving the World Bank's assistance program to Malawi, various ASM team members have carried out follow-up work and discussions with Government and donor officials in order to enhance the operational usefulness of the ASM for both Government and the World Bank (as well as to contribute to the design of several IDA-financed investment programs during the ASM period). These discussions have included fruitful reviews of selected draft ASM working papers, the building blocks of the ASM. The IDA missions have been led by R. Anson, also Task Manager for the ASM. ASM team members on behalf of the World Bank include: V. Scarborough, K. Simler, S. Hiwa, G. Donovan, A. Conroy, L. Schwartz, N. Okidegbe, R. Noronha, S. Rietbergen, E. Thigpen, D. Larson, D. Ng'ong'la, D. Fullerton, A. Yates, D. Jansen, I. Hayes and S. Jaffee. Hallie Eakin contributed editorial assistance and Ella Hornsby/Wendy Wiltshire provided efficient word processing assistance. Useful cross-country experience and constructive suggestions to enhance the contents and presentation of the ASM were provided by P. Hazell, ASM Lead Advisor (formerly World Bank staff, currently with IFPRI), J. Coates (AF2AE) and K. Saito (AF5AG), Bank staff peer reviewers.

Valuable contributions have been made by numerous Government and donor officials during the course of preparing the draft ASM. MOALD's Planning Division and its staff have been the main counterparts. They arranged an Agricultural Strategy Workshop in March 1992 at the time of initiating work on the ASM, and the ASM Strategy Workshop to review the initial draft ASM, held in Lilongwe on December 3, 1993. The ASM findings and strategy options were also presented and discussed at the Malawi Consortium Group meeting held in Paris on December 20-21, 1993. Building on the ASM work and important developments in the sector, in 1994 Government (with consultant/donor assistance) carried out several studies which contributed to key policy decisions and actions taken in 1994, including: a smallholder credit repayment study; a fertilizer policy study; and a review of the tobacco quota system. The relevant findings and recommendations of these studies are incorporated in this report.

Building on the ASM and other recent sector studies carried out by ADB, USAID and EC, in 1994, MOALD prepared a consolidated national Agricultural and Livestock Development Strategy and Action Plan, under the leadership of Mr. A. Gomani, Chief Planning Officer of MOALD, supported by a Task Force led by G. Jere (Deputy Chief Planning Officer). This draft document was discussed at a Government/donor/private sector Agricultural and Livestock Strategy Symposium, held on November 28-30, 1994. Currently, Government is finalizing its Strategy Document and Action Plan as a reference document for implementation and periodic updating.

This final ASM incorporates the relevant comments and suggestions provided by Government in the discussion held on July 12, 1994, and relevant points arising from the Agricultural and Livestock Strategy Symposium held in late 1994. While the data collection and analysis were carried out previously during 1992 and 1993, the ASM findings and recommendations take into account developments up to February 1995.

The ASM also complements the valuable contributions being made by other donor agencies, especially the African Development Bank-financed Malawi Agricultural Sector Study, and recent studies financed by USAID, EEC, UNDP, UK/ODA and FAO.
## TABLE OF CONTENTS

### VOLUME I: OVERVIEW

### VOLUME II: MAIN REPORT

#### 1. INTRODUCTION AND BACKGROUND ........................................ 1

A. Introduction ...................................................... 1
B. Objectives of the Study ......................................... 1
C. Main Audience and Participatory Approach to Preparation .................. 2
D. Context of Study and Linkage with Other Related Studies ................ 2
E. Organization of the Report ........................................ 3
F. Country Overview .................................................. 4
G. Macroeconomic Environment ....................................... 4

#### 2. THE AGRICULTURAL SECTOR, POVERTY, AND THE NON-FARM ECONOMY ... 10

A. Overview .......................................................... 10
B. Resource Base and Agricultural Potential ................................ 10
C. Structure of the Agricultural Sector .................................. 13
   1. The Smallholder Subsector ...................................... 13
   2. The Estate Subsector ........................................... 16
D. Poverty and the Human Resource Base in Malawi ......................... 16
E. Agriculture’s Linkages with the Non-Farm Sector ...................... 19
F. Government Objectives and Strategies ................................ 22
G. Institutional Arrangements .......................................... 23


A. Overview .......................................................... 26
   1. Growth: Sources and Constraints ................................ 27
B. Structural Changes and Performance: 1980-1994 ........................ 28
   1. The Estate Subsector ........................................... 29
   2. The Smallholder Sector ........................................ 31
C. The Implications of the 1980s for Growth and Poverty Alleviation ... 39
   1. Income Effects of Estate Expansion ........................... 39
   2. Income Effects of Smallholder Burley and Hybrid Maize Production . 41
   3. Multiplier Effects ............................................. 42
   4. Limits to Growth and Adverse Effects of the 1980s ............ 42
4.6 Projected Annual Per Capita Growth Rates in Smallholder Subsector Under Five Policy Scenarios .................................................. 102
4.7 Selected Variables from Aggregation of Linear Programming Models for Base Year and Three Future Policy Scenarios ................................. 106
6.1 Agriculture Subsectors And the Agriculture Diversification Project ................ 118
6.2 Indicative Diversification Commodities and Key Characteristics, Market Prospects and Likely Participants ............................................. 119
6.3 Summary Indicators for Activities Analyzed (by Activity) ....................... 122
6.4 Summary Indicators for Activities Analyzed (by Sector) ......................... 124
6.5 Tobacco Exports Relative to Total Exports Under Different Indicative Scenarios ................................. 134
7.1 Binding Constraints: Smallholder Subsector ..................................... 153
7.2 Agriculture Strategy Options ..................................................... 160

TEXT BOXES

1.1 Malawi's Terms of Trade Trends ................................................. 9
2.1 Productivity, Nutrition, and Malawi's Labor Force of the Future ............ 18
2.2 Farm-Nonfarm Linkages: Some Cross-Country Comparisons .................. 21
4.1 Natural Resource Management and Sustainable Agriculture in the NEAP and the FPR 47
4.2 The World Burley Tobacco Market and Malawi's Prospects .................... 74
4.3 Burley Tobacco Reform Options ................................................ 75
4.4 Hybrid Flint Maize Story ......................................................... 83
4.5 Fertilizer-Maize Recommendations: Current Practice and Untapped Potential for Improved Efficiency .................................................. 86
6.1 Diversification: Insights from Selected African Experiences .................. 117

STATISTICAL ANNEX: TABLES AND FIGURES/DIAGRAMS

Figures
1. Household Characteristics and Maize Production/Consumption Relationships .... 
2. Incremental Return to Nitrogen Use on Maize .................................. 

Diagrams
1. Smallholder Hectarage of Local Maize, Hybrid Maize and Groundnuts ('000) .... 
2. Average Smallholder Yields (based on MOALD crop production estimates) .... 

Tables
2. Key Macroeconomic Indicators, 1987-95 ........................................ 
4. Land Resources, Customary Land and Population by Region .................. 
5. Agroclimatic Suitability for Rainfed Production ................................ 
6. Volume of Agricultural Exports .................................................. 
7. Value and Average Price of Agricultural Exports ................................ 
8. Summary Data on Value of Agricultural Exports ................................ 

iii
9. Aggregated Household Production Levels by Holding Size Calculated from the 1987/88 Annual Survey of Agriculture .......................................................... 12
11. Smallholder Crop Hectarage Estimates ..................................................................... 14
12. Smallholder Cropping Mix, 1992/93 (Chart) ................................................................. 15
13. Smallholder Crop Production Estimates ..................................................................... 16
14. Annual and Three-Year Average Smallholder Yields for Selected Crops .................. 17
15. Cropping Mix by Estate Size Categories ................................................................... 17
16. Estate Cropping Mix (Chart) ..................................................................................... 18
17. Estate Crop Exports as a Share of Total Malawi Exports ........................................ 19
20. Labor Force, Functional Distribution of Income and Income per Worker by Sector .... 22
21. Average Budget Shares and Estimated Marginal Budget Shares and Expenditure Elasticities ........................................................................................................... 23
22.(a) Agriculture GDP in 1978 Constant Terms .............................................................. 24
22.(b) Agricultural GDP (Smallholder and Estate Subsector Shares) ............................... 25
23. Burley Tobacco Prices .............................................................................................. 26
24. Export Crop Production from the Estate Subsector, 1974/75-1987/88 ....................... 27
27. Ratio of ADMARC Producer prices to Maize Producer Prices ................................. 30
28. Nominal and Real Smallholder Producer Prices ......................................................... 31
29. ADMARC Maize Trading Account ............................................................................ 31
30. ADMARC Profit and Loss Data .................................................................................. 31
31. Fertilizer Sales to Smallholder Farmers ...................................................................... 32
32. Real Fertilizer Prices ................................................................................................. 33
33. Estimate of Gross Income Effects of Selling Burley to Estates and to Auction Floors ..... 34
34. Estimated Incremental Income Effect of "Burley Boom", 1980-92 ............................... 34
35. Estimated Average and Total Tenant Incomes ............................................................ 35
37. Indicative Average Real Income for Tenants, Rural Wage Laborers and Smallholders 36
38. Indices of Tenant Profits, Minimum Rural Wages and Smallholder profitability ....... 36
39. Gross Margins on Maize Production at ADMARC Prices (trial yields) ..................... 37
40. Gross Margins on Maize Production at ADMARC Prices (survey yields) .................. 37
41. Real Gross Margins in Maize Production (trial yield assumptions) ............................ 37
42. Real Gross Margins in Maize Production (survey yield assumptions) ....................... 37
43. Fertilizer vs. Seed Subsidy: Cost-Effectiveness .......................................................... 38
44. Indigenous Fruit Trees Found on Farms in Lilongwe and Mchinji Districts and Their Reported Uses ........................................................................................................ 39
45. SACA: Seasonal Credit Uptake and Participation 1982/83-1990/91 ......................... 40
47. Cross Country Comparison of Burley Tobacco Yields ............................................... 41
48. Licensed Weight of Burley Tobacco by Category ....................................................... 42
49. The Costs and Returns to Agricultural Production on Different Types of Tobacco Enterprise ........................................................................................................... 43
50. Regional Market prospects ....................................................................................... 44
51. Malawi Indicative Scenarios for Horticulture Exports ............................................... 45
52. Medium Term Public Sector Investment Program for the MCA ................................. 46
MAIN WORKING PAPERS (AVAILABLE ON REQUEST)

1. Sources of Growth in Malawi: Past Trends and Future Prospects (by K. Simler, Consultant)
2. Prospects for Expanded Burley Production in Malawi (by E. Thigpen and D. Larson, World Bank)
3. Poverty Profile of Rural Households in Malawi: A Summary of Recent Findings (by K. Simler and A. Quisumbing, Consultant and World Bank, respectively)
4. Economic Reform and Agricultural Strategy (by G. Donovan, World Bank)
5. Household Expenditure Behavior and Farm-Non-Farm Linkages in Rural Malawi (by K. Simler, Consultant)
6. Inputs Sector: Fertilizer and Seeds (by A. Conroy, Consultant)
7. Agricultural Pricing and Marketing Issues (by V. Scarborough, World Bank)
10. Coping Strategies for Smallholder Households and Scope for Targeted Interventions to Improve Food Security (by K. Simler, Consultant)
11. Available Technology for Malawian Smallholders (by S. Carr, Consultant)
12. Agricultural Market Liberalization and Technological Innovation in Malawi: Modeling Responses and Outcomes in the Smallholder Subsector (by K. Simler, Consultant)

OTHER WORKING PAPERS (AVAILABLE ON REQUEST)

1. Land Quality and Strategy Implications (by A. Yates, World Bank)
2. Women in Agriculture: Issues and Strategies (by L. Schwartz, Consultant)
3. Agricultural Research (by A. Yates, World Bank)
4. Agricultural Extension: Issues and Strategies (by L. Schwartz, Consultant)
5. Land Issues and Strategies (by R. Noronha, World Bank)
6. Estate Sector Issues and Strategy Options: Case Studies of Burley Estates in Malawi (by D. Ng'ong'a, Bunda College and Consultant)
7. Estate Sector Issues and Strategy Options (by L. Schwartz, Consultant)

REFERENCES

MAP: IBRD No. 24575
A. SUMMARY

1. Malawi's agricultural sector is performing far below its potential, primarily due to deficient policies, inadequate institutional arrangements and capacities and inefficient investments. Although its performance and prospects improved significantly over the past six years as a result of the increased use of hybrid maize and expanded smallholder access to cash crops, only a small part of the population has benefited. and unfavorable weather patterns in recent years have suppressed the potential benefits. Thus, to increase the productivity of the land and labor and expand employment and income-earning opportunities in an environmentally and economically sustainable manner, the country needs a multidimensional strategy that would use existing resources and technologies more efficiently and tap new sources of growth in a way that will also reduce poverty. The latter will require investments in physical infrastructure and human resources, which, if not developed, will constrain growth and thwart attempts to reduce poverty.

2. To raise productivity and reduce poverty, this report focuses on six key actions necessary for growth. These include:

- Further liberalizing produce pricing and marketing policies, including a staged phased-out of burley tobacco production quotas and improving the policy environment and supporting measures to encourage expanded competition in the input and produce markets (involving especially fertilizer and maize);

- Expanding the supply of, and effective demand for, available improved seeds and fertilizers with an emphasis on expanding competition in the supply and increasing purchasing power of smallholders;

- Generating and disseminating a more suitable menu of improved technologies through improved research and extension services, with emphasis on stronger research-extension-farmer linkages, low cost technologies (especially soil and water conservation), improved efficiency in fertilizer use, increased maize yields, promotion of drought resistant crops and varieties, and risk management under drought prone conditions;

- Promoting the cultivation of underutilized land and improved access to land (especially in the estate subsector) and natural resource management and conservation, all in a manner that promotes environmental sustainability;

- Accelerating private sector-led diversification away from maize and tobacco, which means expanding food production and exports in commodities in which Malawi has a comparative advantage, supported by restoring and expanding access to sustainable financial services; and

- Developing human resources by improving access to education, health services and population planning.

3. To launch the proposed strategy, key policy distortions will need to be removed, the private sector will need to be enlarged and strengthened (primarily through market-based incentives and measures), and broad participation and empowerment of women should be promoted, all in a manner that would stimulate environmentally sustainable development.

4. This said, it is important to note that Malawi's farmers fall into four main groups that have different capacities and face different constraints; thus, different strategies will be needed for each
Given the structural constraints, rigidities, market imperfections and failures facing Malawi's agricultural sector, and diversity of constraints involving various groups of farmers, the indicative quantitative analysis of various liberalization scenarios suggest that agricultural market liberalization is not a simple matter that will generate unambiguous supply response and poverty reduction. The analysis suggests the need for Malawi's policymakers to consider carefully a number of important tradeoffs and phasing of the different strategies and roles of different types of households. And, even if the full agenda of reforms is introduced, the very large group of poor smallholders (who are chronically food deficient) will still be impoverished over the medium-term. Thus, the Government will need to provide them with additional assistance because these farmers do not have enough land or resources to take advantage of the measures this report recommends to stimulate production. The report also suggests various strategies for this group.

5. Given the limits of agriculture development in eradicating Malawi's pervasive poverty, a long term growth and poverty strategy should also consider the following important aspects:

- agriculture is the dominant sector of Malawi's economy for the next 10-15 years (or more), and therefore, will remain as the main source of future growth;
- given the lack of much available new land and rapid population growth, an increasing share of the population will have to find employment in the non-farm sector;
- insufficient effective demand is a major constraint to the take-off of non-farm enterprises;
- increasing that demand will have to come mainly from increasing agricultural incomes;
- raising agricultural incomes is necessary, but not sufficient, to develop the non-farm sector. There is a need to develop human capacity (especially through expanded education and training, health) and infrastructure to provide an enabling environment for these enterprises.

B. BACKGROUND

6. Purpose of the Study. The aim of the Agricultural Sector Memorandum (ASM) is to help the Government of Malawi (GOM) formulate, in close collaboration with participating donors, a strategy that will trigger broad-based agricultural growth of at least 4% a year and help reduce pervasive rural poverty in a sustainable manner. Also, the Ministry of Agriculture and Livestock Development (MOALD) prepared in mid-1994 an Agricultural and Livestock Development Strategy and Action Plan, to which the findings of this report and other donor-funded studies are providing contributions (especially the USAID Agricultural Sector Assistance Program/ASAP II, ADB-financed Malawi Agricultural Sector Study and EC Sector Review). On November 28-30, 1994, Government convened a national Agricultural Strategy Symposium, which included representatives from GOM Ministries, donor agencies, private sector/farmer representatives and NGOs. Based on the outcome of this successful Symposium, MOALD is currently finalizing its Strategy Document and Action Plan as a reference document for implementation. The ASM covers the following three areas:

- The main constraints to achieving faster and sustained agricultural growth and reducing poverty;
- The main policy, institutional and investment measures that could remove these constraints and help realize Malawi's agricultural potential;
• The likely outcomes of various strategies, with special emphasis on the smallholder subsector.

7. Malawi is at an important turning point. Over the past five years, the GOM introduced significant macroeconomic and agricultural reforms and carried out various investment programs and studies. These generated some promising results: Farmers increased their use of hybrid maize varieties and some smallholders were allowed to produce burley tobacco. Further, the country recently adopted a multi-party system, which broadened the debate on development, and a new Government was elected in mid-1994. However, economic growth is still well below its potential and population growth rates, and the economy depends excessively on tobacco exports. Moreover, poverty is widespread: many children are malnourished and stunted, and there are extremely low levels of education and health by the majority of the rural population. If these conditions are not corrected, they will affect the productive capacity of Malawi’s future labor force.

8. The political and economic reforms that continue today need to be intensified so as to give more of the rural population access to greater income earning and employment opportunities. This report recommends various options for the Government to consider.

C. AGRICULTURAL SECTOR PERFORMANCE

9. Macroeconomic Environment. Given the dominant role of agriculture in the economy, the performance of this sector greatly affects the whole country. Likewise, policies and reforms involving the macroeconomy, agricultural and financial sectors continue to influence the capacity of agriculture to generate a positive and sustainable supply response. For example, the decision to float the M Kwacha in 1994 was intended to enhance Malawi’s export competitiveness; however, to achieve such a supply response, the move will have to be supported by further agricultural reforms and investments (consistent with the macroeconomic reforms). The continued deterioration of the macroeconomic variables in 1994 underscore the urgency of addressing and implementing the recommended policy and institutional reforms suggested in this report, although increased attention needs to be placed on careful prioritization and sequencing of the needed actions.

10. Performance of the Agricultural Sector. Agriculture is the main source of employment: over 80% of the workforce is employed in the smallholder subsector and about 11% in the estates. From 1980 to 1994, agricultural GDP grew at only about 1.6% a year, about half the growth rate of the rural population (which is 90% of total population). In two of the last 3 years, the agricultural sector has experienced negative growth rates, largely due to two major droughts (in 1992 and 1994). Excluding these two drought years, agricultural growth during the period 1987-1994 has been about 5% per year. This reflects a potential for high growth, but subject to Malawi’s drought-prone conditions.

11. Until the early 1980s, agriculture showed a marked duality: estates (especially the privileged few, with most tenants living in poverty) were thriving and smallholders were impoverished. Since then, the dualistic structure has diminished, partly because some of the better-off smallholders moved into the estate subsector and the legal and institutional structures are in the process of being unified with expanding smallholder access to burley tobacco production. Many aspects of the institutional structures are fundamentally the same, but recent trends toward liberalization in all markets suggest major changes in the 1990s (e.g., land tenure, access to formal credit, extension systems, inputs, market choices). From 1980-94, estate GDP grew at an annual average rate of 5.0%, and smallholder GDP grew at just 0.36% (again, reflecting the effects of two major droughts with a disproportionate
effect on smallholders); thus, the gap is still substantial. Table 1 summarizes these growth trends and their variability.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Estate Subsector</td>
<td>5.6%</td>
<td>8.6%</td>
<td>4.1%</td>
<td>5.3%</td>
<td>7.8%</td>
<td>5.1%</td>
</tr>
<tr>
<td>Smallholder Subsector</td>
<td>0.7%</td>
<td>4.0%</td>
<td>1.8%</td>
<td>-1.0%</td>
<td>4.1%</td>
<td>0.4%</td>
</tr>
<tr>
<td>Agricultural Sector</td>
<td>1.8%</td>
<td>4.7%</td>
<td>2.3%</td>
<td>0.7%</td>
<td>5.0%</td>
<td>1.6%</td>
</tr>
</tbody>
</table>


12. **Estate Expansion.** Much of the growth in the estate subsector was due to an increase in the area cultivated under leasehold tenure, primarily to produce burley tobacco, given that it is by far the most profitable cash crop, even with fluctuating world prices. Until 1990, smallholders cultivating land under customary tenure were not legally able to grow burley tobacco. Thus, to obtain a license to do so, many of the larger smallholders converted their land-use rights to leasehold tenure (estates). As a result, the area of land under leasehold tenure increased four and a half times between 1979-93. The number of estates was about 8,000 in 1989, reached 24,000 in 1992, 30,000 in early 1994 and a reported 37,000 by February 1995. However, it is important to note that although many of the new farms are classified as estates, they are close to the 10-hectare minimum and still managed as before. This process of transferring land and other resources from one sector to the other, together with the monopoly granted to the estates on the production of burley and flue-cured tobacco, is the major cause of the difference between the growth rates of the two subsectors.

13. As the estate subsector expanded, tobacco production increased from 43,000 tons in 1980 to nearly 143,000 tons in 1992. Due to this increase and rising burley prices, the contribution of estate tobacco sales to total export earnings rose from about 30% in 1980 to over 50% in 1993. Thus, Malawi is more vulnerable to shifts in tobacco markets than it was during the late 1970s and early 1980s, and there is even a greater need for diversification.

14. **The Smallholders.** During the 1980s, a number of important changes within the smallholder subsector occurred as well. Due to the conversions noted above, along with the expansion of public lands for national parks, game and forest reserves, the area under customary land tenure declined from about 8.2 million ha in 1964 to 6.6 million ha in 1993. This transfer, combined with a high rate of population growth, reduced the average size of smallholder landholdings from about 2 ha in 1970 to 1 ha in 1990, and forced them to increasingly cultivate marginally fertile land.

15. However, since the mid-1980s, this decline in farm size has been accompanied by the beginning of intensified production of maize, facilitated by the recent development of maize hybrids and credit and fertilizer uptake. Nonetheless, yields of all smallholder crops have fluctuated quite widely over the past ten years. There have been variations of up to 70% largely due to climatic factors. One exception to this was in 1992/93, when there was a striking increase in maize yields. Favorable rainfall, a big boost in credit allocations and fertilizer usage, and increased soil nitrogen
resulting from a drought induced "fallow" in 1991/92 accounted for much of this increase (a record harvest of 2 million tons and average yields of about 1,500 kgs/ha). There was, however, also a significant contribution from an expanded use of hybrid seed and fertilizer. Less favorable climatic conditions and a reduction in smallholder credit and use of purchased inputs in 1993/94 have resulted in a sharp decline in yields according to their long term average (about 900 kgs/ha).

16. The uptake of hybrid maize seed had grown from 3% of the maize area in 1986 to nearly 25% in 1992/93. It has dropped back to less than 10% in 1993/94, and has exceeded 25% in 1994/95 (largely due to an emergency drought recovery inputs program). Both the increase and the decline can be linked to farmer access to fertilizer. The majority of smallholders will not purchase hybrid seed if they cannot afford fertilizer (or get access to credit). A small proportion of farmers have naturally fertile soil or farmyard manure to profitably use hybrid seed without fertilizer. The message of using hybrids without fertilizer has yet to be accepted. While the hybrid will ultimately lead to a greater reliance on inorganic fertilizer to obtain the full potential benefits and use of scarce land, hybrid maize can still be attractive for many resource-poor smallholders who use traditional fertilizers (manure, and over time, agro-forestry). For the majority of smallholders farming on poorer soils, it is the lack of purchasing power and access to credit which has limited their uptake of fertilizer, which in turn has limited the number of farmers using the hybrids. It is this fundamental lack of purchasing power by the majority of smallholders which has resulted in stocks of seed being carried over from one season to the other in recent years. In the current 1994/95 crop season, it appears that the delayed onset of the rains (as part of the "El Nino" pattern) is likely to result in another low maize harvest and yields. Analysis of available maize production data indicates that the variability of maize production increased substantially during the past five years, and highlights declining maize productivity and increased variability of national production reflects two underlying constraints to sustained maize production in Malawi: declining soil fertility and increased variability due to drought (e.g., 1992 and 1994). Thus, notwithstanding the encouraging developments observed in the 1992/93 crop season, the above factors demonstrate that the subsector has not yet achieved a sustained breakthrough in increasing maize yields. This report discusses the underlying reasons (apart from the weather factors) and how they could be addressed as part of a broader-based agricultural strategy which reduces production and marketing risks.

17. In 1987, the Government liberalized most smallholder produce markets by allowing traders other than ADMARC (the Agriculture Development and Marketing Corporation parastatal) to purchase from the farmers. Also, it temporarily abandoned the timetable for completely removing fertilizer subsidies and substantially increased the nominal producer price of maize, both absolutely and in relation to that of export crops. These moves, together with increased supplies of fertilizer, credit and hybrid maize seed, contributed to an estimated 44% increase in maize production between 1986-93. Between 1986-90, much of the hike was because more of the land was cultivated with maize, which was substituted for groundnuts. Further, in the early 1990s, some smallholders (about 1%) were permitted to grow burley tobacco. The profits from this crop raised their purchasing power, and thereby enabled them to buy more fertilizer and hybrid seeds. More importantly, this experience illustrates the potential benefits of this cash crop, as the smallholder burley program continues to spread (even beyond the "legal" quota). As a result, use of hybrid maize has become a means of increasing food supplies, as well as generating cash income. Nevertheless, the use of improved and current surplus seed supplies are still limited (except in 1992-3) due to a lack of credit, and hybrids require fertilizer in order to sustain yield (although some farmers will still be able to use traditional fertilizers).

18. ADMARC's fertilizer sales more than doubled during the 1980s, from 49,000 tons in 1980 to over 138,700 tons in 1993, and showed a particularly rapid increase after 1987 (exceeding 15% per
In 1994, sales dropped to about 80,000 tons, due to the credit "crisis". This growth occurred even though real retail prices for fertilizer increased and real produce prices either fell or remained constant. Despite such rapid growth, more smallholders would have used fertilizer if it had been available. As it was not, ADMARC rationed it to those who were able to obtain credit: About 65% of fertilizer was sold on credit through farmers' clubs. Conversely, it is reported that buying supplies through cash purchases, in a timely manner, was difficult. Moreover, recent field surveys suggest that while the supply constraint was problematic for higher-income smallholders, it is low incomes that continue to limit its use among the poorer ones (about 55% of the total). Primarily due to the collapse of the credit system, in 1994 there was a major change in the pattern of input marketing, with a majority being financed by informal sources of credit and farmer's own resources. Continued liberalization of the input and commodity markets is likely to expand this trend, especially during the period of the credit system's recovery.

In total, less than 45% of all smallholders employ fertilizer; its use is highly correlated with income, size of landholding and access to credit. Application rates average about 23 kg of plant nutrient per hectare, which compares poorly with neighboring countries. Thus, it appears more farmers would apply it if supply and effective demand (i.e. purchasing power) constraints were addressed.

The number of smallholders who received credit rose by 15% a year during the 1980s, but they still represented only a small part of the population. And, as the Smallholder Agricultural Credit Administration (SACA) expanded its disbursements, recovery rates dropped from an average of about 96% from 1982-84 to 81% from 1986-90. Since then, recovery rates have continued to fall, although the very low rates in 1993-94 (about 16%) were heavily influenced by an unusual political situation that amplified some of the system's underlying weaknesses. Nonetheless, the sustainability of the credit supply needs to be urgently addressed; the Government must restore credit discipline and the 100% recovery rule. In this regard, the group joint-liability principle, which facilitates cost-effective recoveries without collateral, will be re-vitalized, and the Government is now working on a strategy to restore credit discipline. It will also be important to promote strategies that will encourage informal sources of credit and expanded role of stockists as input suppliers and traders.

D. IMPLICATIONS FOR GROWTH AND POVERTY ALLEVIATION

The changes that occurred in agriculture over the 1980s had a number of positive and negative implications. Among the positive were: (a) increased on-farm employment opportunities due to expanded burley and hybrid maize production; (b) increased opportunities for income due to estate expansion, the smallholder burley tobacco program, and the attractiveness of hybrid maize; (c) the potential for increased food security as hybrid maize changed from a cash to a food crop; and (d) the potential to diversify away from maize as higher yields allowed other crops to be grown on the same amount of land.

Among the most encouraging outcomes of the new burley estates were the additional income-generating and employment opportunities. Although small estates employ fewer tenants and laborers than large ones in absolute terms, they are more labor-intensive per unit of land. And, while estimates vary, the numbers of tenants and permanent laborers employed rose from about 200,000 in 1978 to about 500,000 in 1993. While most of these tenants live in poverty, they are responding to extremely limited income and employment generating activities in the smallholder subsector and some pressures on customary land, given estate land expansion during this period. One of the key points
here is the important role of burley in enhancing tenant and smallholder incomes, especially as they are given increased access to growing and marketing it.

23. Smallholders, who were granted access to burley production quotas, also increased their income. Between 1990-93, about 29,000 smallholders produced roughly 14 million kgs under a new burley program. The incremental income from this, assuming that tobacco replaced hybrid maize, was estimated at MK 3.5 million, MK 8.0 million and MK 9.3 million (at current prices) respectively, in each of the three years. And, although the 29,000 represent only about 2% of rural households, the pattern could be expanded, which would help raise rural incomes significantly and trigger broad-based growth.

24. Also, income-earning opportunities were enhanced by the improved maize technology and increased supply of fertilizer and credit. In fact, those moving to fertilized hybrid maize could triple their per hectare gross margins (assumes sufficient labor, optimal practices and favorable rainfall). While this may be a generous estimate, there is no doubt that significant increases in income (from higher maize sales or reduced maize purchases) could be attained.

25. Despite these benefits, some results were negative. The most important were: (a) agricultural production concentrated more on maize and tobacco, which left the Malawian economy more vulnerable to shifts in world markets and other external shocks; (b) significant and sustained productivity increases have yet to be achieved by the estates (particularly for tobacco) and smallholders (although maize yield increases have made an initial breakthrough); (c) the efficiency of estate production remains suboptimal (with yields about 60% of those in neighboring countries), cultivable land is underutilized and the return to capital is low; (d) the production of high-value export crops is still highly concentrated, despite the new entrants into the burley industry, since their number is still small (but growing quickly); (e) the cost of imported agricultural inputs (mostly fertilizer) remains very high, because the cheapest external transport routes have been disrupted, and will take some years to be fully restored; and (f) a significant portion of smallholders do not directly benefit either from liberalized policies or the improved maize technology, and about two thirds of estate employees (tenant farmers and laborers) are still impoverished.

26. About 55% of Malawi's population cannot meet basic needs (or minimal caloric requirements) and have extremely low levels of education and health. About 90% of this group are smallholders who have less than 1 ha of cultivable land. A disproportionate number are female-headed households. These farmers generally run out of food reserves about four months before the next maize harvest; also, they lack the resources for intensive farming and often resort to practices which degrade the soil and deplete the woodland. In addition, although underemployed for much of the year, they face severe labor shortages during critical stages in the agricultural cycle, such as during planting and weeding. Further, they are severely constrained in the yield-augmenting inputs they can afford or in their ability to engage in other sources of income generation (such as off-farm work during their own crop season). Thus, they are caught in a poverty trap.

E. ISSUES AND STRATEGY FRAMEWORK

27. It is crucial, given a 3.4% population growth rate and the relative size of the sector, that agricultural growth is maximized in a way that it will be sustainable, both environmentally and in the face of shifting world markets and external shocks. This means not only lifting the constraints to increased land and labor productivity and income-generating opportunities, but also encouraging diversification away from maize and tobacco. The recent droughts (and uncertain harvest in 1994/95)
also underscore the urgency of promoting drought-resistant technologies to help stabilize and widen the range of food production.

28. To achieve these objectives, a multidimensional strategy is needed for the various groups of farmers. One group is the *large estates*, some of which have the resources and capability to spearhead new crops and technologies, while others are primarily set up to extract rents from tobacco quotas. A second group consists of *small estates and larger smallholders* (the latter making up only about 15% of smallholders). These farmers were transformed over the last decade through increased production of tobacco and fertilized hybrid maize. Still, they cannot maximize their returns due to a shortage of inputs and marketing restrictions. A third group are the *emerging commercial smallholders*, who could comprise about 22% of all smallholders and have the land and agricultural potential to generate marketable surpluses. A fourth are *resource-poor farmers* who constitute 63% of the smallholders, whose land cannot meet subsistence needs from local maize varieties, and who lack the resources to invest in high-productivity maize.

29. Given the population density among the smallholders and the impossibility of moving large sections of the rural population into off-farm jobs, the main alternatives in the medium term are to increase smallholder land and labor productivity, and improve estate efficiency and land use. These ends could be achieved through (a) further liberalizing input and produce markets, which would also stimulate labor and land markets; (b) increasing the use of organic and inorganic fertilizers and hybrid maize varieties; (c) investing in improved technologies, which should give special emphasis to promoting drought-resistant food crops; and (d) encouraging smallholder outgrower arrangements (with estates) as part of a broad-based diversification strategy. The means to achieve these ends are discussed below.

30. One critical activity will be mobilizing support for restoring the use of fertilizer/hybrid maize seed with those who have used it in recent years, and expanding usage among the majority of non-users of these inputs. This will increase their food security and reduce the amount of land allocated to maize, which would allow them to plant the remaining land with cash crops and secondary food crops.

31. At the same time that these households are encouraged to grow hybrid maize, they should also be encouraged (mainly through liberalizing markets and increasing incomes) to grow other food crops, especially since rural households already like beans, greens to eat with their maize. Failure to diversify, coupled with widespread adoption of maize hybrids, could lead to excessive maize production, which could lower prices, and ultimately lead to a cycle of reduced production, increased prices, increased production and a fall in prices. The potential for maize price instability is largely inherent in Malawi’s rainfed agriculture system, a factor which justifies an appropriate form of price stabilization, which could increasingly be undertaken by private traders. However, some of the alternative crops are unattractive, due to the maize-pricing policy and the production and marketing restrictions on other crops. These obstacles have to be addressed along with the hybrid maize/fertilizer package and technologies to promote drought-resistant food crops (e.g., cassava, sweet potato).

32. Second, the cost-benefit ratios of fertilizer and hybrid maize have to be attractive enough to convince smallholders to adopt them on a sustained basis; this will depend on the price of both and the efficiency with which these inputs are combined and used. Thus, relative prices between inputs (seed, fertilizer) and outputs, as well as the quality of the seeds and extension advice (especially concerning site-specific fertilizer recommendations and farmer application and crop husbandry practices), are critical factors.
33. Third, the availability of credit (formal and informal, linked with increased savings mechanisms) and infrastructural support (which depend on the creation of efficient financial institutions and public investment in transport, irrigation, electricity and other infrastructure) will influence the rates at which fertilizer, hybrid maize and other food and cash crops are adopted and become profitable.

34. Given the nature of the remaining constraints, various investment instruments have to be reevaluated and new measures introduced for both smallholders and estates. These will address the following components of a comprehensive agricultural strategy:

- Land utilization and natural resource management;
- Pricing and marketing of agricultural produce, including reforms of the burley tobacco quota allocations;
- Key Inputs: Improved seeds and fertilizers;
- Rural financial services;
- Generating and disseminating agricultural technology;
- Agricultural Diversification;
- Targeted programs;
- Human resource development;
- Rural infrastructure;
- Public sector management and expenditures.

F. OPTIONS AND STRATEGIES

35. Several of the options are tightly related and introducing them would affect the others and thereby raise tradeoffs which need to be carefully weighed. For example, when authorities decide on the future of unutilized land, they will need to consider the tradeoff between conservation and growth, especially when this involves smallholders cultivating land in parks and wildlife and forest reserves. In addition, higher fertilizer value-cost ratios can be obtained by either increasing the price of maize and/or reducing the price of fertilizer. However, the former will negatively impact food-deficit households; and, if prices are increased significantly close to import parity levels, emerging maize surpluses will have to be stored by the Government at high costs. Similarly, reducing fertilizer prices through a general subsidy will lead to public sector deficits and involve a high opportunity cost; also, targeting a fertilizer subsidy to poor households could inhibit the liberalization of fertilizer markets, lead to other inefficiencies, require time to become effective, and may not lead to sustained use. With respect to ensuring stable burley production in the short-term (to prevent overproduction), export taxes could be the simplest and most efficient instrument, but could burden agriculture, if not channeled back to the farming sector, at a time when the additional income from cash crops is a necessary input to diversify and intensify food and cash crop production and stimulate non-farm investments. A complete liberalization of the burley quota system, in the short-term, may lead to greater dependence
on tobacco as the main export and source of rural cash incomes, and possibly lead to unsustainable maize deficits, as the surplus producers shift to growing the more profitable burley crop. A preferred option may be to phase out the burley quota system, and in the interim, to reform quota system to make it more transparent and efficiency-based. Increasing land use, particularly in the estate sector, if not done carefully, could compromise environmental sustainability.

36. A number of policies appear to involve no major trade-offs. For example, there is no reason to maintain trade and marketing restrictions on crops other than possibly maize and burley tobacco (although less reason over time), provided that there was adequate supply response and intensification of maize production to help ensure Malawi food security in a sustainable manner; nor is there a reason to delay improving research and extension services and the management of public service programs, and introducing measures which will promote more competitive and efficient markets. During MOALD's process of preparing its Agricultural Strategy document and convening the Strategy Symposium in late 1994, many of the options outlined in the ASM were considered and endorsed. The main challenge is for GOM to implement these policy and institutional reforms, while monitoring them to ensure that any negative effects are minimized.

Land Utilization and Natural Resource Management

37. Current land use patterns present three basic constraints to achieving growth and reducing poverty. First, high population density in the smallholder subsector and low levels of fertilization and soil conservation have led to declining soil fertility. Second, smallholders have no incentive to plant trees (which is important for sustaining tobacco production and conserving the soil), because fuelwood prices and the marketing of woodfuel from the customary sector have been suppressed. Third, in the estate subsector, an estimated 0.25 million ha of cultivable land is reportedly unused, which has a high opportunity cost in the light of the large number of land and food-deficit households. This practice is partly due to the costs of not cultivating such land (i.e. land rents/taxes), which are low, compared to the real opportunity costs, and also due to the capital constraints and possibly legal and perceived constraints that limit the leasing and selling of unused land. Fourth, land is unequally distributed between the estates and smallholders, and within the estate subsector; and the number of land-deficit and landless rural households is growing.

38. The following measures offer ways to increase the efficiency and sustainability of the land: (a) more closely monitor agricultural land use, especially with regard to environmental considerations, in both customary and leasehold systems as a more active land market develops; (b) assess the possibility of transferring some agriculturally suitable land now in the public and estate sectors to smallholders and of promoting multiple uses of forest land (through licensing, negotiated agreements and community forestry); also, analyze the environmental and social effects of doing so before making such transfers; (c) remove the obstacles to developing a more active land market within and between the two agricultural subsectors; to this end, Government intends to clarify, publicize and accelerate the procedures for obtaining leasehold lands and sub-leases, while ensuring that this does not displace smallholders; (d) increase land rents to better reflect the growing opportunity costs of land, especially fertile land, and, in the medium term, differentiate rents/taxes to better reflect the real opportunity costs; (e) assess the merits of liberalizing the marketing and pricing of fuelwood to encourage the planting of more trees in indigenous areas (where land is available), with liberalization in certain areas that are not being deforested, and supporting mechanisms which will promote village management of forest resources; (f) promote soil conservation, land husbandry and agro-forestry practices; and (g) promote a better public understanding and more efficient pricing of alternative sources of energy to encourage greater diversification.
39. Many of the above actions to promote improved efficient use and access to land are being addressed by the new Government, as part of its commitment to promoting broad-based growth and reducing poverty: the Ministry of Lands currently is in the process of preparing a comprehensive Land Policy; the Ministry of Forestry and Natural Resources has prepared a Forestry Policy Paper, which was discussed in February, 1995, and is in the process of being finalized; and MOALD's Strategy document (currently being finalized) also address many of these points. While these initiatives are being carried out, it will be important to ensure that they are consistent, mutually reinforcing, and effectively implemented.

Agricultural Produce Pricing and Marketing

40. Growth in smallholder production of cash crops, which could help the sector diversify and become less vulnerable, has been heavily constrained by: (a) Government marketing and pricing policies, (b) supply and demand constraints on higher-yielding maize technologies and (c) a lack of higher-yielding varieties for non-maize crops. Further, constraints on hybrid maize varieties have forced households to use their limited land to produce food, given that maize is one of the most efficient crops per unit of area to meet caloric requirements.

41. Pricing and Marketing Policies. Government pricing policies throughout the 1980s shifted between food security and export crop objectives, as well as between output and input pricing objectives. The Government started liberalizing smallholder agricultural produce markets in 1987. However, it subsequently banned the participation of private traders in specific commodity markets (from the bean market in 1988 and intermittently from the groundnut market from 1990-93), although they positively affect the demand for and production of several high-value crops produced by smallholders (especially chilies, sunflower seeds, pulses and groundnuts). In addition, limits were placed every year on the quantities of produce that traders could export because they had come to dominate the markets, causing ADMARC's crop purchases to fall substantially. This led to a concern about levels of seed supply, and ADMARC asked the Government to ban the trader in the relevant markets. Thus, the lower producer prices ADMARC offered to smallholders were often the only ones to which they have access. Nevertheless, despite such severe restrictions, as well as shortages of capital, private trading developed considerably since 1987 and markets appear to be operating in a competitive and efficient manner, at least in the central and southern regions. In the north, it is likely going to require more time before competitive markets develop there, and therefore may require a more active presence by ADMARC to encourage private trading.

42. The Government also placed limits on smallholder production, pricing and marketing of tobacco. Aside from the quotas on production, until recently, ADMARC had a monopoly over the marketing of northern and southern division dark fired and sun-air cured tobaccos, and retained a monopoly on the purchase of Oriental tobacco. This situation resulted in lower producer prices than would otherwise have been obtained. In late 1994, GOM made a policy decision to remove ADMARC's monopoly on these tobaccos as part of Malawi's liberalization process.

43. The net result, in the context of land, technological and budgetary constraints, has been declining real prices and substitutions between critical crops, rather than an aggregate increase in supply end/or incomes. In the late 1980s and early 1990s, such substitutions and relative efficiency of maize in meeting household caloric requirements, led to an increasing concentration on maize as the hybrid varieties displaced groundnuts and other crops. In early 1995, increased substantially the maize producer price (from 72 tambala to Kw 2.0 per kg) in order to help restore producer incentives, given sharp devaluation and phasing out of the fertilizer subsidy. Given the tradeoffs associated with this sharp price increase, GOM is currently re-assessing this price and considering an adjustment of
the price in the form of a price band. The full implications of the final decision will need to be monitored closely in terms of the impacts on low income consumers, inflation and budgetary/financial outlays involving ADMARC’s crop purchases, and supply response (maize and other commodities).

44. Completing the Liberalization Process. Malawi needs to exploit fully the benefits of private sector participation in agricultural markets. In order to maximize smallholder returns and foreign exchange earnings, minimize consumer prices and increase the diversity and flexibility of the agricultural economy, the Government will need to complete the liberalization process and more consistently promote competitive and efficient agricultural marketing and pricing. Government is to be commended for taking the policy decision in late 1994 to lift the export bans on all non-maize food crops (especially confectionery groundnuts, for which Malawi has demonstrated a comparative advantage which it can regain); this action should have a large beneficial impact in the short- to medium-terms (once seed supplies are restored). In order to tap the potential benefits of removing market restrictions, there is also a need to support measures which will promote more competitive markets, through dissemination of market information, investments in key infrastructure, improved access to finance.

45. ADMARC’s Role. One key to completing the liberalization will be changing the role ADMARC plays in agricultural markets. It is not yet clear what effect its initial restructuring has had on the parastatal or fiscal budget. However, reforms in its operations are incomplete—in particular, the financing arrangements for its buying-selling activities of strategic products (particularly fertilizers and maize, in remote areas). Until these functions (which should be limited to food security concerns) are functionally separated from ADMARC’s commercial activities, and the Government covers their costs in full (as stipulated in the Memorandum of Understanding between ADMARC and the Treasury), the parastatal's financial viability will depend on continued taxing of smallholders. In the long-term, as the private sector becomes more competitive, the Government should periodically re-assess and adjust ADMARC’s evolving role with the aim of relying increasingly on market-based alternatives to replace its role in maintaining food security (such as managing reserve stocks and relying increasingly on traders to export and import maize). ADMARC also needs to expedite the shift in its approach to market interventions as a buyer and seller of last resort and fulfilling a social role by relying more on market prices as a signal to its market interventions to help stabilize maize prices and supplies as part of the Government’s broader food security objectives.

46. In sum, a strong case can be made for eliminating all production, marketing and export controls on agricultural products (the two possible exceptions are maize, given its importance as the dominant staple and for food security reasons, and burley tobacco, at least in the short-term, given Malawi’s large share of the world market for that crop). These actions will lead to more efficient use of resources and enhance producer incentives, and will also expand employment opportunities and generate the funds to enable smallholders to purchase the improved maize hybrids and fertilizer. Further, to help develop sustainable private marketing networks, the Government will have to convince the private sector that it will not initiate further interventions and reverse policies in the future. This means that the fertilizer and maize prices will need to become more responsive to market prices, and that ADMARC’s role will need to become more transparent, and should be limited to a buyer and seller of last resort, especially for maize and fertilizer. Over time, as domestic and external markets become more competitive, the private sector (including external trade) increasingly will assume most of the price stabilizing role. To this end, in late 1994 Government took policy decisions to lift such bans and export controls on all crops and to implement a phased liberalization for burley tobacco (discussed below).
Reforming the Burley Tobacco Quota Allocation System

47. The driving force in agriculture over the last decade was burley tobacco: It was the most profitable crop, and all the farmers who could, cultivated it. However, the beneficiaries were the relatively well-to-do (the estates, including an increasing number of "graduated" smallholders). While some used the profits to develop highly efficient production units that can now form the basis of diversification, others just appropriated the rents from burley and would probably not survive if these were eliminated. Thus, what happens to burley quota allocations will significantly impact estates and smallholders and the system has to be evaluated with regard to development objectives for both--because the cash crops give them access to increased income with which to purchase inputs.

48. **Burley Tobacco and Smallholders.** Even if input supplies, credit and extension services were provided and maize hybrids were widely adopted, many smallholders still could not repay input loans and retain sufficient maize to meet household food needs. Thus, these land-deficit households will have to increase production of high-value cash crops. In this respect, burley could play an important role. Although the inputs are expensive, it has at least four advantages over other cash crops:

- It is currently the most profitable crop to grow in Malawi;
- It is an annual crop, and the returns to investment are quick;
- It can be produced in most areas;
- It can be grown in small quantities, and needs no investment in specific processing facilities.

49. The problem is that policies restrict most smallholders from growing burley tobacco, although recent policy decisions are now removing these restrictions. But, if they were allowed to grow even just 150 kg of burley leaf, they could plant this amount on one-tenth of a hectare, and still practice the one-in-four rotation to avoid nematode infestation, meet all or most of the labor requirements from family labor, and grow the usual food crops on the remaining land. Moreover, profits from burley are such that smallholders should be able to repay the loans taken for inputs, as well as finance the hybrid maize and fertilizer packages. Given the collapse of the smallholder credit system, expanding smallholder access to burley can be a sound strategy to inject cash into the rural economy, especially during the period of restoring the credit system. In addition, the growing process does not require much fuelwood, and would therefore not pose a significant environmental threat (most smallholders producing small amounts of burley will tend to use small amounts of fuelwood, mostly from existing housing structure).

50. **Burley Tobacco and Estates.** Burley tobacco also features critically in any strategy for estate development, the basic objectives of which must be to: (a) increase the productivity of the land; (b) encourage investments into new products and technologies; and (c) increase the economic efficiency of production. However, existing policies (including the burley quota allocation system) have not, so far, been helpful in attaining these objectives because they still severely limit competition and the quota system is arbitrary.

51. These three objectives can only be achieved if (a) access to burley production is made more competitive (since estates would need to be more efficient and/or diversify into other crops); and (b) estates are given additional support in the form of improved access to financial services and market information, to ease the transition.
52. **Reforming Quotas.** The way in which burley production is currently controlled needs to be reassessed. To this end, five options were recently evaluated as part of the ASAP II and ASM discussions (with a combination of some options proposed for the transition period):

- Improving the burley quota system, including increased and/or gradual reallocation of quotas from the estates to the smallholders;
- Making burley production quotas legally tradeable;
- Auctioning quotas annually;
- Replacing quotas with an export tax;
- Completely liberalizing burley production and marketing.

(a) Since the smallholder burley production program began in 1990, these farmers have demonstrated their ability to produce high-quality leaf at very low cost. Thus, increasing their production would address both efficiency and poverty objectives. The specific aspects evaluation under this options include: improving the current quota system by making the allocations more transparent and linking them to quality as reflected by prices on the auction floor; using the burley quota as a form of collateral; and/or redirecting a certain target percentage (say 20-30%) of the quota currently allocated to the largest estates every year. If it did this and made its plans highly transparent, estates would be motivated to produce more efficiently and/or diversify. At the same time, since the reallocation process would be gradual and estate owners and managers would be informed in advance, the disruption to production and investments would be minimized. Also, allowing the market to determine production patterns would be more likely to maximize efficiency; however, the administrative costs of annually allocating numerous small quotas may be high. As a complement to reforming the quota system, the Government has already introduced an intermediate buyer (IB) arrangement, which provides another marketing channel to smallholders producing burley and unable to market the crop. Under the USAID-ASAP program, Government intends to expand the role of the IB scheme. The full implications of the IB need to be carefully monitored, particularly to ensure an orderly transition to a fully liberalized market.

(b) The Government could also consider making production rights tradeable and which could be accomplished by auctioning quotas. If the quota market were efficient, the most efficient producers would be the ones to invest in production quotas and this, in turn, would increase the incentives for efficient production. The problem here is that, given the historical accumulation of rents by the estates from their monopoly on flue-cured and burley tobacco, smallholders would be at a disadvantage in the bidding process. Further, the additional income generated by burley would be appropriated by the Government and one of the major goals of giving quotas to smallholders (increasing cash incomes) would not be achieved. In addition, production levels would continue to be determined in an *ad hoc* manner. Thus, this option would meet neither the growth nor poverty reduction objectives.

(c) Replacing the quota system with an export tax would be the most efficient and transparent way of controlling production and it would not discriminate against smallholders. Also, such a tax is easier and cheaper to administer than quotas. The revenues from the export tariff could be earmarked for an agricultural diversification fund which could be managed by a private sector group and use to help trigger investments for broad-based diversification (such as rural roads and small-scale irrigation), provide benefits to the farming sector and help reinforce another key strategy (see "d" below). On the negative side, this tax (estimated not to exceed 10%) would be borne by burley producers and this could reduce the potential gains to be achieved by expanding burley to smallholders.
Preliminary analyses indicate that completely liberalizing burley production and marketing (and of groundnuts, as well) could lead to the production of about 214,000 tons of burley, should prices remain around MK 7.7/kg (1992/93 prices). Should prices fall to about MK 3/kg (1992/93 prices), production would drop sharply, to about 77,000 tons. In response to full liberalization of burley quotas, international burley prices are estimated to fall in the short run by about 28% and in the long run by about 9%. However, given the monopsonistic nature of tobacco markets and uncertainties about supply and demand elasticities, further in-depth analysis of these effects is required. This liberalization option may also lead to a greater concentration of tobacco in the short-term, until other more profitable crops emerge, and may also result in national maize deficits, if yields do not increase significantly (reaching an average of about 3.5 MT/ha by the year 2000).

As part of the USAID-supported ASAP II, some of the above options were considered. The findings and follow-up discussions with GOM conclude that the tobacco quotas should be phased out over a 3-5 year period. Each of the two policy options consistent with removing quotas has merit. Replacing the current quantity restrictions on production with a low-level export tax would be the most efficient and transparent way of encouraging diversification and limiting adverse effects on world prices. At the same time, one consequence of an export tax is a transfer of resources from farmers which may run counter to poverty reduction goals. Complete liberalization would maximize producer income, and eliminate the need to determine the optimal tax rate, but comes at the expense of increased dependence on tobacco, and possible maize deficits. Given the importance of tobacco to the economy of Malawi, it is important for Government to consider these policy options fully. Further, given Malawi’s dependence on tobacco for export earnings, due consideration should be given to transitional issues related to the reforms. Because of limitations in the input and credit markets in recent years, especially in the 1993/94 crop season, as well as increased uncertainty arising from US policy changes restricting access to US market, a phased reform plan of gradually expanding the quota until it becomes non-binding is considered a preferred option. The main rationale for this eventual phase-out includes the following points: assures efficient production through competition, no enforcement or administrative costs, allows entry on an equal basis, and maximizes export earnings. The perception that the quota helps stabilize domestic prices needs to be seriously re-examined; even with a quota, actual production and prices are subject to uncertainties regarding weather, credit, inputs, exchange rate, and fluctuating production of other countries. Phasing out the quota will help minimize the risks of disruption, given the importance of tobacco to Malawi’s economy, and help reduce the risks of possible maize deficits at the national level, until there is a sustainable breakthrough in increasing maize yields. One option to attaining full liberalization which some officials favored is to increase the share of the quota allocations to smallholders (say, a 20-30% increase per year in the quota allocation to smallholders, until the quota becomes non-binding). Government’s plans to phase out the burley quota reflects the recognition of the positive benefits of the smallholder burley reforms initiated in 1990, the use of burley quotas as an instrument for redistribution access to income generation, and the new Government’s commitment to promoting both growth and poverty reduction.

Key Inputs: Improved Seeds and Fertilizer

Hybrid Seed Supply. The supply of hybrid maize was, until recently, monopolized by the National Seed Corporation of Malawi (NSCM). In addition, hybrid maize seed was heavily subsidized and this, together with NSCM’s limited operational capacity, created a shortage of supplies in the late 1980s. However, the Government liberalized the production and marketing of all types of seeds in 1993 and this should increase supplies and reduce prices, despite the planned elimination of
subsidies. In this process, the public sector will need to provide inspection services for seed quality on demand and at cost, and ADMARC will need to adopt the role of seller of last resort. The Government will have to provide ADMARC with resources and it could also strengthen the capacity of the MOALD Planning Division to implement and monitor the liberalization process.

55. **Fertilizer Supply and Demand.** The Government is committed to phasing out the fertilizer fiscal subsidy by April 1995, which is currently about 12% of the original price of high-analysis fertilizers (and nothing for the low-analysis varieties). This percentage would be higher, if compared to the replacement costs, primarily because of the sharp devaluation of the M Kw in 1994. The temporary closing of transport routes through Mozambique (due to the war), forced Malawi to pay much higher prices than other countries and led to one of the highest fertilizer-maize price ratios in the world. As the subsidy phase-out continues, fertilizer and maize prices are rising, and will do so even more. Thus, the Government is reviewing the fertilizer policy to determine its impact on the expanded use of the hybrid, on producers and consumers (particularly the food-deficit households) and on the budget. Since significantly higher maize prices would negatively affect the food-deficit households, and high transport costs also lower the export parity price of maize, the focus has been on fertilizer prices and the role of the Smallholders Farmers Fertilizer Revolving Fund of Malawi (SFFRFM), a Government parastatal mandated to import fertilizers for smallholders. Now that the war has ended in Mozambique, transport costs are expected to drop over the next two or three years, with the re-opening of the Nacala and Beira routes. Nevertheless, authorities must address the issue of fertilizer prices during the transition period. Given the fertilizer subsidy is set to be lifted by 1995-96, will the private sector response be adequate to lead to a significant decrease in fertilizer prices prior to the re-opening of Mozambican transport routes? Available evidence suggests "no," although the fertilizer stock situation (in late 1994) provides an opportunity to encourage an expanded role of stockists in the retail trade.

56. **Increasing Fertilizer use and Efficiency.** As noted earlier, fertilizer use by smallholders is both supply and demand constrained, depending on the income group. Because the most efficient way to eliminate supply constraints is to fully liberalize the import and marketing of fertilizer, in 1993 the Government took important steps toward this policy. However, other measures are needed to address demand constraints. These measures, which are not mutually exclusive, could include: (a) increasing agricultural productivity by lowering costs (such as greater use of organic fertilizers and expanding nitrogen-fixing cultivation techniques); (b) developing higher-yielding varieties of crops other than maize; (c) decreasing the price of fertilizer (especially by reduced transport costs and expanded competition in importing and retailing); (d) improving site-specific fertilizer recommendations and crop husbandry practices (especially timely weeding) to attain improved technical efficiency in fertilizer use; (e) increasing access to agricultural credit; (f) targeting fertilizer subsidies to resource-poor smallholders; and (g) increasing agricultural incomes and off-farm employment opportunities. It is likely that a combination of all these options will be necessary, given different resource-endowments among the smallholders and since a goal is to promote the use of hybrid maize (which, in turn, will require that the use of fertilizer be more profitable). Most of these measures will take a number of years to materialize on a wide scale, so authorities must decide what to do in the interim to ensure the country's food requirements are met.

57. One option discussed by Government in 1994 was that of extending temporarily (at most 2 years) an economic fertilizer price subsidy, on the assumption that there would be surplus stocks in the country. If such an economic subsidy were extended, given the context of a weak private sector fertilizer market, it is important that markets are fully liberalized and that ADMARC is able to effectively implement its role as seller of last resort. This would ensure that the subsidies actually accrue to producers, rather than to potentially oligopolistic fertilizer traders. Even if private fertilizer
markets are not competitive, ADMARC sales of subsidized fertilizers at the designated "target" fertilizer price (probably having less than a 10% subsidy for 2-3 fertilizer types, and no subsidies for others) would mean that private traders would be unlikely to be the main beneficiaries, as their prices would be contained by ADMARC's "target" ceiling prices. However, the Government's main concern with extending the subsidies is the financing. This is a valid concern, shared by all donors. Moreover, the funds would have a high opportunity cost, if effectively invested elsewhere. Therefore, extension of economic subsidies will be possible, only if there continues to be unused fertilizer stocks, primarily arising from the collapse of the credit system. Given the sharp devaluation of the Kwacha, it now appears that the surplus fertilizer stocks are no longer available, and therefore, there will be limited scope for extending an economic subsidy to cushion the impact of terminating the fiscal subsidy by April, 1995.

58. **Fertilizer Policy Study.** In 1994 Government commissioned a fertilizer policy study to identify ways to restore and increase smallholder use of fertilizers and determine if current subsidies should be removed as planned, or be linked to the decline in transport costs, and/or other factors (such as the development of site-specific fertilizer recommendations, availability, and private sector growth). The study stresses actions that will increase sustainable returns to using fertilizers and be afforded by a larger proportion of smallholders.

59. The study's recommendations include the following:

- Reassessing the role and structure of the SFFRFM, due to the available excess fertilizer stocks (until late 1994); using the SFFRFM to encourage private sector participation, first in retailing, then in importing; this means that the Farm Fertilizer and Feeds Act and the Fertilizer Code of Practice need to be revised appropriately;

- Formulating an appropriate fertilizer price to account for large stocks (import-parity adjusted with a discount), with the aim of liberalizing fertilizer prices within the next 1-2 years; this means, setting an ex-depot price to allow stockists to purchase and sell it to farmers; some important fertilizer pricing decisions need to be taken over the next 2 seasons to ensure that fertilizers subsidies (fiscal, at least) are removed according to the agreed timetable (by 1995/96), but with due consideration to food security requirements following the drought in 1994;

- Considering feasible approaches to introduce a fertilizer- targeting program for the poorest farmers, linked to a self-selecting procedure; a well targeted seed subsidy may be a more cost-effective manner of assistance, and pave the way for eventual sustained use of the hybrid maize-fertilizer technology;

- Developing and disseminating immediately site-specific fertilizer recommendations, which also account for varying smallholder resource levels, as the single most important measure to restore and expand sustained fertilizer usage. Recent research findings suggest that there are, already available, fertilizer technologies to enhance the financial and economic viability of fertilizer use on the improved maize hybrid seeds, and thereby reduce the risks of using this new technology. Two key actions need to be implemented: reduce recommended levels of nitrogen and phosphate applications to maximize yield response and promote timely weeding practices.

60. Based on the findings and recommendations of the Fertilizer Policy Study, a follow-up review by GOM and EC (in August, 1994) outlined the sequencing of specific actions to further implement
fertilizer liberalization. Specific policy and institutional actions were generally agreed, involving: expanding the role of private traders (beginning this crop season); revising the concept and size of the buffer stock to be more cost-effective; expanding the role of private importers, including enabling access to buffer stock arrangements; revising the role of the SFFRFM and ADMARC to enable a more level playing field and competition in importation and domestic trading of fertilizers. Within these items, the following policy actions are generally agreed in principle (with the precise supporting actions and timetable to be finalized in the coming months):

- GOM has reconfirmed its commitment to completely eliminate the fiscal subsidy on fertilizers, with the aim of sticking to the current timetable of 1995/96, taking into consideration food security requirements; in October, 1995 Government also announced fertilizer-maize prices, in time to the next crop season, based on generally sound principles (although subsequent sharp devaluation of the M Kwacha in 1994 led to a further maize producer price increase which poses a number of policy tradeoffs which need to be carefully monitored).

- GOM will: (a) change the role of SFFRFM from that of the principal importer/wholesaler parastatal, to that of becoming commercially oriented and competing on a "level playing field;" (b) assign to SFFRFM the function of managing the smallholders fertilizer buffer stock (on the basis of a performance contract, and renewal would be subject to performance); (c) reviewing the size and composition of the buffer stock, and developing regulations for access by private sector traders to the stock;

- GOM will release ADMARC from its pan-territorial and pan-seasonal pricing obligation, and explicitly permit ADMARC to exercise pricing flexibility in the purchase and sale of maize and sale of agricultural inputs (especially fertilizers, using a "target" ceiling price, which would still allow traders to sell fertilizer above this price, but for ADMARC to defend this target price until competitive markets are established).

61. Together with the emphasis on promoting hybrid maize seeds and fertilizers, there is also an urgent need to expand the supply and demand for inputs (especially seeds and planting materials) to help broaden the range of food crops and livestock (especially chickens, goats and other small stock), which respond to Malawi's drought-prone conditions, limited purchasing power, and variability of agro-ecological conditions.

Rural Financial Services

62. Constraints on Credit. Although the credit supply increased during the 1980s, the amount to smallholders has been limited by the risks and costs of lending to them and the Smallholder Agricultural Credit Administration's (SACA) weak institutional position. SACA, a Government department in MOALD that cannot legally mobilize savings, is the only formal financial institution supplying smallholders with credit. This arrangement has been changed, as SACA is becoming privatized in a phased manner, and is named the Malawi Rural Finance Company (MRFC). As the MRFC, it will be able to generate more funds and assume more independence; but, the degree to which it will expand its coverage of smallholders, in a sustainable manner, remains to be seen.

63. Political developments in 1993, and to a lesser extent, weaknesses in the smallholder credit system, led to low recovery rates in agricultural credit (about 16%) during the 1993/94 season. This created doubts that current credit supplies could be maintained, let alone increased (to cover more smallholders). Even if the short-term political problems are solved, experience elsewhere indicates that credit discipline breaks down as output markets are liberalized. However, the expansion of
tobacco production by smallholders should actually improve recovery rates, because credit can be withheld from the proceeds on the auction floors. Finally, lowering the costs of inputs and/or further liberalizing the marketing of other cash crops could partially substitute for credit, because the internal savings and cash flows of smallholders would increase.

64. Commercial banks are not interested in lending to smallholders or small estates, mainly because of the high costs and risks arising from their vulnerability to weather and other natural hazards. Also, smallholders rarely have asset-backed guarantees for collateral, and loan transaction costs in rural areas can run over 20% of the loan. Financial sector policies have generally not considered these costs when calculating the interest rates. In addition, because a few institutions dominate the financial sector, and interest rates have been suppressed, credit has been rationed and competition reduced. Finally, the lack of appropriate infrastructure, instruments, outreach, experience and managerial capacity to mobilize and channel resources to viable rural enterprises may also have contributed to the neglect of smallholders.

65. As a result, many smallholders rely heavily (for about 66% of their finances) on informal sources such as village traders or commercial farmers to fund small investments and operations. These services (known as "katapila") are timely and in a form better suited to smallholders, despite higher service costs (up to 100%, 1992 prices, for 1-2 months) that reflect perceived risks and lack of market competition. However, the informal system lacks the funds, depth, flexibility and skills to provide the full range of financial services. Further, it offers little or no term finance and is a limited source for capital investment.

66. Increasing Credit Supplies. The conversion of SACA into a limited-liability finance company (MRFC) is expected to eliminate its heavy dependence on Government support and accelerate the privatization of the rural credit system. It is also expected that MRFC will continue to rely on a revitalized group system, based on the principle of joint group liability, and emphasize savings mobilization and lending to viable non-farm enterprises. Also, DEBANK (one of the major commercial banks), was recently issued a banking license. It is expected that both measures will increase competition in financial markets and create linkages between formal and informal institutions. For example, rural traders and input suppliers could borrow from the formal sector and on-lend to smallholders. Given the credit shortfall in 1994-95, this pattern appears to have started in the current crop season, and should be further encouraged.

67. Nevertheless, the conversion of SACA into a private company is unlikely to improve the access by resource-poor smallholders to formal sources of credit. Thus, the Government could help them form savings and credit groups and provide incentives (such as guarantees, which could serve as collateral) to financial institutions to lend to these groups at commercial rates. In early 1994, the Government and IFAD finalized the design of a Malawi Mudzi Financial Services Project (MMFSP) to finance the developmental costs of forming and training such groups. If this project succeeds, it will demonstrate a viable instrument for lending to the resource-poor.

68. In addition, the Government urgently needs to develop and introduce actions that can address the problem of low credit recovery. While it could write off SACA’s outstanding debt (about Kw 250 Million, early 1995 estimate), this would undermine the goal of restoring credit discipline and MRFC’s capacity to lend to borrowers who are fully committed to full repayment. Instead, the Government should help restore discipline, the joint liability principle and the 100% recovery rule, and take the needed actions (such as prosecuting willful defaulters), that would provide the required "environment" to enable MRFC to function as a commercial entity. The new Government is committed to these principles. The need to restore food production in the light of the recent drought
and meeting the financing needs of smallholders are additional challenges to SACA/MRFC's re-structuring and re-orientation to viable lending activities.

**Generation and Dissemination of Technology**

69. The serious decline in soil fertility and relatively static and variable maize yields, were strongly linked to the limited supply of and demand for higher-yielding technologies - partly due to problems in research and the limited capacity of the extension services.

70. **Constraints in Research and Extension.** With public research, little has been done to develop labor-saving technologies (especially needed by female-headed households which comprise about 30% of smallholders), to produce higher-yielding varieties other than for maize (although good work has been done by ICRISAT team on groundnuts and the IITA team on root crops), or to develop low-cost ways to transmit information that are tailored to different smallholder conditions. Some of the weaknesses in the system involve a poor career and incentive structure for researchers, weak management systems, unreliable and insufficient funding, deficient research priorities and allocation of budgets, and an overly restrictive crop variety release system.

71. The agricultural extension service has focused on a few, input-intensive recommendations and on farmers who receive credit (the wealthiest 25% of smallholders). However, expanding the service is hampered by: inadequate funding of non-salary operating costs; poor management and lack of quality work plans; poor research-extension-farmer linkages; poor transportation management leading to limited field staff mobility; a deficient staff incentive system; inadequate training of field staff; excessive involvement of field assistants in activities other than extension (especially credit allocation and recovery); and limited use of non-credit groups to help expand coverage to smallholders.

72. To remove these constraints, the Government devised various proposals over the past two years which are supposed to be implemented through the Agricultural Services Project (and involve the measures listed below).

73. **Research strategies include:** (a) diversifying participation in publicly funded research (including the universities and private companies), and commercializing selected research activities; (b) improving the monetary and, especially, non-monetary incentives within the public research system, to retain good researchers; (c) defining and implementing research priorities more appropriately (involving both crops and livestock), so they reflect smallholders' needs and economic production potential; (d) strengthening researcher-extension-farmer linkages, with priority on improving site-specific fertilizer recommendations, and developing drought-resistant varieties and labor-saving technologies (especially for female-headed households); (e) increasing the non-salary budget by improving methods of estimation; and (f) relaxing crop variety release procedure to encourage expedient generation and adaptation of improved crop varieties for a wider range of crops (especially drought-resistant crops).

74. **Extension strategies include:** (a) restructuring and streamlining operations and staffing in the public extension system; (b) improving field staff training (especially for female and male extension agents regarding nutritional recommendations and gender-related issues), field supervision and incentive structures (especially non-monetary); (c) expanding smallholder coverage by promoting more relevant and affordable technical recommendations (with emphasis on more affordable fertilizer recommendations, drought-resistant crops, low cost methods of restoring soil fertility such as intercropping maize with legumes, rotating crops and agri-forestry), strengthening research-extension-farmer linkages, collaborating with NGOs and non-credit farmer groups, and
separating credit from extension activities; (d) increasing the budget for non-salary operating funds, based on improved methods of estimation; and (e) implementing the recent amalgamation of the activities of the Estate Extension Services Trust (EEST) and Tobacco Research Institute of Malawi (TRIM), into the recently established Agricultural Research and Extension Trust (ARET) so as to generate and disseminate more suitable technologies which would emphasize improved farm management and expanded agricultural diversification.

**Agricultural Diversification**

75. Diversification is critical in promoting sustainable growth and alleviating poverty—especially since Malawi relies on a very limited range of food and cash crops. However, it is usually hampered because smallholders have limited access to land and water resources as well as to financing for new crops and certain operations. Also, constraints involve policy disincentives, inappropriate or inaccessible technologies, and limited ways to combine the efforts of the public and private sectors (including foreign investment). Thus, authorities must provide an enabling environment to attract investment by farmers and agro-processing entrepreneurs. In so doing, they will need to remove policy obstacles and improve infrastructural, trading and institutional support.

76. Diversification should be viewed as part of the long-term process of Malawi's structural transformation and tapping Malawi's rich agricultural potential to produce and market commodities for which it has a sustainable comparative advantage, and of improving its ability to adapt to changing market conditions. The principles of a national agricultural strategy should focus on:

(a) Achieving the full utilization of existing agro-processing and marketing facilities, through liberalized policies and expanded farm production;

(b) Expanding the production and profitability of known crops and agricultural enterprises on the basis of domestic (including import substitution) and regional and overseas export market demand;

(c) Helping maize-surplus smallholders as well as small and large estates diversify and developing mutually-beneficial production and marketing arrangements (for example, smallholders as outgrowers to estates), that could also reduce the reliance on tobacco;

(d) Introducing new agricultural activities and enterprises, along with the required processing, marketing and support systems, through improving the infrastructure, information, training and financial arrangements.

77. The three areas which could be diversified are: commodity exports (overseas and regional); domestically consumed commodities (including crops and livestock), including import substitutes (such as oilseeds for cooking oil, beef and dairy products); and non-farm agribusiness activities for both domestic and export markets, with initial emphasis on food processing and marketing. It is expected the main actors will be commercial smallholders and estates, agro-processors and traders. Efforts could focus initially on commodities that require relatively lower investments and technical know-how, and involve fewer market risks (e.g., groundnuts and pulses), which would also benefit large numbers of smallholders.

78. Six actions have been identified to accelerate the process: (a) remove all restrictions on the production, marketing, pricing and export of all produce (except maize and possibly burley tobacco); (b) improve and/or establish institutional mechanisms to promote diversification, by strengthening
producer/trader associations and expanding access to an improved market intelligence system and a range of agribusiness support services; (c) improve relevant technologies (and their dissemination) for both production and post-harvest processing; (d) expand access to finance, within a competitive context, which, in turn, will lead commercial banks to better assess and promote diversification options; and (e) provide improved infrastructure, especially where it would benefit a larger number of farmers (such as, rural roads and small-scale irrigation); and (f) promote increased foreign investment and others forms of foreign collaboration as a means of accelerating trade/access to markets, technology transfer and institutional innovation.

79. In each of these areas, the report recommends specific roles for the public and private sectors. The former could focus on removing constraints for the different participants and regions, and on facilitating private sector diversification and investments (including foreign investment). For its part, the private sector, with the help of Government, could identify areas for investments and subsequently invest them. In 1994, MOALD took the initiative to form an Agricultural Diversification Steering Committee, comprised of public and private sectors, with the objective of guiding the preparation of a national agricultural diversification program. In April 1994, MOALD convened an agricultural diversification workshop, which was attended by representatives from the private sector. The outcome of the workshop gave impetus for the work of the Committee. At the workshop, many of the above proposed measures were strongly endorsed, as part of launching the preparation of a national agricultural diversification strategy and supporting program over the next one year. This ASM report presents quantitative and qualitative analysis of Malawian comparative advantage in different commodities as well as several scenarios to illustrate the effects on total export earnings of full liberalization. In mid-1994 Government agreed to implement various policy reforms which will enhance the policy environment for promoting greater diversification (e.g., liberalize the import and export of agricultural produce by: streamlining administrative procedures governing such transactions; eliminating the controlled list; and removing ADMARC from an approval role in the process). In October, 1994, MOALD and the Malawi Investment Promotion Agency (MIPA) convened Agricultural Diversification Entrepreneurial Fora in Mzuzu, Lilongwe, and Blantyre to present and discuss possible agro investment ideas which could be supported through the proposed private sector-led Agricultural Diversification Program. Currently, MIPA, in collaboration with MOALD and ARET, are in the process of establishing an Agribusiness Advisory Unit to support private sector diversification process, with special emphasis on facilitating marketing and investment information and promoting agro-based investments. Thus, already progress in laying the policy and institutional framework is being made in several key areas, and needs to be further supported. Continued commitment and capacity to adjust to changing market conditions by all involved is essential as diversification is a dynamic and unpredictable process. The recent devaluation of the M Kwacha underscores the urgency of stimulating the diversification process, especially considering that most countries in SubSahara Africa are also seeking many of the same external markets.

Targeted Programs

80. Even if all the constraints are addressed, this study found that many households will still be food deficient in the medium-term. Historically, targeted intervention programs in Malawi have not been effective and a review of six programs has identified lessons for future efforts. For example, it found that attempts were geographically limited and expensive. Also, many tried bottom-up design processes and touted beneficiary-participation in planning; but in practice, these goals have been difficult to achieve.

81. Identifying key participants is a major problem, but the timetables and administrative demands of donors also seem a serious obstacle to successful and sustainable programs. Project time horizons
need to be more realistic, especially for those with technological innovation components. In addition, before any programs are expanded, the effectiveness of alternative approaches to reaching the target groups and to developing an overall strategy framework must be assessed. Government, under the leadership of the Economic Planning and Development Department (with support of the Social Dimensions of Adjustment Program), is developing a framework and mechanisms to coordinate actions aimed at helping the resource poor (with special emphasis on women). It is anticipated this will enhance the cost-effectiveness, impact, and coordination of increased donor assistance. Currently, Government also is preparing a proposed Social Action Fund Project and an Environmental Support Program (a community environmental fund component) which are aimed at implementing some of these poverty alleviation strategies through village-based management of micro-projects.

82. As a general principle, targeted interventions should aim to enhance the land and labor productivity of resource-poor smallholders in a way that is cost-effective and promotes graduation to a stage where participants no longer need such assistance. However, these should be further developed and tested before being expanded. These include: food-for-work programs; seed bank programs; fertilizer voucher-for-work programs; cash crop/inputs packages; and improved access to rural financial services. Some are already being tested and could be carried out along with the others, within a coordinated framework. At the same time, the cost-effectiveness and the scope for replicating alternate programs should be carefully assessed. For example, the Fertilizer Policy study concluded that a well designed targeted seeds subsidy could be more cost-effective than fertilizer subsidies, and could help pave the way for expanded use of the hybrid-fertilizer technology on a sustainable basis for certain groups of farmers. In late 1994 Government, with donor assistance, designed and implemented a Drought Recovery Inputs Program; it involved distributing (on a grant basis) a small package of maize hybrid seeds and bag of fertilizer to nearly 50% of Malawi's smallholders, primarily as a means of averting major maize imports and enhancing household food security, following a major drought in 1993/94 and depletion of maize food reserve stocks. While the inputs were eventually distributed according to the target of reaching about 800,000 smallholders, it will be important to assess this experience in terms of implementation constraints and impact. This program is currently being monitored and evaluated, and such results and lessons should be applied in the future. Preliminary findings suggest that this program will contribute significantly to Malawi's food security in 1995 by generating an additional 275,000 MTS of maize which otherwise would have to be imported. Given the need for effective targeting to enhance productivity of the resource poor, Government is in the process of formulating a follow-up smallholder inputs program for multi-year donor support.

83. Given the high cost of targeted programs and the severe budgetary constraints, it is hoped that most of the direct incremental costs will be funded by donors (preferably with grants). However, these programs should not undermine those aimed at sustainable development. For example, the seed bank program supported by UNICEF is showing promising results as one that could be sustained by local communities. In addition, the targeted programs are difficult to implement and ways must be found to ensure that the benefits reach the intended groups. Thus, the Government will need to closely coordinate donor assistance, rigorously analyze past problems and assess alternatives, and carefully design and carry out new programs. Before such programs are expanded, it will be important to test them on a limited basis first.
Human Resource Development

84. Numerous studies in Malawi and other developing countries have highlighted the strong links between low agricultural productivity and pervasive poverty and weak human resource development. In fact, most of Malawi's human resource indicators are well below those of other Sub-Saharan countries. Moreover, the country is reported to have the highest incidence of AIDS in the world, which will severely affect the productivity of the farming population and leaders in the public and private sectors. The limited human resource development affects smallholders, as well as tenants and laborers in the estate subsector; and, failure to address these issues will prevent the country from generating and adopting improved technologies, and ultimately, achieving growth. Thus, the report highlights a number of actions to improve population planning and expand access to education and health services, especially among the rural population.

Rural Infrastructure

85. One reason for the lack of economic activity in the rural areas is limited investment in infrastructure, especially of that related to small-scale irrigation, transportation, safe water, electricity and telecommunications. This has undoubtedly inhibited agricultural growth, because it limits opportunities for marketing products and monetizing the rural economy.

86. To address this, authorities should focus on: (a) expanding transport services through a comprehensive reform of policies and regulations that hinder development of an efficient transport system and of non-motorized transport in rural areas, such as oxen carts; expanding competition through the Nacala Mozambique route, to lower fertilizer and other input prices (e.g., fuel) and enhance the competitiveness of Malawi's exports; (b) expanding small-scale irrigation facilities that can be managed and maintained by farmers, and can spearhead diversification into high-value cash crops; and (c) expanding rural coverage of safe water and electricity. These actions will also enhance labor mobility and returns to labor.

Public Sector Management and Expenditures

87. To choose between, introduce and sustain these measures, the role and management functions of the relevant public agencies will need to be substantially improved. Some of the current weaknesses are due to: inconsistencies between policies and investment expenditures, which in many instances crowd out the private sector; imbalances between recurrent and capital expenditures; poorly coordinated donor assistance; weak planning and implementation capacity; poor incentive structures for the civil service; and a lack of support for the private sector—which leads to an overburdened public sector. In turn, these factors have contributed to many of the constraints described above.

88. Based on lessons from recent World Bank-supported operations in Malawi, the Government, (especially the Ministry of Agriculture and Livestock Development, Ministry of Forestry and Natural Resources, Ministry of Irrigation and Water Development), should consider:

(a) Improving the capacity to design and update agricultural strategies that can become the basis for sectoral investments. Thus, authorities should prepare a Malawi Agricultural and Livestock Sector Investment Program (MALSIP) that could provide the avenue through which donor aid could be mobilized and coordinated, and ensure investments with the highest economic returns; in this regards, MOALD's Agricultural Strategy document outlines a proposal to prepare a MALSIP with the following main features: focuses on the sector's strategic priorities; national in scope; sectoral policies and programs will be prepared by local
affected parties; the approach will comprise all donors active in the sector and will include common and simplified implementation arrangements to avoid duplicity of donor requirements (to the extent feasible); use of minimal foreign technical assistance, and where used, it will be done in cost-effective manner with emphasis on building Malawian capacity;

(b) Correcting the imbalance between recurrent and investment expenditures, especially by unifying the planning systems for development and revenue budgets; adopting forward planning for the revenue budget; and, applying improved methods to calculate and allocate non-salary recurrent costs;

(c) Strengthening coordination and implementation among ministries and agencies (especially at the field level) to improve the cost-effectiveness of delivering services to smallholders;

(d) Improving project planning and processing, including upgrading the agricultural data bank, utilizing data for better policy analysis, and monitoring to facilitate further liberalization of the agricultural economy;

(e) Increasing private sector participation, especially by ensuring that public policies and expenditures do not block private investments; providing public expenditures to stimulate a private sector role in research and extension, and market information, and expand the role of the universities in policy analysis and advice, and involve the NGOs in implementing targeted programs.

G. INDICATIVE OUTCOMES: FOCUS ON SMALLHOLDER SUBSECTOR

89. Modelling the Effects of Reforms. Trade-offs between these various alternatives are inevitable. Thus, the ASM team formulated a set of linear programming (LP) models to help assess alternative policies and technologies on smallholder households, and more generally on the smallholder subsector. The strategies use a combination of agricultural market liberalization measures with varying degrees of promotion. The model was based on household budgets, disaggregated by types and regions. It incorporated income constraints, as well as rural off-farm labor income. It was validated using 1990-91 data and was used to generate different scenarios based on assumptions about various policies, institutions, technologies and investments. The market liberalization measures considered include the removal of restrictions marketing of pulse crops, especially groundnuts, and expanded smallholder access to burley tobacco production and marketing, either within the existing quota system or under more open marketing arrangements. Technological innovations included in the simulations are flint hybrid maize, agro-forestry, and self-inoculating soybeans. The aggregate LP model considered five different scenarios involving the above mentioned strategy options (with estimates to the year 2002/03): continuation of present policies, partial liberalization and three scenarios involving full liberalization (a "base" case, a credit constraint on smallholders and assumed "optimistic" increases in maize yields). Table 2 provides a summary of the model results.

90. Strategy Implications. The model showed that continuing policies will be ineffective because they cannot reduce poverty nor promote growth. Rather, combinations of liberalization policies (supported by measures to remove structural constraints to increased competition) and improved generation and smallholder adoption of more suitable technologies can revitalize the smallholder subsector by raising incomes while increasing food production and consumption. This will provide a solid base for growth of the rural nonfarm economy. Based on the LP model aggregation, growth rates in the smallholder subsector for the 4 liberalization scenarios range from about 5-9% p.a.
(although some of this would involve reallocation of growth from the estate subsector). The model simulations also reveal some important trade-offs in the different policy sets. Of special concern is the pace of liberalizing burley quotas and exports of other cash crops (e.g., groundnuts) and of attaining needed maize yield increases: given the relative profitability of the cash crops over maize, there is the possibility that surplus-producing smallholders may shift production into these cash crops, resulting in maize deficits at the national level, if maize yields are not increased sufficiently. This analysis suggests the need for strategies which will help a smooth transition to more liberalized and competitive markets, ensure food and cash crop production compatible with national objectives of increasing incomes and employment. The recent evidence of expanding smallholder production in burley production suggests that the generation of additional cash income is enabling smallholders to purchase the promising maize hybrids and fertilizers to attain the needed maize yields. The LP modeling also points to the urgent need to stimulate the non-farm economy as a source of jobs and income for resource-poor smallholders. The relatively smallholdings, even with high growth rates, still result in low income levels for a large number of households; while this highlights the long term need for this group to secure employment off-farm, in the medium term agricultural growth will be the main avenue to increasing domestic demand for non-farm goods and services.

91. As indicated above, the evaluation of strategy options in the smallholder subsector identified explicit and implicit trade-offs associated with these policy choices and identified several areas that deserve close consideration by policymakers and implementing staff to attain the anticipated benefits.

92. First, the release of flint hybrid maize varieties is a major breakthrough in Malawian agriculture, and it is essential that it be promoted and that support services be mobilized to capitalize upon this success. The modeling highlighted that increased maize yields (to at least 2.5 tons/ha) is essential for any of the agricultural strategy options, given the dominant role of maize as Malawi's major food staple. These increases in yields will include, among other things, multiplication of sufficient quantities of flint hybrid maize seed, adequate provision of other inputs, and development and dissemination of improved extension messages that can serve a wide range of farmers. Particular attention needs to be given to research and extension to improve the technical and economic efficiency of fertilizer use under varying soil conditions and smallholder resource constraints. In this regards, MOALD research and extension staff have prepared a fertilizer action plan with more suitable recommendations, and priority should be placed in ensuring effective implementation this crop season. For smallholders unable to afford fertilizer and located in areas having adequate soils, greater efforts should be placed in promoting the use of the improved maize hybrids without fertilizer, or with small amounts of fertilizer for smallholders who can afford such purchases. This "menu" approach will reduce household food deficits of the resource poor, and provide the base for the use of fertilizers as they are able to purchase them.

93. Second, agro-forestry practices hold great promise for enhancing the financial and environmental sustainability of agriculture in Malawi, especially for those with extremely limited capacity to purchase inputs. While legumes crops and agro-forestry cannot fix nitrogen at levels recommended for maximum maize output, they do provide soil nutrients in quantities that can increase yields and arrest depletion of soil fertility at low cost, and therefore at low risk to the farmer. Research and extension efforts are especially critical at this stage.

94. Third, increasing land pressure implies that efforts to raise smallholder labor and land productivity will come up short if they are based exclusively on improved technologies for a limited set of food crops. Smallholders need to have greater access to cash crop opportunities, as production of higher value crops is an important mechanism for increasing returns to labor and land, enabling the adoption of improved technologies (especially hybrid maize seeds and fertilizer, and drought-resistant
food crops) and stimulating the rural economy more generally. Much of the difference in growth rates between the estate and smallholder subsectors over the past decade can be traced to estates promptly responding to the growing demand for Malawian burley tobacco, while smallholders were legally constrained from doing so. Smallholders have demonstrated that they can produce export crops of equal or better quality than that of estates, so there is little or no basis for impeding them. Expanding access to all cash crops (especially burley tobacco) provides the additional advantage of generating increased incomes to purchase inputs for intensifying food production and diversifying into other crop and livestock activities.

95. Fourth, support services such as credit, research, extension, and marketing are all necessary to the success of these options. All of these services will need to reach a much larger number of farmers than they have in the past. In particular, the reestablishment of a sustainable credit system for smallholder farmers is vital. The new system must be prepared to expand the total availability of credit beyond past levels and, more importantly, reach households that have never been served by the credit system before, provided these activities are economically and financially viable. This highlights the urgency of: re-building the principle of joint liability in order to restore and expand finance to the smallholder subsector, as allocating credit to smallholders on an individual basis is not viable; promoting more suitable and low cost technical messages for varying smallholder conditions; and accelerating non-farm employment generating activities.

96. Fifth, agricultural market liberalization is not a simple matter for a number of reasons. It is not at all clear that liberalization efforts in a few markets will lead to economic gains for all smallholder groups as long as there are rigidities, imperfections, and failures in other markets. This is the well-known theory of the second best. In Malawi the imperfections include high transaction costs in maize trade and an oligopsonistic tobacco market. Furthermore, liberalized markets are not synonymous with competitive markets, and that a mere removal of restrictions will not necessarily lead to optimal or efficient outcomes, let alone equity and poverty reduction. On the other hand, the presence of some rigidities or imperfections is not adequate justification for failing to alter other policies or regulations that inhibit competition. There is substantial scope for policy interventions to make markets more competitive, through information dissemination, investments in infrastructure, and support for the private sector, especially new, rural-based enterprises. Notwithstanding the benefits of implementing the proposed growth and poverty reduction measures suggested in the ASM, there probably will still be the need for well designed and implemented programs targeted to the resource poor, preferably with activities that will enhance their production and income earning capacities (e.g., inputs for work, low-cost technical messages, expanding access to rural finance for viable low cost investments), until they can be absorbed in the non-agricultural economy.

97. The options outlined in the ASM will also increase the efficiency of estate production, raise returns per unit of land, labor and capital, expand land use, improve incomes for estate owners and hence increase investments in other economic activities, increase foreign exchange earnings, and expand job and income-generating opportunities for those leaving the smallholder subsector.

98. Some of the policy actions are controversial and will be resisted by groups who benefit from the current scene. Thus, Malawi's decision makers will need to weigh and select the options carefully. To introduce them, the Government will need to be strongly committed and to carefully sequence the actions to ensure a smooth but bold transition to a more efficient and market-based agricultural economy. It will also need adequate and timely support from donors. If government acts now, it will enable Malawi to increase and sustain agricultural growth and reduce pervasive rural poverty. This will lay a solid foundation for the eventual transformation of the agricultural sector, so it becomes a dynamic source of growth and reduction of poverty for the rest of the population. The
ongoing initiatives of the new Government to formulate and implement its own Agricultural Strategy Document and Action Plan, Forestry Policy, Land Policy and Environmental Policy consistent with this report's recommended options are evidence of Government's commitment to sustainable poverty reduction. These efforts warrant full support.
Table 2. Selected Variables From Linear Programming Models for Base Year and Five Policy Scenarios

<table>
<thead>
<tr>
<th></th>
<th>Base Year 1990/91</th>
<th>Continue Present Policies</th>
<th>Partial Liberalization</th>
<th>Full Liberalization</th>
<th>Full Liberalization (Reduced Credit)</th>
<th>Full Liberalization (Increased Yields)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Average farm returns (MK per HH per year)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small-size farms*</td>
<td>422</td>
<td>452</td>
<td>581</td>
<td>620</td>
<td>543</td>
<td>756</td>
</tr>
<tr>
<td>Medium-size farms</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Large-size farms</td>
<td>1,107</td>
<td>1,118</td>
<td>1,239</td>
<td>1,510</td>
<td>1,563</td>
<td>1,543</td>
</tr>
<tr>
<td>2. Maize production (1000 tons)</td>
<td>1,738</td>
<td>2,112</td>
<td>2,524</td>
<td>2,088</td>
<td>1,853</td>
<td>2,276</td>
</tr>
<tr>
<td>Total production per capita (kg)</td>
<td>217</td>
<td>198</td>
<td>237</td>
<td>196</td>
<td>174</td>
<td>213</td>
</tr>
<tr>
<td>3. Minimum maize demand (1000 tons)</td>
<td>1,550</td>
<td>2,001</td>
<td>2,175</td>
<td>2,175</td>
<td>2,175</td>
<td>2,175</td>
</tr>
<tr>
<td>(a) Minimum maize demand per capita (kg)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(b) Grain surplus (deficit)(1000 tons)</td>
<td>194</td>
<td>188</td>
<td>204</td>
<td>204</td>
<td>204</td>
<td>204</td>
</tr>
<tr>
<td>4. Moderate maize demand*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(a) Effective maize demand per capita (kg)</td>
<td>194</td>
<td>200</td>
<td>224</td>
<td>232</td>
<td>217</td>
<td>258</td>
</tr>
<tr>
<td>(b) Grain surplus (deficit)(1000 tons)</td>
<td>188</td>
<td>(16)</td>
<td>130</td>
<td>(386)</td>
<td>(463)</td>
<td>(478)</td>
</tr>
<tr>
<td>5. Low maize demand*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(a) Effective maize demand per capita (kg)</td>
<td>194</td>
<td>197</td>
<td>211</td>
<td>216</td>
<td>207</td>
<td>231</td>
</tr>
<tr>
<td>(b) Grain surplus (deficit)(1000 tons)</td>
<td>188</td>
<td>10</td>
<td>270</td>
<td>(211)</td>
<td>(356)</td>
<td>(183)</td>
</tr>
<tr>
<td>6. Maize area (1000 ha)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Local (including intercrops)</td>
<td>1,527</td>
<td>1,711</td>
<td>1,736</td>
<td>1,643</td>
<td>1,642</td>
<td>1,536</td>
</tr>
<tr>
<td>Hybrid</td>
<td>1,332</td>
<td>1,298</td>
<td>1,079</td>
<td>1,153</td>
<td>1,237</td>
<td>1,006</td>
</tr>
<tr>
<td>7. Fertilizer nutrient demand (tons)(maize only)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nitrogen</td>
<td>32,539</td>
<td>34,338</td>
<td>35,380</td>
<td>37,058</td>
<td>23,370</td>
<td>30,941</td>
</tr>
<tr>
<td>Phosphate</td>
<td>8,936</td>
<td>12,754</td>
<td>19,751</td>
<td>13,489</td>
<td>8,740</td>
<td>11,572</td>
</tr>
<tr>
<td>8. Additional Nitrogen fixed organically (tons)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Smallholder burley tobacco growers (1000)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Smallholder burley tobacco production (tons)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Credit demand (MK million)</td>
<td>112</td>
<td>144</td>
<td>247</td>
<td>247</td>
<td>148</td>
<td>247</td>
</tr>
</tbody>
</table>

Source: Model simulations (ASM Working Paper No. 12)

* See K. Simler's ASM Working Paper No. 12, Table 14, for number of households in each category.

* Elasticity estimates for maize demand are discussed in the ASM Working Paper No. 12.

* The model provides estimates for area planted and output of burley tobacco, but in the absence of a quota system (as in the three Full Liberalization simulations), it is not possible to provide estimates of the number of participating farmers.