

4. GROWTH AND POVERTY IN ZAMBIA

A. Introduction

4.1 Growth is the foundation stone of poverty reduction efforts worldwide. A dynamic economy, growing strongly, is a powerful force for creating new and better employment opportunities for the poor, enabling empowerment, and reducing vulnerability. Experience from many countries shows that poverty falls in periods of rapid growth and stagnates in periods where growth is slow. Poverty in Zambia has risen as the economy has deteriorated, and stagnated throughout most of the 1990s. (CSO, 2004; McCulloch, Baulch, Cherel-Robson, 2000; Thurlow and Wobst, 2004) Although Zambia has registered positive rates of growth in recent years, the poverty impacts have yet to be demonstrated.

4.2 Achieving faster growth will require greater diversification in production, achieving international competitiveness in export sectors, and overall improvements in the environment for private sector led growth. While Zambia is rich in natural resources, much of its natural resource wealth remains largely underutilized. Infrastructure has deteriorated since the mid-1970s. At present, the high costs of transport, communications, and power make it difficult for Zambian farmers to compete internationally. In the early 1990s, the Government removed many of the protective policies and state-administered pricing structures that had long prevailed in the economy. Recent surveys rank Zambia's trade and exchange control regimes among the most open and liberal. However, the transition to a fully-market defined economy is by no means complete. Zambia is rated poorly compared to other African countries on the effectiveness of its legal system and the quality of public administration more generally. The country continues to experience periods of macro instability, high levels of inflation, high interest rates, and exchange rate volatility, which impede economic growth.

4.3 The chapter begins with a discussion of the recent growth history of the country, followed by a short section on the business environment in Zambia, with reference to comparator countries in Africa as well as other regions. The remainder of the chapter focuses on opportunities and constraints to rural growth, and in particular growth in the agriculture sector, which is often touted as Zambia's future 'engine of growth'. It is a critically important sector for the rural poor in Zambia. The chapter concludes with a discussion of the growth and poverty reduction prospects over the next decade, based on simulations from an econometric model developed for the World Bank's most recent Country Economic Memorandum (CEM). The model was calibrated using data from 1991-1998, which limits predictive accuracy; efforts are underway to update the model to 2005.

B. Economic Performance from Independence to 1991

4.4 Zambia has long been a nation with immense untapped potential. It has large mineral and agricultural resources that have not been fully utilized. Less than half the nation's 23 million hectares of potential arable land is used for agriculture, and its substantial water resources are largely unused. The country also has vast mineral resources, particularly for copper and cobalt, but years of neglect of investment in the country's mining infrastructure combined with a long-term decline in the price of copper have reduced the viability of the mining sector.

4.5 During the eight years immediately following independence in 1964, real output grew at an average rate of 4 percent. High copper prices sustained both high levels of domestic capital investment and a rapid expansion of schooling. The government pursued largely market-oriented economic policies during this period.

4.6 Starting in the mid-1970s, the country switched to an economy characterized by state control. The government created a large number of parastatal companies in manufacturing, mining, agriculture, and services. It also maintained an overvalued exchange rate to promote import substitution industrialization and protected local producers with a high tariff regime. In rural areas, the government established a guaranteed national purchase price for maize and provided highly subsidized agricultural inputs. The expansion of government spending coincided with a plunge in the international price of copper. As a consequence, the government had to dramatically increase its foreign borrowing. Starting after 1976, the country experienced two decades of an almost continuous decline in income per capita.

4.7 During the 1980s, as the price of copper continued to fall, the capital stock declined and the economy continued to contract. The government made multiple aborted attempts to pursue structural adjustment policies, and its international debt mounted.

C. The Reform Decade: Zambia 1991 to 2005

4.8 In 1991 the Movement for Multi-Party Democracy won elections in Zambia with promises of political and economic reforms. Over the course of the following decade the government liberalized the economy, in a break with the state-heavy policies of the nation's recent past. Trade reforms were adopted which removed quantity restrictions and simplified the tariff regime, exchange rates and interest rates were liberalized, the government greatly reduced its role in the agricultural sector, and many parastatal enterprises were privatized.

4.9 Although initial gains were impressive – including a substantial albeit short-lived reduction in inflation, rapid take-off in non-traditional exports, and some progress towards a more diversified pattern of agriculture production – these gains were not sustained. Real GDP fell by an average 0.2 percent per year between 1991 and 1998, with major contractions taking place in 1994 and 1995 following drought and the end to most government subsidies for agriculture. The decline in the economy over the period was traceable in part to drops in agriculture and in greater measure to the shrinking of the mining sector, which contracted at an average annual rate of 8.7 percent over the period. The industrial sector was stagnant, and the service sector, which expanded at a rate of 2.7 percent, was the only substantial source of growth during the period. Total factor productivity—the efficiency with which capital and labor are combined to produce output—declined at an average annual rate of 1.9 percent a year during 1991–98, suggesting that the reform process which moved Zambia towards a market-based economy was by no means smooth and costless.

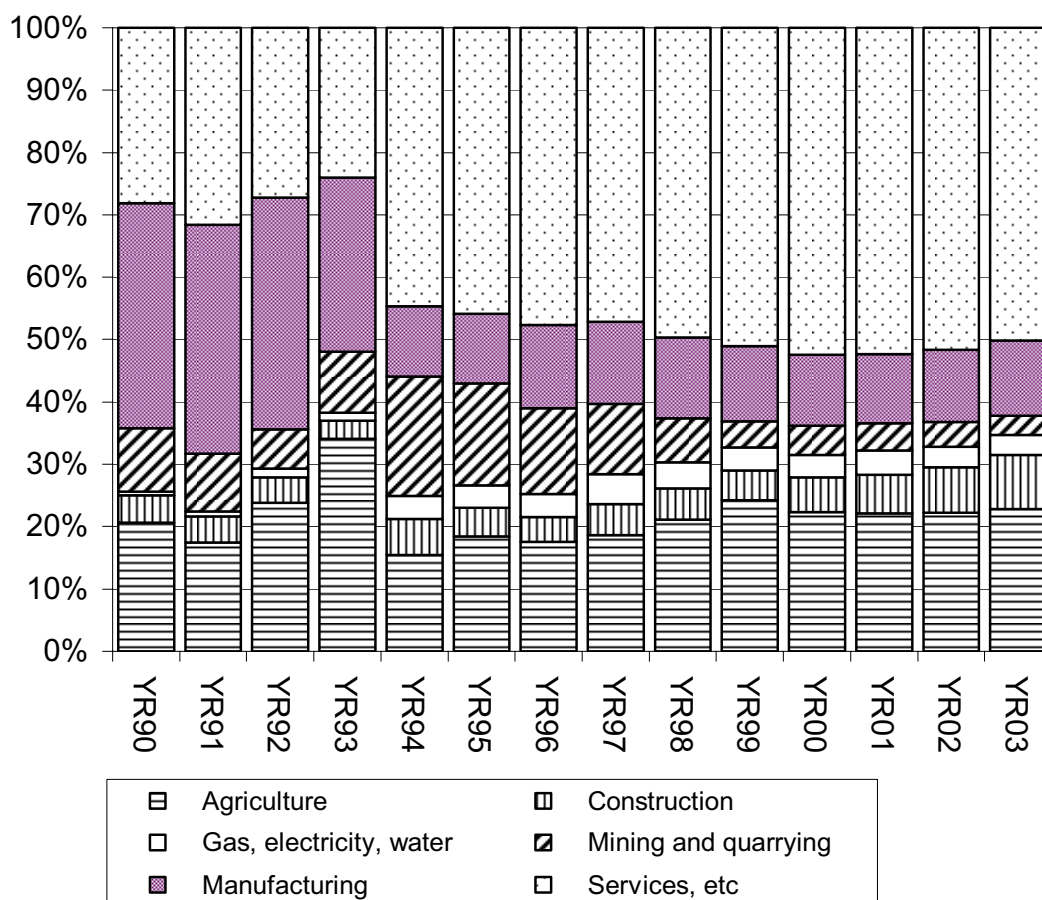
4.10 During the period 1991-98 poverty increased, particularly in urban areas, as employment fell in the parastatal sector. In addition, HIV/AIDS clearly hurt urban poor, likely lowering the productivity of the labor force. The rural areas experienced a different development as agricultural liberalization provided incentives for small holders to diversify away from maize. Economic liberalization, including liberalization of the exchange rate, facilitated foreign direct investment inflows in agriculture, which stimulated increases in cash crops.

4.11 The Zambian economy witnessed a reversal of fortunes beginning in 1999, registering a sustained period of consistent growth in GDP per capita. Growth was broad-based, encompassing industry, services, and agriculture. Two-thirds of the total growth over 1999-2002 was attributable to growth in services. Agriculture, often plagued by the impact of frequent droughts and a focus on subsistence farming, continued to be a stable source of growth, though at rates far too low to have a major affect on poverty. Real GDP grew at an average rate of 3.8 percent, and growth continued in 2003 and 2004. This represents the longest period of continuous growth in output per capita since independence, accompanied by a substantial change in the structure of the economy.

Table 4.1 Sources of Growth by Sector, 1965-2002

| | Average growth rate (percent) | | | | Contribution to growth (percent) | | | |
|-----------------------------------|-------------------------------|---------------|-------------|---------------|----------------------------------|---------------|-------------|---------------|
| | 1965- 2002 | 1991- 2002 | 1991- 98 | 1999- 2002 | 1965- 2002 | 1991- 2002 | 1991- 98 | 1999- 2002 |
| GDP (at factor cost) | 1.4 | 1.1 | -0.2 | 3.8 | 1.4 | 1.10 | -0.20 | 3.80 |
| Agriculture, forestry, fishing | 1.9 | 1.3 | 1.2 | 1.3 | 0.2 | -0.14 | -0.26 | 0.23 |
| Mining and quarrying | -3.2 | -5.1 | -8.7 | 2.1 | -0.7 | -0.74 | -0.89 | 0.00 |
| Industry | 3.3 | 1.8 | 0.0 | 5.2 | 0.7 | 0.26 | -0.10 | 1.04 |
| Manufacturing | 4.0 | 2.0 | 0.9 | 4.1 | 0.5 | 0.14 | -0.01 | 0.46 |
| Gas, electricity, water | 9.1 | 2.5 | 1.0 | 5.4 | 0.2 | 0.07 | 0.02 | 0.17 |
| Construction | -1.0 | -0.7 | -4.8 | 7.5 | 0.0 | 0.05 | -0.11 | 0.40 |
| Services | 3.0 | 3.3 | 2.7 | 4.6 | 1.2 | 1.73 | 1.06 | 2.53 |

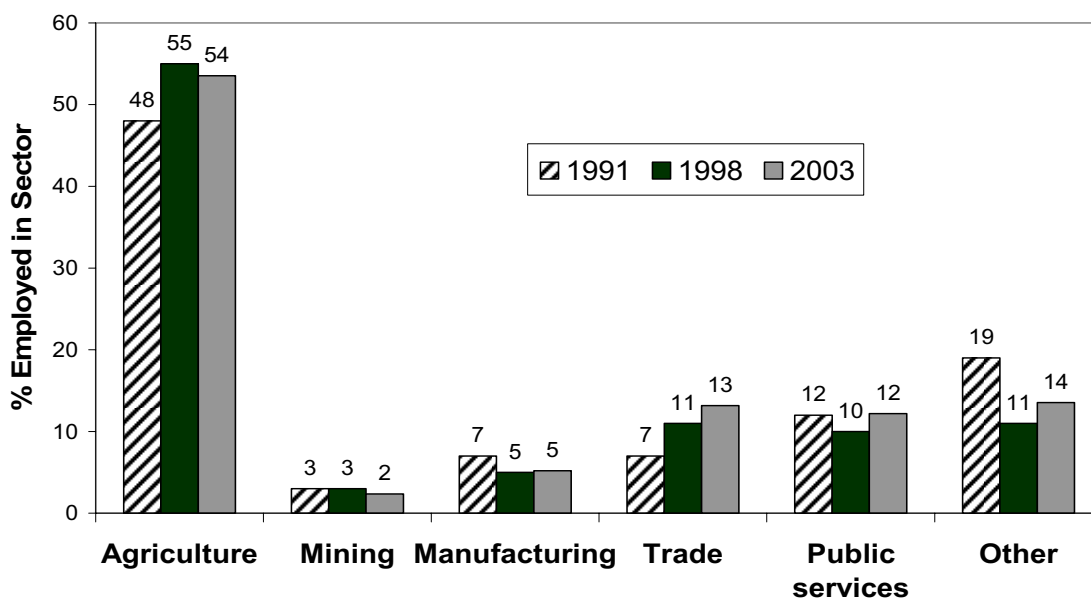
Source: World Bank (2004) (CEM)

Figure 4.1 Sectoral Contributions to GDP at factor cost (current prices)

4.12 Changes in the Zambian economy can also be understood by examining the changing makeup of employment since 1991.³⁷ Figure 4.2 and Figure 4.3 show employment by industry and type of employer in 1991, 1998, and 2003. The impact of the privatization program and cutbacks in government that took place between 1991 and 1998 are reflected in the plunge in employment with government and parastatals. Small growth in private sector employment took place, and the ranks of the self-employed grew substantially. In terms of industry, there were employment drops in manufacturing, public services, and the “other” category, which includes sectors previously dominated by parastatals. The relative share of agriculture as a source of employment increased.

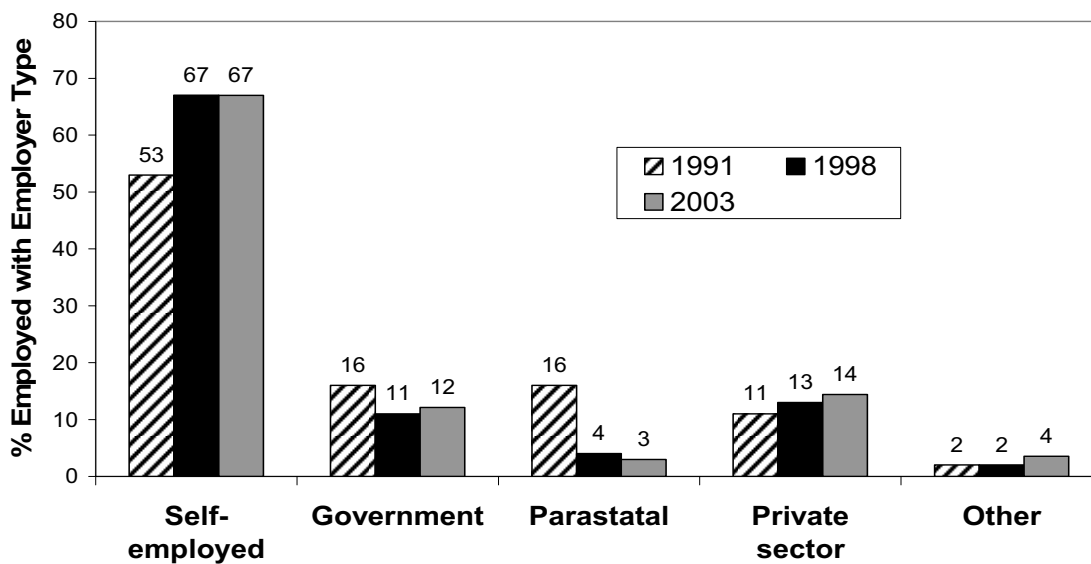
³⁷ Employment figures in this report are drawn from two sets of sources: the 1990 and 2000 censuses and 1991, 1998, and 2002-03 household surveys. Census data provides the best information as it is comprehensive and the most comparable over time. Consequently, census data is used for the urban poverty profile in Chapter 2 and the rural growth discussion later in this chapter. For the finer discussion presented here of trends over different periods since 1990, the household survey data are used.

Figure 4.2 Employment by Industry: 1991, 1998, 2003



Source: Lofgren, Thurlow, and Robinson (2004) for 1991 and 1998 (based on the 1991 Priority Survey and the 1998 LCMS) and Bank staff analysis of the 2002-03 LCMS.
 Note: Other sectors include energy, construction, transport, communications, hotels and tourism, and private services.

Figure 4.3 Employment by Type of Employer: 1991, 1998, 2003



Source: Lofgren, Thurlow, and Robinson (2004) for 1991 and 1998 (based on the 1991 Priority Survey and the 1998 LCMS) and Bank staff analysis of the 2002-03 LCMS

4.13 No major shifts in employment patterns by industry or type of employer took place between 1998 and 2003. Most notably, no statistically significant change took place in the fraction employed in the private sector. This suggests that the growth that has taken place in recent years has not yet translated into widespread private sector opportunities available to the bulk of Zambians. In 1991, before the reforms had taken place, just over half of Zambian workers were self-employed. In both 1998 and 2003, two-thirds were self-employed. In both years, two-thirds of workers reported themselves to be self-employed.

4.14 The self-employed are a diverse group, and it is difficult to measure and gauge the scope of their activities. The self-employed are overwhelmingly farmers (76 percent), as can be seen in Table 4.2, which shows employment in 2003 broken down by both industry and type of employer. The ranks of the self-employed grew in agriculture, manufacturing, and particularly trade. In 1991, the employed in the trade sector accounted for just 5 percent of all workers. By 2003, this fraction had more than doubled; more than 1 in 10 of all workers are now self-employed in the trade sector. This extremely rapid growth is compatible with findings in the Urban Participatory Study that there has been a proliferation of work in small-scale informal activities.

Table 4.2 Employment by Industry and Type of Employer, 2003

| Industry | Self-employed | Government | Parastatal | Private sector | Other | Total |
|--------------------------|---------------|------------|------------|----------------|-------|-------|
| <i>Across industries</i> | | | | | | |
| Agriculture | 76 | 6 | 1 | 13 | 10 | 54 |
| Mining | 0 | 0 | 27 | 9 | 0 | 2 |
| Manufacturing | 3 | 2 | 15 | 15 | 2 | 5 |
| Trade | 16 | 1 | 2 | 16 | 5 | 13 |
| Public services | 1 | 79 | 7 | 10 | 9 | 12 |
| Other | 4 | 12 | 47 | 37 | 75 | 14 |
| All sectors | 100 | 100 | 100 | 100 | 100 | 100 |
| <i>Within industries</i> | | | | | | |
| Agriculture | 95 | 1 | 0 | 3 | 1 | 100 |
| Mining | 11 | 2 | 34 | 53 | 0 | 100 |
| Manufacturing | 44 | 4 | 9 | 42 | 1 | 100 |
| Trade | 79 | 1 | 0 | 18 | 1 | 100 |
| Public services | 5 | 79 | 2 | 12 | 3 | 100 |
| Other | 20 | 10 | 10 | 39 | 19 | 100 |
| All sectors | 67 | 12 | 3 | 14 | 4 | 100 |

Source: Bank staff analysis of 2002-03 LCMS.

4.15 Reconciling national accounts data with employment information is typically a challenge in any country. In Zambia as elsewhere, the sectors in the national accounts data do not match up cleanly with particular employment sectors. For Zambia, it is particularly unclear if the recent growth in services in the national accounts appears in employment patterns. In general, growth in a particular sector must translate into increased employment, higher wages, greater returns to capital, or some combination of the three. The slight lift in the employment share in the trade sector, from 11 percent in 1998 to 13 percent in 2003 provides some hint of increased employment in services, but not enough to account for the 4.6 percent annual growth rate for

services shown in the national accounts. The nature of recent growth in Zambia remains not fully understood and a topic for future analysis.

D. Improving the Environment for Private Sector-led Growth

4.16 Despite its breadth of reforms, Zambia still confronts significant challenges in improving the overall environment for private sector-led growth. Indirect costs are high and Zambian firms are less productive on average than firms in many other countries in Africa. (Collier and Gunning, 1997; Eifert, Gelb, Ramachandran, 2005) Productivity improvements are essential if Zambia is to raise employment levels and incomes, and thereby accelerate economic growth and reduce poverty.

Box 4.1: Why is the Business Environment Important for Growth?

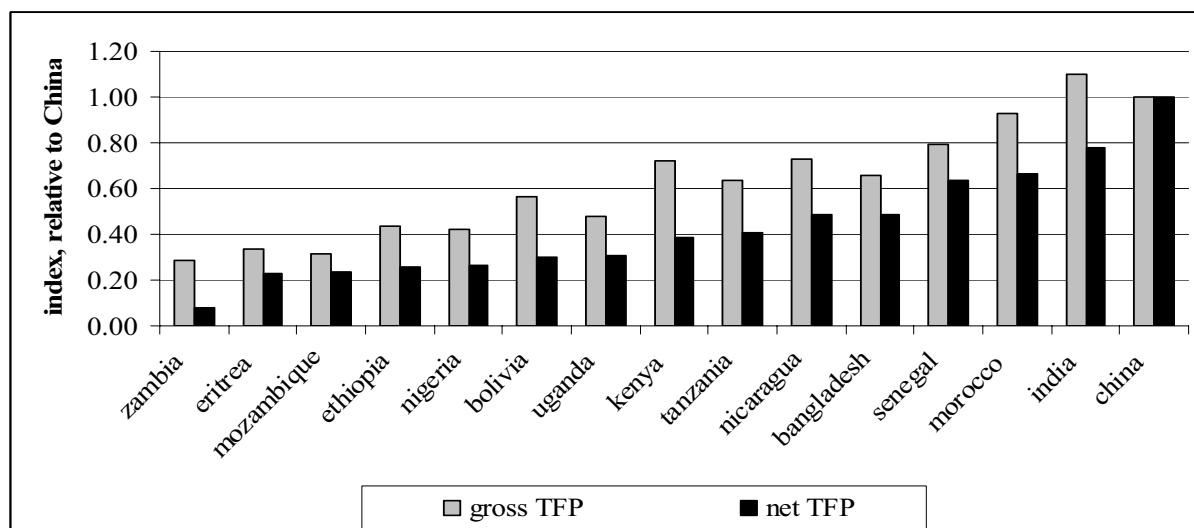
“The *business environment* is the nexus of policies, institutions, physical infrastructure, human resources and geographic features which influence the efficiency with which different firms and industries operate. At the firm level, the business environment directly influences costs of production; at the industry level it often relates market structure and competition. These effects are felt more heavily in traded sectors which are not particularly intensive in natural resources (i.e. manufacturing, high-value services) than in primary production and extractive resource sectors because the former tend to more intensively require “inputs” of logistics, infrastructure and regulation (Collier, 2000). For example, the combination of macroeconomic instability, crime and poor security, a weak and politicized financial system, shoddy local roads and electricity systems, high transport costs, and predatory local officials will have relatively little influence on costs and productivity of offshore oil industries, but will be devastating for small and medium-scale manufacturing. Even efficient firms with low “factory-floor” costs can be driven out of business by the increase in indirect costs occasioned by a poor business environment.”

Source: Executive Summary, Eifert, Gelb, Ramachandran, 2005.

4.17 A recent multi-country study³⁸ of the business environment and comparative advantage in Africa, based on a number of country-level firm surveys done for the World Bank’s Investment Climate Assessments (ICAs), confirmed a pattern of generally low productivity throughout countries in Africa, and identified the importance of high indirect costs and business-environment-related losses in reducing the productivity of African firms in comparison to firms operating in other countries. According to Zambia’s own ICA firm survey, median profits and returns to capital were sharply negative, also among the lowest among ICA countries in Africa. Using China as a comparator, firms in Zambia were found to have low levels of gross Total Factor Productivity (TFP), and even lower levels of “net” TFP (defined as gross TFP minus indirect costs). (Figure 4.4) This is due to high indirect costs as well as substantially lower (factory floor) productivity and high labor costs. As a group, TFP estimates for firms covered under the ICA study in Zambia were among the lowest for countries included in the study, and the impact of indirect costs among the highest. (Figure 4.5)

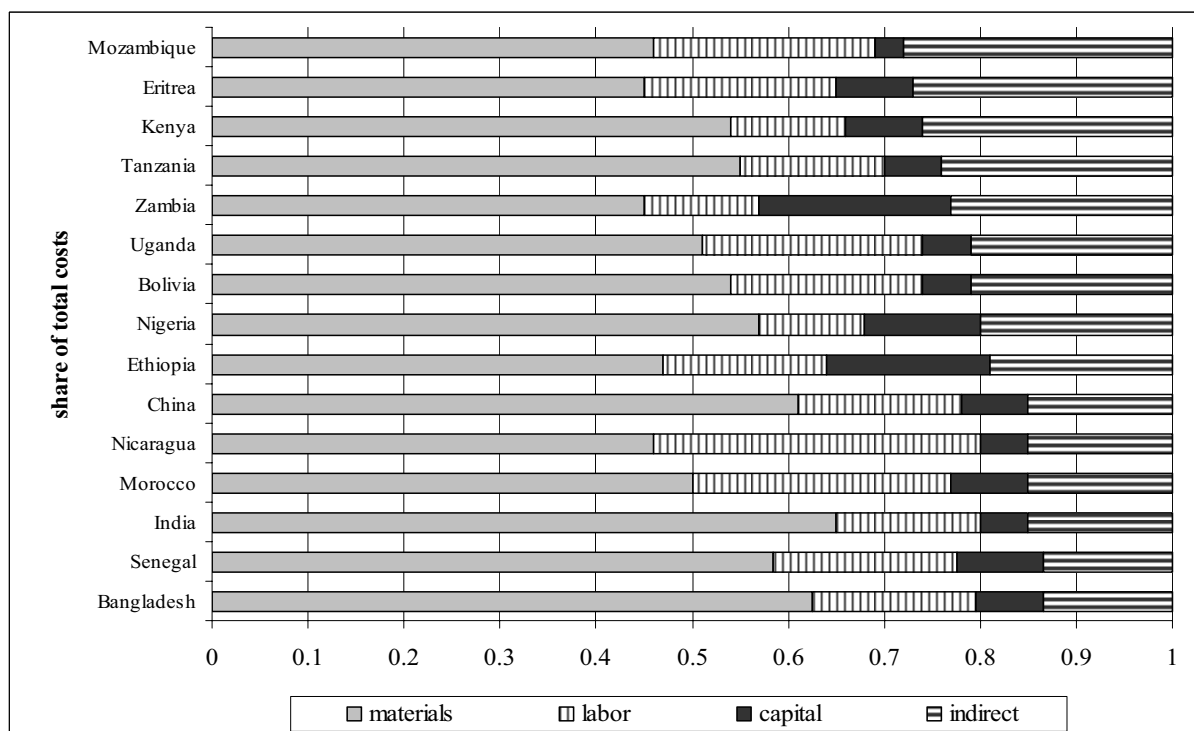
³⁸ In addition to Zambia, the study covered firms in Eritrea, Ethiopia, Nigeria, Kenya, Mozambique, Senegal, Tanzania, Uganda, Bolivia, Nicaragua, Bangladesh, India, China, and Morocco. (Eifert, Gelb, Ramachandran, 2005)

Figure 4.4 Net and Gross Total Factor Productivity (TFP) by Country (in comparison to Chinese firms)



Source: Table 3.5, Eifert, Gelb, Ramachandran

Figure 4.5 Cost Structure: Firm-level Averages by Country (Percent of Total Costs)



Source: Table 3.3, Eifert, Gelb, Ramachandran, 2005.

Table 4.3 Median Inspection Days by Firm Size

| Country | <i>Inspection days, median</i> | | |
|------------|--------------------------------|---------------------------|-------------------------------|
| | <i>Micro</i> | <i>Small / Medium</i> | <i>Large / Very Large</i> |
| Bangladesh | 6.5 | 10 | 12 |
| China | | | |
| Eritrea | 7 | 4 | 4 |
| Ethiopia | 3 | 7 | 6 |
| India | 3 | 7 | 12 |
| Kenya | 11 | 16 | 17 |
| Morocco | 0 | 1 | 3 |
| Mozambique | 3 | 3 | 3 |
| Nicaragua | 4 | 15 | 32 |
| Senegal | 9 | 13 | 13 |
| Tanzania | 12 | 32 | 62 |
| Uganda | 2 | 5 | 17 |
| Zambia | 52 | 64 | 75 |

Source: Eifert, Gelb, Ramachandran, 2005.

4.18 Governance and corruption constitute one of the most important constraints to business development and to competitiveness in many emerging economies. In this regard, Zambia is no exception: Table 4.3, also drawn from the cross-country study of the business environment and comparative advantage, highlights the heavy burden that regulatory oversight poses for Zambian firms (measured in median inspection days) in comparison to firms in other countries. However, the issue should not be posed in terms of too much or too little regulation, but rather in terms of the right kinds of regulation and how well these are actually implemented. There is a current controversy in Zambia concerning the privatization of the mines and the associated sharp deterioration in miners' earnings, conditions of service, and occupational safety. There has been a spate of accidents in the mines that popular opinion attributes to the negligence of foreign investors. While the link may not be entirely justified, it does highlight the importance of adequate and effective regulatory mechanisms as a part of the privatization process.

4.19 In a recent ICA survey, Zambian firms expressed concerns (in order of importance) about access to finance as well as the high cost of finance, macro instability, high tax rates and poor administration, uncertainty in regulatory policies and weak and inconsistent implementation of existing policies, widespread crime and corruption that increases the cost of doing business, and inadequate and costly infrastructure services. Interviews with individuals and firms in the urban informal economy highlighted the impact of over-regulation and restrictive government controls. The informal economy could be strengthened by allowing the many entrepreneurs in Zambia's cities and towns to operate and develop their informal activities, e.g. by removing restrictions against street peddling and providing more affordable space and services in markets for informal vendors and artisans. While the Government has moved some way in removing regulations that curb economic activity and investments, there is a substantial unfinished agenda. And while good laws and measures have been passed or enacted, the main challenge ahead is to ensure effective implementation in practice.

E. The Challenges of Rural Development

4.20 Zambia's rural areas are home to a majority of Zambia's poor, who live almost entirely on smallholder farms. Any program to reduce poverty in Zambia must include a leading role for rural growth, with a substantial focus on smallholder agriculture. This section provides an overview of rural growth and its potential relationship to poverty reduction in Zambia.

Overview of Rural Growth Issues

4.21 Major market-based policy reforms affecting the rural sector were carried out in the 1990s. The state institutions that marketed and distributed agricultural inputs and outputs were dismantled, producer subsidies were greatly reduced, trade was liberalized, and market-determined prices were introduced. It was hoped that these policy shifts would benefit producers of all sizes. The evidence suggests that while the reforms have opened up opportunities for large-scale producers and those smallholders with market access, many rural Zambians have not benefited from the reforms.

4.22 Following the reforms, agriculture's dominance in the rural economy increased. Agriculture accounted for 22 percent of GDP in 2000, up from 20 percent of GDP in 1990. As a share of rural employment, agriculture grew from 88.2 percent in 1990 to 93.5 percent at the end of the decade. Agriculture's growing role accompanied the relative decline in public sector employment in health and welfare services. (Table 4.4)

Table 4.4 What do Rural Workers Do?
Industry of Working Individuals, Rural Areas

| | Men and Women | | Men Only | | Women Only | |
|---------------------------|---------------|------|----------|------|------------|------|
| | 1990 | 2000 | 1990 | 2000 | 1990 | 2000 |
| Farming | 88.2 | 93.5 | 85.8 | 91.5 | 92.1 | 95.5 |
| Mining | 0.5 | 0.2 | 0.8 | 0.3 | 0.0 | 0.0 |
| Manufacturing | 1.9 | 1.0 | 2.2 | 1.1 | 1.3 | 0.9 |
| Electricity, Gas, Water | 0.2 | 0.1 | 0.2 | 0.1 | 0.0 | 0.0 |
| Construction | 1.0 | 0.5 | 1.5 | 1.0 | 0.1 | 0.0 |
| Trade | 1.1 | 1.9 | 1.1 | 2.0 | 1.2 | 1.9 |
| Transport & Communication | 0.7 | 0.3 | 1.2 | 0.5 | 0.0 | 0.0 |
| Finance | 0.6 | 0.2 | 0.6 | 0.2 | 0.6 | 0.1 |
| Health & Welfare | 5.9 | 2.4 | 6.6 | 3.2 | 4.7 | 1.6 |
| | 100 | 100 | 100 | 100 | 100 | 100 |

Source: LCMS III

4.23 For the typical rural household in all quintiles, more than half of income consists of consumption of the household's own production; the poorest households are slightly more dependent on own-production, while the wealthiest households have a slightly more diversified income portfolio.. Table 4.5 shows a breakdown of average shares of household income by

source. Rural households also receive income from crop sales, non-farm business, wage work, migrant remittances, and other sources³⁹.

**Table 4.5 Where do Rural Households Get Their Income?
Mean Shares of Household Income by Source, by Quintile**

| | Quintile of National Distribution | | | | | |
|--------------------------------|-----------------------------------|----------------|----|----|----|----------------|
| | All | Poorest 20% | 2 | 3 | 4 | Richest 20% |
| Food crop sales | 6 | 7 | 6 | 6 | 6 | 5 |
| Nonfood crop sales | 2 | 1 | 2 | 3 | 2 | 2 |
| Non-farm business | 10 | 11 | 10 | 10 | 13 | 11 |
| Livestock and other ag. income | 2 | 2 | 2 | 3 | 2 | 3 |
| Salary | 6 | 3 | 5 | 6 | 7 | 11 |
| Remittances | 6 | 7 | 6 | 6 | 7 | 5 |
| Pension | 0 | 0 | 0 | 0 | 0 | 0 |
| Nonagricultural rent | 0 | 0 | 0 | 0 | 0 | 0 |
| Other income | 11 | 13 | 12 | 12 | 11 | 9 |
| Consumption of own production | 55 | 57 | 55 | 54 | 55 | 52 |

Source: LCMS III

4.24 Although Zambia's agricultural sector has significant untapped potential, it is characterized by structural problems and risks that constrain realization of this potential. This is especially true for the smallholder sector. Zambia's smallholders face unique constraints and the smallholder sector is significantly different from both the emerging commercial farm sector and the large scale commercial farming sector. The smallholder sector is characterized by a lack of market orientation, with production primarily rain-fed and geared toward own-consumption.

4.25 Zambian smallholders, however, are not a homogeneous and monolithic group. There are distinct differences in smallholder households' asset portfolios, income-generating potential, livelihood strategies and welfare outcomes that need to be taken into account. A significant proportion of smallholders have not been able to take advantage of market opportunities.

4.26 Geography is one key factor differentiating opportunities among smallholders. Zambia can be divided into three agro-ecological zones. The three zones vary significantly in terms of rainfall, terrain and soil quality, as well as in the degree of urbanization and investment each has experienced. The borders of the agro-ecological zones are shown in Figure 2.1.

Zone 1 is low-altitude, and accordingly low-rainfall and high-temperature. It lies in the southern portion of Zambia. It primarily borders Zimbabwe and is one of Zambia's hottest, driest and poorest region. It includes the valleys of the Zambezi and Luangwa rivers, where soils are sandy and fertility is poor. Zone 1 also includes a major game management area, where farming households attempt to coexist with wildlife. It is

³⁹ Although it is difficult to quantify, a substantial amount of rural income is generated from illicit activities such as game meat harvesting, illegal fishing, smuggling to and from the eight neighbouring countries, gemstone mining and dealing, and timber harvesting. The unlicensed brewing and selling of beer and hard liquor is a common and important temporary expedient for families that have fallen on hard times or who need to generate cash quickly. These activities are locally regarded as "traditional" rather than illegal. Income from these sources may not be fully reflected in LCMS III tabulations.

suitable for game animals e.g. tourism, hunting, also for cattle and goat raising in game depleted areas. Sorghum is grown (for beer), sunflowers and cowpeas are cultivated, and there is a little recessional winter cultivation of maize and vegetables. The zone is generally not viable for arable agriculture, and maize is only grown where subsidized inputs are provided (and relief food is available in times of need) The fishing industry has drawn many to the area. Mats and baskets are made from reeds and sold to middlemen who visit the area for this purpose.

Zone 2 comprises a belt running east-west through the center of the country. It is an area with relatively good soils and receives more rainfall than Zone 1. It is a more successful agricultural region, and includes the capital city, Lusaka. It has received more intensive assistance from government, NGOs and donor organizations than other regions of the country. Although maize is the staple crop, a wide variety of other crops is grown in Zone 2, including beans, groundnuts, sorghum, cassava, millet, sweet potato, sunflower, cotton, rice, tobacco, paprika, vegetables (such as tomatoes and onions) and fruits (bananas, citrus fruits and guavas).

Zone 3 is a high-rainfall area in the north of the country. It includes the mines of the Copperbelt area, which is relatively urbanized and was once a source of prosperity for the nation. Zone 3 contains major river systems, such as the Luapula and Mansa rivers, as well as numerous lakes. Livestock is not viable in Zone 3 (due to animal disease and parasites), and the soils tend to be sandy, acid, and leached by the rain – a situation that *chitemene* slash-and-burn practices are well-adapted to. The use of chemical fertilizers is not sustainable because it accentuates the acidity of the soil (unless used in combination with lime, which is not common in Zambia). The major crops produced are cassava, groundnuts, millets, sorghum, some maize, beans and sweet potatoes; small-scale fishing and fish-trading are also sources of income.

**Table 4.6 Crops by Quintile, Rural Households
Percentages of Households Growing Each Crop**

| | Quintile of National Distribution | | | | | |
|-----------------------------------|-----------------------------------|-------------|----|----|----|-------------|
| | All | Poorest 20% | 2 | 3 | 4 | Richest 20% |
| <i>At least one food crop</i> | 93 | 94 | 96 | 95 | 92 | 89 |
| Local maize | 59 | 54 | 63 | 62 | 62 | 54 |
| Hybrid maize | 19 | 11 | 15 | 19 | 21 | 28 |
| Cassava | 38 | 50 | 45 | 39 | 33 | 28 |
| Millet | 16 | 24 | 20 | 16 | 12 | 11 |
| Rice | 5 | 4 | 4 | 3 | 6 | 6 |
| Mixed beans | 16 | 18 | 18 | 16 | 15 | 12 |
| Soya beans | 2 | 2 | 3 | 3 | 2 | 2 |
| Sweet potatoes | 30 | 30 | 33 | 32 | 29 | 26 |
| Irish potatoes | 2 | 2 | 2 | 1 | 2 | 2 |
| Groundnuts | 40 | 40 | 44 | 45 | 38 | 32 |
| Sorghum | 8 | 7 | 9 | 6 | 8 | 8 |
| <i>At least one non-food crop</i> | 13 | 9 | 14 | 16 | 15 | 13 |
| Cotton | 9 | 6 | 7 | 10 | 10 | 9 |
| Tobacco | 1 | 0 | 2 | 2 | 1 | 1 |
| Sunflower | 5 | 3 | 6 | 5 | 5 | 4 |
| Paprika | 0 | 0 | 0 | 0 | 0 | 1 |
| Flowers | 0 | 0 | 0 | 0 | 0 | 0 |

1

Maize

4.28 Maize is the basic staple for most Zambians. Most rural households grow maize, and many sell maize surpluses. At least 25 percent of smallholder households are net consumers of maize during good years, while two-thirds are net consumers in poor years (Saasa et al, 1999). Smallholders produce two-thirds of Zambia's maize output, and most maize (in Zambia as well as other countries) is rain-fed. Consequently, maize yields are highly sensitive to rainfall.

4.29 Maize's dominance has its roots in history. It achieved dominance in pre-independence Zambia because white settler farmers knew the crop, the food processors knew how to mill and store it, and the mines (which themselves subsidized maize) used it to feed the mineworkers. Its continuing dominance is linked to historical government support for the crop, as well as its low labor-intensity and responsiveness to chemical fertilizers. The post-independence government subsidized maize to feed urban residents and mine workers, and to integrate farmers in outlying areas into the national economy. Previous to the reforms of the early 1990s, the Zambian government provided subsidized agricultural inputs, guaranteed a national price for maize, provided transport subsidies for maize, and offered subsidized credit for agriculture. Substantial yield increases were achieved in the early 1960s as a result of Green Revolution technologies; high yielding hybrid maize turned out to be an excellent large-scale, mechanized crop, although poorly suited to "labor only" small-holder technology. Despite this, various incentives and subsidies were offered to encourage smallholders to grow maize at the expense of other crops. Added to this was a demand from urban workers that food prices should not rise above the low levels initially brought about by Green Revolution technology. The end result was a hemorrhage of subsidies, reaching 17 percent of the total government budget in the late 1980s (Goward and

Mungoma, 1996). Since the reforms, the government has continued to intervene in maize markets occasionally but on a much reduced scale.

4.30 The partial withdrawal of maize subsidies has spurred diversity in crop production. Maize currently occupies approximately 50 percent of Zambia's cropped area, down from about 70 percent at its peak in the mid-1980s. (MAFF, 2000; Howard and Mungoma, 1996). The decline in maize area has been most substantial in agro-ecological Zones 1 and 3, where the returns to maize cultivation are lowest, and the impact of state subsidies was the greatest. In Southern and Western provinces, smallholders have shifted from maize to sorghum, millet, cassava, and groundnuts. In Eastern province, farmers have shifted to cotton and groundnuts.

4.31 Despite this increased diversification, maize continues to be the overwhelmingly dominant crop in rural Zambia, and in the Rural Participatory Study, a majority of villagers expressed a firm dedication to continuing in smallholder maize cultivation. The Rural Participatory Study identified three reasons that smallholders continue to produce primarily maize. First, consumption of maize is culturally engrained for Zambians. Even households that have shifted to other staples would still prefer to cultivate maize, which is thought to be more palatable, more nutritious, and easier to process than alternatives. Rural Zambians feel that no meal is complete without maize. Second, they do not have knowledge about how to grow other crops, and such information is not easily available.

4.32 A third reason for smallholders' attachment to maize is that switching to new crops involves risk. Because the Zambian smallholders typically have very limited means of insuring themselves, they are reluctant to adopt new strategies. In planting new crops, they face uncertainty not only in their ability to successfully master the techniques required for the crop, but also in finding markets and in facing market price fluctuation. These uncertainties undermine the willingness of small cultivators to invest in crops that cannot be stored and eaten if unsold. Overall, the flexibility of maize, combined with continuing albeit uneven Government and NGO support, makes it a safer choice to the risk-averse poor. It is a subsistence crop, a cash crop, and a safety net. Although maize is produced primarily for consumption by the household, any surplus can be sold as a cash crop or, if an acceptable market price is not found, it can be stored and consumed during lean periods. Maize produces good quantities of fodder for livestock and can be eaten early (green) in the season if alternative food is not available. Other crops offer fewer of these advantages. Markets for sorghum, cassava and millet are smaller and unpredictable, and perishable market garden vegetables must be disposed of immediately even if the going price is ruinous. Moreover there are strong and continuing political pressures to continue to provide subsidies to maize producers.

4.33 Continued reliance on maize does not, however, protect households from risk. Maize yields are sensitive to rainfall, and consequently households that grow only maize suffer during periodic droughts. Yields are also sensitive to the use of chemical fertilizers; fertilizer supply is highly unpredictable and prices volatile. Additionally, continued haphazard intervention by the government in maize purchasing enhances speculation and uncertainty in maize prices. While the option to consume their own maize production does provide some insurance against low prices, households that produce only maize are still highly vulnerable to both price and weather shocks.

Food Crops Other than Maize

4.34 While maize has been in decline, the area devoted to growing millets, groundnuts, sorghum, sweet potatoes, and cassava has been increasing (Government of Zambia, 2000.) In the Rural Participatory Study, many Zone 3 farmers reported that they have reduced or abandoned

maize cultivation in favor of cassava and millet, and some cultivators in Zone 1 have ceased producing maize in favor of sorghum. Cassava does not require fertilizer, it is a traditional crop in Zone 3, and although difficult to process is easy to grow in this ecological zone. Sorghum is drought-resistant and hence more appropriate to Zone 1, a low rainfall area. A number of Zone 2 and 3 farming households have also begun to intensify their investment in horticulture. This was said to have improved the nutrition and food security of those households, as well as providing cash income if markets can be found for the fruits and vegetables they produce.

4.35 Some of these food crops also produce cash returns for some smallholders. Groundnuts, in particular, are sold by 16 percent of all rural households, and a third of those in Eastern province. There is an active market for cassava in Luapula and Northern provinces, and Northwestern province to a lesser extent. All three provinces are located in Zone 3. In Luapula province, 30 percent of households sell at least some cassava. (Table 4.7) Cassava, groundnuts, and millet were identified by one study as crops that are more profitable than maize and considerably less costly to produce (Saasa, 1999). As with maize, the fact that they can be eaten by the household allows the household to insure against the risk of a fall in price or difficulty in transporting product to market.

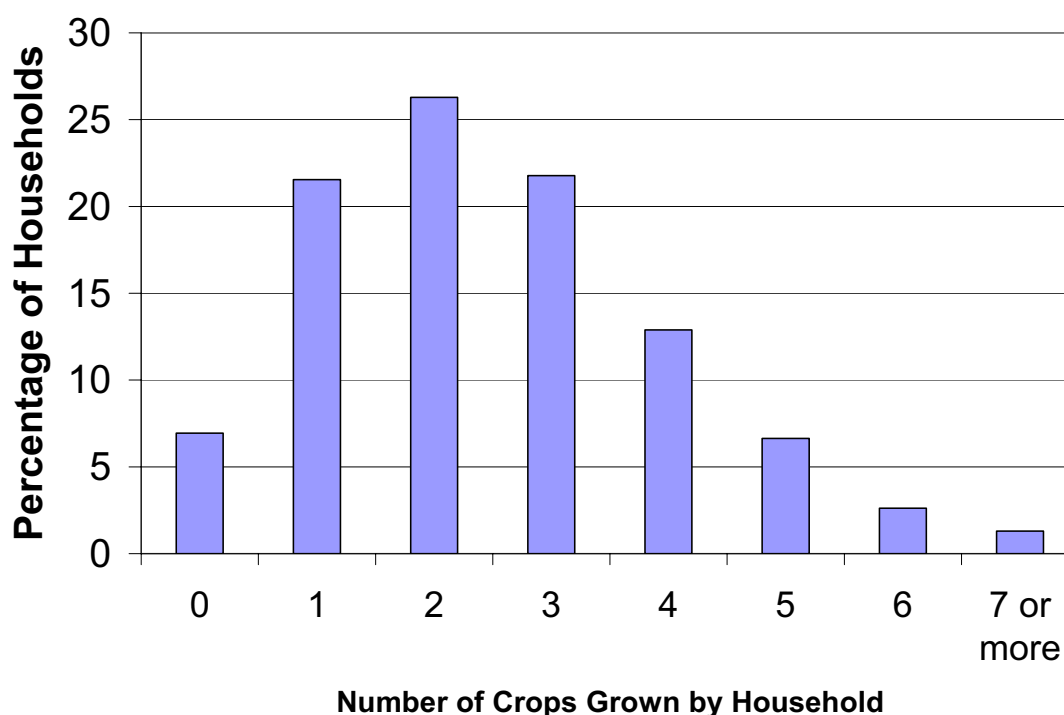
Table 4.7 Crop Sales, Rural Households, by Province

| | Percentages of Households Selling Each Crop | | | | | | | | | |
|----------------|---|---------|-------------|---------|---------|--------|----------|---------|----------|---------|
| | All | Central | Copper-belt | Eastern | Luapula | Lusaka | Northern | Nwstern | Southern | Western |
| Local maize | 15 | 17 | 21 | 18 | 10 | 9 | 16 | 30 | 6 | 11 |
| Hybrid maize | 6 | 17 | 6 | 6 | 3 | 15 | 3 | 3 | 8 | 3 |
| Cassava | 11 | 4 | 1 | 2 | 30 | 0 | 25 | 15 | 0 | 8 |
| Millet | 3 | 2 | 1 | 1 | 2 | 0 | 12 | 3 | 0 | 1 |
| Rice | 2 | 1 | 0 | 2 | 1 | 0 | 6 | 0 | 0 | 6 |
| Mixed beans | 7 | 1 | 0 | 4 | 3 | 1 | 22 | 16 | 0 | 3 |
| Soya beans | 1 | 3 | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 1 |
| Sweet potatoes | 10 | 15 | 20 | 8 | 9 | 8 | 12 | 17 | 2 | 6 |
| Irish potatoes | 1 | 1 | 1 | 0 | 0 | 2 | 2 | 3 | 1 | 0 |
| Groundnuts | 16 | 9 | 4 | 32 | 23 | 4 | 23 | 12 | 3 | 3 |
| Sorghum | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 1 |
| Any food | 45 | 47 | 40 | 50 | 51 | 30 | 64 | 54 | 16 | 31 |
| Any crop | 51 | 58 | 40 | 69 | 51 | 33 | 64 | 54 | 28 | 32 |

Source: 2002-03 LCMS III

4.36 The increased diversification in food crops is a largely positive development. A more diverse portfolio of crops for the country reduces the impact of price and weather shocks for the country as a whole. Likewise, when a household grows more than one crop, it is insured against shocks that affect just one crop. A mixed strategy of growing both maize and other crops is optimal for most households because it allows them to experience maize's advantages (flexibility, satisfaction of tastes) while reducing risk.

Figure 4.7 Number of Crops Grown by Household



Source: 2002-03 LCMS

Cotton

4.37 Cotton has been a success story for post-reform rural Zambia. Cotton is the one non-food crop grown by a large number of smallholders. In 2002-03, 114,000 households (9 percent of all rural households) were growing cotton, approximately triple the number in the early 1990s. There is evidence that cotton has boosted the incomes of many smallholders without threatening food security. Unlike maize, cotton is highly labor intensive. In comparison to commercial growers, Zambian villagers have a relative abundance of free family labor, which gives them a comparative advantage in cotton cultivation.

4.38 Like the rest of the agricultural sector, the cotton industry was entirely a government-run operation until the reform period. The state-owned cotton company, LINTCO, provided inputs and extension services and then bought cotton from farmers at a fixed price. Lonrho(UK) also provided some services, albeit under a regulatory framework developed by LINTCO. Following the sale of the LINTCO to Lonrho(U.K.) (sold to Dunavant in 2000) and Clark Cotton (South Africa) in 1995, cotton production has been reorganized along the lines of “outgrower” schemes, by which cotton companies provide agricultural inputs on credit which are then repaid when harvested cotton is sold to the company’s agent. (Tschirley, Zulu and Shaffer, 2004)

4.39 The lack of contract enforcement mechanisms in rural Zambia has killed many outgrower initiatives, but cotton has tended to be protected because it is a low value crop in its raw unginned form as seed cotton, and thus costly to transport. The industry did face difficulties in 1997 when credit recovery rates plummeted. In that year, several new ginneries opened and competed for the

cotton crop with the firms that had provided inputs on credit. Many farmers sold to the new entrants rather than the firms that had provided them credit, defaulting on their loans. The viability of the entire outgrower scheme was threatened, as firms were not willing to provide inputs on credit without reasonable certainty that loans will be repaid. As a result, the cotton firms developed the “distributor” system by which independent agents are responsible for providing the inputs and recovering their value later on, with the agents’ earnings determined as a function of their success in recovering the value of inputs. Under the distributor system in recent years, both credit repayment rates and cotton yields have risen markedly.

4.40 Households that grow cotton are on average more prosperous than households that do not. One study compared cotton-growing households to non-cotton growing households in Zambia (Tschirley et al, 2004). In order to ensure that the two groups of households are roughly comparable in the opportunities they have to grow cotton, the non-cotton growing households used for the comparison are limited to those in cotton-growing areas. Table 2.5 shows a comparison of households that grew cotton with those that did not grow cotton during the 1999-00 growing season. Cotton-growing households are on average just 10 percent larger than non-cotton growing households but have incomes that are 51 percent higher. They are also more likely to own a bicycle and a radio. Importantly, cotton growing does not come at the expense of maize production. Average per capita maize production and land cropped in maize are essentially identical for cotton and non-cotton growing households. Another study that uses more sophisticated matching techniques to estimate a causal effect of growing cotton in Zambia also finds large gains, estimated at 24-68 percent of household expenditure. (Balat and Porto 2004)

Table 4.8 Cotton Growing vs. Non-cotton Growing Households

| | Cotton | Non-Cotton |
|---------------------------------------|--------|------------|
| <u>Demographics</u> | | |
| Mean household size | 6.6 | 6.0 |
| Mean # adults age 13-64 | 3.6 | 3.2 |
| Mean education of household head | 5.2 | 4.8 |
| <u>Agriculture</u> | | |
| Mean land cropped (ha) | 2.7 | 1.6 |
| ... for maize (ha) | 1.2 | 1.2 |
| ... for cotton (ha) | 0.6 | 0 |
| Mean per capita maize production (kg) | 359 | 368 |
| <u>Assets/HH Chars (% owning)</u> | | |
| Bicycle | 65.5 | 44.3 |
| Radio | 50 | 31.1 |
| Improved Roof | 13.5 | 13.1 |
| Brick or Concrete Walls | 16.2 | 18.6 |
| Cement floor | 13.9 | 14.8 |
| Mean HH Income (‘000 Kwacha) | 2016 | 1339 |

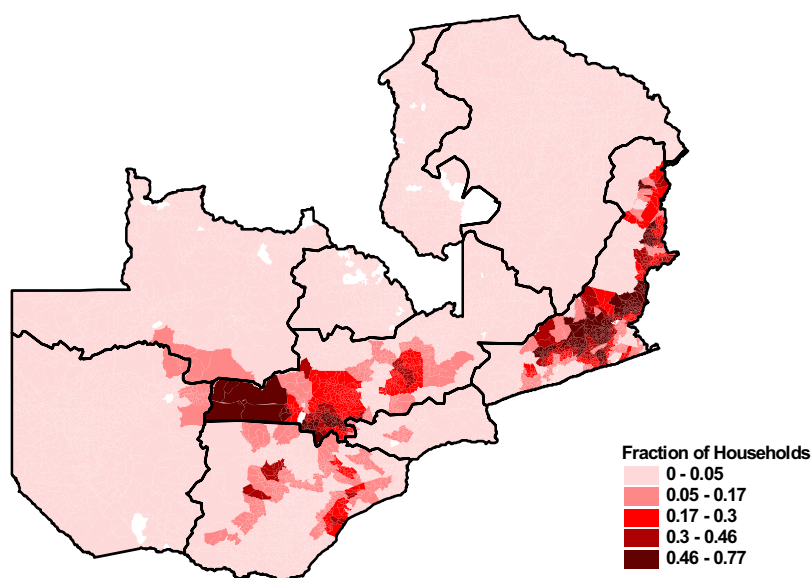
Source: Balat and Porto, 2004

4.41 Outgrower schemes were generally viewed positively by participants in the Rural Participatory Study. Not all households were eager to engage in outgrower contracts, however. Some villagers who had taken such contracts had complaints. They recognized that the labor

required to produce these crops is harder and more strenuous than that required to produce maize. They also feel they get too little payment for the harvested crop (hand-picked cotton tends to require work that is far in excess of anything that can justify even the Zambian minimum farm wage) and that they are often cheated. Nonetheless, outgrower arrangements were largely described favorably as having raised some household incomes.

4.42 Cotton production is not an option for all Zambian smallholders. Geography is the principal limiting factor. Outgrowing schemes are only operated in areas that have climate and soils favorable to cotton and that have nearby cotton ginneries. Ginneries are located only in Eastern, Lusaka, Central, and Southern provinces. As the map in Figure 4.8 shows, cotton production is highly concentrated in those provinces.

Figure 4.8 Where is Cotton Grown?
Fraction of Households Growing Cotton by Ward



Source: 2000 Census

4.43 Another limiting factor for smallholder cotton production is household labor. Households with a large share of members who are ill are less likely to produce cotton, presumably because they cannot supply the needed labor (Balat and Porto 2005, Table 7). Sickness and mortality associated with HIV/AIDS has reduced the ranks of available workers for many households. While producing cotton in addition to maize is an attractive option for households with the capability to do so, cotton, too, poses risks. The long-term price trend for cotton, like most agricultural commodities, is downward (Baffes, 2004). Zambian cotton will continue to be profitable for smallholders only if there are continued productivity gains.

Sugar, Tobacco, and Coffee

4.44 Sugar, tobacco, and coffee all offer some opportunities for smallholder agriculture. These opportunities, however, are currently limited for various reasons.

4.45 **Sugar** is Zambia's leading agricultural export, accounting for an average of about 32 percent of total agricultural exports during the second half of the 1990s. All sugar cane in Zambia is grown under irrigation, which means production is restricted to the Kafue Flats area, the only zone with adequate irrigation facilities (Saasa et al. 1999). Cane is produced at the Zambia Sugar Company's estate near Mazabuka, through commercial production in the Kasama area of Northern Province, and by commercial farmers and smallholders through outgrower schemes. All sugar producers are located within roughly 20 km of the company's refinery, because at greater distances transport costs become too high. Zambia Sugar provides support for small-scale farmers by providing inputs and extension advice through its outgrower program. The estate itself employs 3,300 permanent employees and another 5,000 seasonal workers. There is potential to expand sugar production into other areas of the country.

4.46 **Tobacco** is grown by a mix of commercial farmers to the west of the Luangwa River producing barn-cured Virginia tobacco and small-scale farmers in Eastern Province harvesting burley tobacco. Zambia's climate in Southern and Eastern Provinces is ideal for tobacco production. At independence, Zambia was producing substantial amounts of tobacco (some 5-10 of the amount grown in Zimbabwe, the largest tobacco producer in the region), but at the end of the 1990s, the country was producing about 1 percent of the quantity grown in Zimbabwe. The fall in production in Zimbabwe due to the disruption of agriculture, accompanied by translocation of part of the Zimbabwean industry into Zambia, has increased interest of international firms in Zambian tobacco.

4.47 Repeated analysis shows that the fundamental constraint to expansion of the tobacco industry is the problem of loan recovery faced by the outgrower operators. Attempts to enforce the licensing provisions of the Tobacco Act, or the provision of the Agricultural Credit Acts against tobacco outgrowers and traders has not been successful.

4.48 In the case of **coffee**, smallholder production is only marginally if at all profitable at today's low world prices. Smallholder costs of production are much higher than those of commercial farmers primarily because the cost of collecting, bulking, and transporting coffee from geographically dispersed small producers is high. Smallholder coffee quality is also much more variable than that of commercial producers, so smallholder coffee does not fetch a premium price. In contrast, commercial coffee production has been relative successful (until recent price drops). Commercial coffee may contribute to poverty reduction: it is a heavy employer of labor, especially seasonal labor, and it has the advantage that terms and conditions of employment can be regulated by Government as well as improved through collective bargaining.

Livestock

4.49 Livestock accounts for about 35 percent of national output and animal herding is the only livelihood activity for some traditional farmers in remote areas. Smallholders use livestock for the household's own consumption, to generate cash income, and as a form of savings. Most rural Zambian households own chickens, and many own cattle and goats as well. Cattle ownership is more prevalent among better-off rural households and is concentrated in Central, Eastern, Lusaka, Southern, and Western provinces.

4.50 For smallholder farmers, the productivity of livestock production is low and is characterized by high mortality, slow growth, and low reproduction rates. Zambia's cattle numbers declined drastically during the second half of the 1990s, due to the spread of diseases as well as other factors. The collapse of the compulsory cattle-dipping program (and other animal health measures), due to the general breakdown of regulation in the agriculture sector (begun at

Independence) as well as more recent reforms, has led to high livestock mortality. While the reforms have been factor, the spread of Corridor disease in Southern province already was well advanced by the early 1990s and continued to rise throughout the decade. The cattle population fell from 5.4 million in 1996 to just 2.9 million in 1999. New vaccines were developed; the government initiated a vaccination program in 2000 and cattle population has started to increase. However much remains to be done to restore basic sanitary and commercial discipline in the livestock sector.

Table 4.9 Livestock Ownership and Fish Farming, Rural Households, by Province

| | Percentages of Households Owning Each Type of Livestock | | | | | | | | | |
|----------------------|---|---------|------------|---------|---------|--------|----------|---------|----------|---------|
| | All | Central | Copperbelt | Eastern | Luapula | Lusaka | Northern | Nwstern | Southern | Western |
| <i>Any livestock</i> | 71 | 77 | 53 | 74 | 68 | 60 | 76 | 69 | 73 | 66 |
| Cattle | 16 | 20 | 4 | 23 | 1 | 15 | 7 | 6 | 31 | 27 |
| Goats | 18 | 21 | 7 | 18 | 13 | 23 | 19 | 16 | 33 | 3 |
| Pigs | 8 | 2 | 2 | 17 | 2 | 6 | 11 | 6 | 10 | 4 |
| Sheep | 1 | 2 | 0 | 2 | 1 | 1 | 1 | 2 | 0 | 1 |
| Chickens | 64 | 70 | 51 | 67 | 61 | 54 | 72 | 63 | 63 | 58 |
| Ducks & geese | 5 | 6 | 5 | 5 | 12 | 6 | 4 | 3 | 3 | 5 |
| Guinea fowls | 4 | 5 | 0 | 5 | 2 | 4 | 3 | 3 | 8 | 1 |
| Other poultry | 3 | 4 | 2 | 3 | 1 | 4 | 3 | 1 | 6 | 1 |
| Fish farming | 0.4 | 0.0 | 0.1 | 0.3 | 0.3 | 0.0 | 1.1 | 1.0 | 0.0 | 0.0 |

F. Constraints to Pro-Poor Rural Growth

4.51 Zambian smallholders view the constraints they face through the lens of their historical experience. Until the early 1990s, they were accustomed to a government-led agriculture program which provided highly subsidized inputs and a stable, guaranteed price for maize. Nearly a decade after the initiation of the reforms and the move towards a more private sector approach, most rural Zambians still hope for a return to the past.

4.52 Participants in the Rural Participatory Study viewed the major constraints they face to be lack of fertilizer and a guaranteed market price for maize. Many participants stated that they could not afford to buy fertilizer at the market price, and, not surprisingly, praised the Government for continuing partial subsidy programs. At the other end of the production cycle, informants reported that the few farmers who produce a small surplus in maize are very disappointed with the failure of the government to buy their maize at reasonable prices. With no alternative to the private middle-man, they believe they are forced to sell to these traders at unfair prices. Farmers complained that their revenue from surplus maize sales could not finance the following years' fertilizer and seed requirements.

4.53 In the opinion of most cultivators, maize is the major staple food of the country and self-sufficiency in maize production is an important local and national goal. According to farmers, begging for food is deeply embarrassing, and recent shortfalls in maize production have placed many households in danger of beggary. Many who are qualified for food aid would prefer to

cultivate their own food. They would therefore like to do everything possible to increase maize production. Would-be cultivators often remarked that they cannot understand the readiness of Government and donors to import food and distribute food aid, when Zambian farmers could be enabled to produce adequate food for the country and even for export. They appealed for support to expand food production; but in most cases, the support they envisioned would entail the provision of free or virtually free inputs.

4.54 In response to the recent push to diversify agricultural production, participants argued that there are no guaranteed markets for other crops and livestock, and that farmers are therefore unable to develop a feasible plan to diversify away from maize production. On the other hand, some farmers said that they have been forced to reduce production of hybrid maize, since it requires the purchase of fertilizer and has no guaranteed market or price. These informants indicated that this has often involved switching to subsistence production of traditional maize, cassava, sorghum, sweet potatoes, beans, and groundnuts. Traditional maize, though it can be grown without expensive inputs, is low yielding and therefore does not generate any surplus that might pay for school fees or other basic needs. In Zone III, many participants indicated that they have reverted to the *Chitemene* system (shifting cultivation) to enable them to obtain reasonable yields.

4.55 In light of their experience, the attitudes and actions of Zambian smallholders are entirely understandable. Since the beginning of the reforms, the rural agricultural economy has been characterized by uncertainty—in terms of prices, weather, death and disease, and government policy. Consequently farmers crave a return to the stability and relative prosperity of the past. Although there are new opportunities for some farmers, e.g. those in cotton-growing regions, nothing offers the certainty rural Zambians had before the reforms.

4.56 While recognizing the validity of the perceived constraints of Zambian smallholders, this section considers constraints more broadly.

Fertilizer

4.57 The most contentious issue in Zambian agricultural policy is the role of the government in supplying fertilizer. The Rural Participatory Study found that most participants felt that their major constraint to increased maize production was lack of fertilizer. They praised the government's fertilizer subsidy programs but complained that they were too limited. Similarly, inability to afford agricultural inputs ranked as the top reason for poverty cited by respondents in the 2002-03 LCMS III survey.

4.58 The debate is characterized by sharply contrasting views on the two sides. On the one hand, some stakeholders believe that a government role in fertilizer marketing and distribution is essential. They argue that fertilizer is essential to increasing productivity and incomes for rural smallholders. They also claim that the private sector is unable or unwilling to supply fertilizer to remote rural areas and that even when private markets do function, the price of fertilizer is beyond the means of many smallholders. In this view, free or subsidized fertilizer should be provided by the government to assist the rural poor. On the opposing side, others argue that if the government were to simply get out of the way, the private sector would step in and supply fertilizer widely at a lower price. In this view, government intervention in the fertilizer market is itself the problem.

4.59 Given the unresolved debate and the government's restricted finances, the government has issued confusing and haphazard policies, repeatedly promising to withdraw from the fertilizer

market but then re-entering the market under popular pressure and with an understandable desire to assist the rural poor. Before the early 1990s, the government maintained total control of the fertilizer market and supplied subsidized fertilizer on credit across the country. Even after the market was liberalized to allow private suppliers to operate, the government continued to supply some fertilizer through government agents. Later, the government switched to contracting private suppliers to provide and deliver subsidized fertilizer.

4.60 Since 2002, the government has delivered fertilizer through two programs. MACO-FSP provides a 50 percent subsidy for input to farmers who belong to cooperatives. The pack includes four 50 kilogram bags of urea, four 50 kilogram bags of D-compound, and 20 kilograms of maize seed. Separately, MCDSS-FSP provides, at no cost, a pack of inputs for 0.25 hectare of a cereal (maize, sorghum, or millet), legume (beans, cowpeas, groundnuts, or soybeans), and tuber (sweet potato or cassava). Beneficiaries of the MCDSS-FSP program are expected to pay back 20 kg of cereal to a cereal bank, but repayment rates are low. MCDSS-FSP is intended for the most vulnerable households; targeting is done through a network of community-based NGOs. Each program is intended to reach 200,000 households per year, totaling approximately one-third of the country's 1.2 million smallholder agricultural households. Under both programs, purchase and delivery of the subsidized fertilizer is handled through private companies.

4.61 The current programs are plagued by problems. Every year, the government issues contracts for fertilizer purchases at the last minute and when world fertilizer prices are at the annual peak. Because successful bidders are given just six weeks to import and deliver fertilizer, they are forced to use higher cost import routes. By one estimate, these failures roughly double the price the government pays (Mwape 2004). In other words, the extra cost due to government inefficiency is approximately equal to the 50% subsidy provided by MACO-FSP. Multiple sources also report that the programs are not well targeted. Many recipients are not even farmers but traders who resell the fertilizer at large markups. Finally, the government's fertilizer purchases undoubtedly distort the market and depress the supply of fertilizer on the commercial market. Because long-term planning is required to arrange low cost fertilizer imports, the annual uncertainty about the timing and level of government purchases is particularly damaging.

4.62 It is very unlikely that the government withdrawing completely from the market for agricultural inputs. Providing subsidized fertilizer and seed is one of the few levers the government has for directly assisting the poorest rural residents. Consequently, whatever its stated intentions, the government will face continue to face pressure from its citizens, NGOs, and some donors to continue and expand its subsidy programs. Given that reality, continued reform should focus on tailoring assistance programs such that they function efficiently and do not discourage the development of private markets. Improving the administration of current programs and contracting for fertilizer purchases several months ahead of delivery dates would be an important first step. Over the longer term, moving to less distortionary schemes should be considered. One option would be to operate a system of vouchers which could be given to poor farmers and then used to purchase fertilizer and seed from private suppliers.

Credit

4.63 Lack of access to credit is the flipside of the need for fertilizer. If credit were readily available, farmers for whom fertilizer use is profitable would be able to borrow to purchase inputs and then repay at the time of harvest. Before liberalization, credit was provided through government-run financial institutions, many of whom went bankrupt as a result of non-repayment and corruption (e.g. Land Bank, Credit Organization of Zambia, and later Lima Bank). Since the end of government funding of agricultural credit in 1997, interest rates have been very high and

so credit has been out of reach for most of the rural poor. The interest rate for informal borrowing within communities can go up to several hundred percent annually. In some cases, new institutions have emerged to provide credit for rural farmers:

- *Microfinance institutions.* A number of NGOs operate microcredit facilities, which use group and community social networks to overcome screening, monitoring, and enforcement problems.
- *Informal credit schemes.* In the absence of other mechanisms, informal credit systems among friends, relatives, and neighbors exist, particularly in emergency situations.
- *Outgrower schemes.* Outgrower schemes, through which inputs are provided on credit by the agent for a private company, and the loan is repaid at the time the crop is sold to the same agent. These have become particularly important for cotton, which is grown by nine percent of all rural households. They have also been used on a smaller scale for paprika and tobacco. Outgrower arrangements were viewed positively by respondents in the Rural Participatory Study.

Extension Services

4.64 Extension services are a vital resource to assist smallholder farmers in identifying markets for their products, adopting improved techniques to increase production, reducing fertilizer costs, and reducing livestock diseases and deaths. Unfortunately they have been in decline since shortly after Independence. One study found that Zambian households that make use of extension services have higher productivity than those that do not (Balat and Porto 2004). The guidance they receive needs to be tailored for each household to particular capabilities, soil type, and weather conditions. Sustained productivity growth in agriculture can only be achieved if there is a mechanism for continual transmission of technical advice to farmers.

4.65 The quality and availability of extension services has greatly declined since the introduction of reforms in 1991, in large part due to budget cuts. Agricultural services are provided through the Ministry of Agriculture and Cooperatives (MACO), donor funded projects, NGOs, and churches. Most participants in the Rural Participatory Study indicated that they depend on agriculture-related activities as their primary source of livelihood, and that they attach a high value to any services that can improve the productivity of agricultural activities. However, they observed that even though there are MACO extension workers in their villages, they do not provide any extension services to enhance production and do not serve as good models in the community. Many participants noted that extension workers used to visit farmers in the past but no longer do so. In some cases, extension workers ask farmers to buy them fuel to enable them visit farmers and attend to their problems. This is beyond the means of most farmers. For the most part, farmers have abandoned efforts to obtain extension services from government.

4.66 With the deterioration of extension services, an alternative method of knowledge transmission has developed. Under outgrower schemes, which are widely used in cotton production, company agents provide technical advice along with inputs on credit. Such programs, however, have limited reach.

Labor

4.67 For many rural households, a shortage of labor is the crucial constraint. During the Rural Participatory Study, having sufficient family labor to cultivate land was widely cited as the

pivotal factor separating the self-sufficient from the food deficient. HIV/AIDS has dealt multiple blows to household labor supplies, through incapacitating its victims and then killing them, and also by putting demands on healthy family members who must care for their loved ones. Households with a shortage of adult labor, i.e. those with high dependency ratios, are much more likely to be poor than larger households.

Market Access

4.68 Remoteness is an obstacle to market integration for many households. Due to the long distances between villages and low road quality in many areas, many smallholders have no access to agricultural markets beyond their immediate location.

4.69 Cotton production, a clear success of the post-reform period for smallholders, offers an example of the disadvantages faced by remote households. The possibility of taking on cotton outgrower schemes is only available to farmers who live in areas that are well-suited to cotton and situated close to cotton ginneries. (See Figure 2.3.) Outgrower agents only operate in such areas because traveling over wider areas with low population density would not be cost effective. As a result, cotton is not an option for smallholders in most parts of the country.

4.70 More remote households have less land under cultivation, lower returns per household member, and lower returns to land. Alwang and Siegel (2003) show that net returns are roughly 10 percent lower for remote households. Improved market access through improving rural roads could improve returns and the welfare of remote households. Unfortunately, actual expenditures on rural roads have fallen well behind budget allocations.

Land

4.71 Zambia has a dual system of land tenure, whereby approximately 6 percent of total land area is held by the state and administered under the principles of English statutory law (Subramanian, 1998). Land held under this system is granted in 99-year leases, commonly called titles, to claimants. The remainder of land is held under customary land arrangements, which vary widely and generally allow for limited transfer rights.

4.72 A variety of evidence shows that access to land is not a binding constraint, particularly for smallholder agriculture. Land was not raised as a concern by respondents in the Rural Participatory Study, and only a negligible number in the 2002-03 LCMS listed lack of land access as a reason for their poverty. A stylized model of rural household behavior employed by Alwang and Siegel (2003) suggests that a typical household does not have the capability to farm more land than it does currently. Additionally, both Milimo et al. (2003) and Skjonsberg (2003) find that official titling has been pursued only by the small minority of farmers with link to commercial agriculture.

4.73 Modernizing the land tenure system by bringing more land into the English system and issuing titles would have significant risks without clear benefits. Land titles would provide collateral for rural producers and possibly improve the functioning of credit markets. However, traditional chiefs derive much of their power from their authority to administer and enforce traditional rules governing access to land. Removing the chiefs' power over land administration would undermine their control and leave no alternative source of authority, further compromising social cohesion. A land titling reform could also upset common property and natural resource arrangements, with unknown consequences.

The Way Forward for Rural Development

4.74 In order to stimulate broad-based agricultural growth a combination of policy reforms and investments have been recommended, such as reforms of land and fertilizer markets, and investments in roads and other infrastructure (World Bank, 2002a; 2004b;c). However, a recent review of policy reforms in several Sub-Saharan African countries, including Zambia, emphasizes that reforms need to be considered in the context of a broader rural development strategy. For example, the rural poor lack not only land and well-functioning input and output markets, but other productive resources that would allow them to respond to policies and investments that are aimed at stimulating agricultural growth. Issues such as market liberalization, addressing unequal land distribution, and the targeting of poor areas are complex; and simplistic solutions might actually harm the rural poor, especially in the short term (Jayne, et al., 2001).

4.75 In particular, for broad-based rural development in Zambia it is essential to recognize bottlenecks to private sector development, such as: (i) inadequate infrastructure, (ii) lack of public-private sector dialogue and cooperation, (iii) lack of a macroeconomic environment conducive to growth, (iv) the inadequate provision of business services to the small and medium enterprise (SME) sector, and (v) having a small domestic market and the concomitant need for greater export market orientation (NORAD, 2002; World Bank, 2004d;e). These bottlenecks, in addition to weak public institutions and the lack of critical public good and services, can choke any attempts for the agricultural sector to be an engine of growth.

A Return to Basics

4.76 Many of the basic rural systems that were set up pre-Independence and initially continued have not become defunct, primarily due to budgetary and capacity constraints. Based on the findings of various studies, priority improvements include:

- A system of regular manual maintenance for rural roads. At Independence, maintenance was provided by Public Works Department (PWD) camps along various stretches of roadway. Once a road was constructed it could be kept in good working condition at very little cost for an indefinite period.. The *de facto* policy of zero maintenance is the culprit behind the present “constraint” imposed by rural roads (in the mid-1970s, the Bank’s economic report for Zambia said the country had a surfeit of rural infrastructure, including roads).
- Simple systems of animal disease control; animal movement control; health inspection of abattoirs etc. The return of these systems would reduce animal mortality and open up export markets (presently closed for sanitary reasons) and generally boost animal production.
- As noted above, extension services have sharply deteriorated and should be returned to the standard they once met, with an emphasis on diversity of production and a de-emphasis on the mono-cropping of maize such as they currently display.
- Government’s approach to the maize sector should be modernized. There is no longer a crucial strategic need for Zambia to be self-sufficient in maize at any cost, to ban exports, to provide inputs on arbitrarily changing terms etc.
- The use of maize inputs and buying as a form of poorly targeted social welfare and “market strengthening” should be re-assessed and in all likelihood discontinued, because it militates against the private sector’s healthy development. Social protection should be carried out as social protection. and the staple food market should be left alone, except for market stabilization measures in exceptional circumstances.

- At the same time there may be, on a case by case basis, the need to put up tariff or non-tariff barriers to protect Zambian producers against dumping and to subsidize, overtly or covertly, export drives and new crop expansion.

4.77 But these measures should just be part of a general set of policies designed to turn Zambia into a competitive producer and exporter by such means as lowering taxes, reducing interest rates and allowing the kwacha to find its natural level in the foreign exchange markets. The avoidable problems associated with Zambian agriculture are only soluble through good economic governance by the Zambian government. There is little that can be achieved by well-meaning outsiders in the absence of consistent national leadership.

Broader Challenges for Rural Development

4.78 The dualistic structure within the Zambian agricultural sector is increasingly being recognized (Siegel and Alwang, 2004; World Bank, 2004c), and also increasingly being considered when: (i) formulating rural development strategies, (ii) selecting investment priorities, and (iii) designing projects (see for example, World Bank, 2004, FAO, 2004; IFAD, 2004). There is even a vision of having “a role for expanded commercial farming existing side by side with small-scale farming, which can benefit from large farms through out-grower schemes (World Bank, 2004b, p.11).” The CEM (World Bank, 2004b) specifically recommends a two-pronged development strategy comprising of support for: (1) raising the productivity of smallholder crop and livestock systems in a sustainable manner, and (2) smallholder linkages to commercial agriculture through out-grower schemes.

4.79 Rural Zambia is characterized by rather distinct spatial differences in conditions affecting economic growth and poverty reduction. The differentiated spatial distribution of economic potential (based on agro-ecological conditions and access to markets) implies the need for differentiated rural strategies according to an area’s specific assets, markets and institutions. However, area economic potential does not automatically translate into greater household prospects for improved well being, as evidenced by pockets of rural poverty in Central, Lusaka and Copperbelt Provinces. Considering the heterogeneity of areas and households within areas in Zambia, there is a need for area- and household-specific rural development strategies, investment priorities and the design of project interventions. The sequencing of interventions is also critical, as is the need for improved risk management for all rural residents; including improved social protection for the most vulnerable areas and households.

4.80 Investments in agricultural technology or credit or rural roads need complementary investments for the impacts to have a poverty-reducing impact. Asset complementarities reinforce the need for multi-sectoral investments. These investments should be designed according to specific needs of regions, sub-regions and households residing within them. Ideally prioritization of investments would be carried out in a demand-driven manner at the community level. In addition, publicly provided assets need to be complemented with more private, productive ones. Mechanisms should be designed to stimulate strengthening of private assets to complement public goods. For example, education might be complemented with vocational training, resources for business start-ups (including access to credit), and mechanisms for creating producer organizations.

4.81 The lack of intangible assets such as social capital, information about markets and opportunities, access to public services are major constraints to broad-based growth, depending on the area and development strategy in question. Information about markets, opportunities and productive technologies has public good attributes. Community organizations can be an effective

means of organizing producers to meet stringent production requirements for non-traditional agricultural exports and for handicraft production and marketing. The potential for similar organizations to effect public action in other arenas should also be explored.

4.82 To improve growth prospects, productive investments should be targeted toward higher-potential areas and should complement existing area comparative advantages. The World Bank's proposed Zambia Agricultural Development Support Project (ADSP) takes this approach. However, productive investments should be paired with targeted efforts to help disadvantaged households participate in rural areas. Barriers such as limited education, poor access to markets, small holdings of low-productivity agricultural lands, etc. need, however, to be addressed through concerted public action.

4.83 Broad-based agricultural growth is constrained by absence of technologies for labor productivity enhancements, poorly functioning input and output markets, weak institutions for technical assistance and broader information about markets, degradation of natural resources such as water and soil fertility, and others. The extent to which agricultural growth will lower rural poverty depends on how these critical shortcomings are addressed. Spatial heterogeneity clearly indicates that the agricultural strategy that is most appropriate for Zone 2 is different from the strategy for Zones 1 and 2.

4.84 Natural resource management is often treated separately in policy discussions from more specific agricultural programs. However, natural resource management is closely linked to agricultural productivity. Without environmental improvements, agricultural growth will be limited, especially in areas of higher population density. Management of common resources requires group participation and agreement. Agricultural development projects can be designed to stimulate group formation for production and marketing; the same group structures could be exploited to promote community-based natural resource management. Natural resource management is broader in scope than agricultural projects and could be incorporated into efforts to support governance and decentralization.

4.85 For low potential areas characterized by poor soils and chronic water deficits, there is a need to be realistic about expectations from the agricultural sector. There is a need to identify regions, communities and households with extremely limited prospects for directly benefiting from economic growth and that are vulnerable to major risks. Large-scale water management systems might benefit these areas in the medium to longer term, but in the short term smallholders should be encouraged to adopt appropriate water efficient and drought resistant farming systems that combine crop and livestock production. Clearly in these areas rural communities need to develop plans for sustainable natural resource management. Different types of investments, institutions and instruments are needed to assist the poorest. Thus, it is important to identify the rural population whose asset bases prevent them from being able to take advantage of growth opportunities and will depend, to a large extent, on transfers and other types of assistance (e.g., elderly, infirm, disabled).

4.86 For low potential households that lack a healthy adult capable of contributing labor for farming activities (usually as a result of HIV/AIDS or other illness shocks), there is a need for direct nutritional assistance, especially for children, and other types of social protection programs over an extended period. For example, the World Food Program's (WFP) "Food for Assets" program provides school-feeding, supplementary feeding and support to HIV/AIDS affected households with the overall objective of strengthening the capacity of hungry poor families to meet their food needs and withstand economic shocks and natural disasters. In contrast, households with healthy laborers might be through a program that provides inputs or cash to

smallholders in payment for part-time or temporary labor on rural infrastructure (Parker and Mwape, 2004).

4.87 Market and trade liberalization during the 1990s created new opportunities for Zambian farmers. But it also led to many new challenges and revealed limitations. More realistic expectations about the possibilities for smallholder transformation are needed. As Whiteside (1998, p.1) noted: “Donors and governments need to recognize that to achieve sustainable increases in agricultural productivity will take decades, not years.” Improved research and extension based on the assets held by smallholders and the new policy regime are needed, including a “basket of choices” that consider smallholder farming systems and off-farm opportunities. Investments in transport and communication infrastructure can help lower transaction costs.

4.88 There is need for short-term interventions to help poor smallholders make this transformation, since the constraints they face will take time to overcome. Targeted short-term interventions for rural poverty reduction and social protection, such as public works, soil fertility improvements, and other forms of safety nets and social funds are options. Market and trade liberalization in Zambia were unsuccessful because of the hasty elimination of the public marketing systems, private-sector weaknesses, inappropriate incentive structures, and the lack of infrastructure in rural areas. Furthermore, rural Zambians who had become dependent on public-sector marketing systems did not have the requisite human and social capital to deal with the new realities.

4.89 As noted in a recent publication by the Institute for Development Studies,

“... making the playing field more level is an important prerequisite for effective pro-poor policies. ...It is important to look at how the poor markets, and gain the capacity to engage with some strength in markets, important contributing factors highlighted by the case studies include: access to capital, gaining new skills (from marketing to business experience), building social and commercial networks, the existence of NGO ‘facilitators,’ and logistical support (from roads to mobile phones. Thus, overall, adding a pro-poor component to market oriented policies is not an easy game. Markets are highly politicized, the playing field is uneven, and, without regulation and protection, poor communities are vulnerable to potential exploitation. Without attention to improving the capacity of poor people to engage in markets – through active state support and redistributive measures – the ideals of ‘pro-poor growth’ and ‘private sector partnership’ for development will remain more rhetorical gloss than reality.” (IDS, 2003, 22-24)

This points to the need for a more comprehensive and holistic approach to rural development is needed, not just an agricultural or commodity-specific strategy. This approach should build on a return to basics and good and consistent policy implementation. It is critical to consider the dualistic nature of the agricultural sector, and to think in terms of specific smallholder strategies. However, policies for the agriculture sector ultimately be part of a general and integrated set of economic policies designed to turn Zambia into a more competitive producer and exporter

G. Growth Prospects

4.90 Zambia’s prospects for growth and poverty reduction over the next decade depend on both exogenous factors and policy and institutional measures. Included in the recent Country Economic Memorandum (CEM) are simulations of the growth and welfare impacts of both exogenous changes and alternative government policies over the next decade (2004-2015). In

carrying out these simulations, a base-case growth scenario is developed, which is based on key assumptions about population and labor force growth, government spending, current account deficit, interest on foreign debt, and copper prices. The population and labor force is assumed to grow at around 2 percent and reflects the expected impacts HIV/AIDS. Under the base case, Zambia is projected to grow at an annual average rate of 4.1 percent.

4.91 The implications for growth and poverty reduction of exogenous changes as well as alternative government policies are then simulated around the base-case growth path using a Computable General Equilibrium (CGE) model. For exogenous changes, the impact of alternative copper prices as well as the impacts of HIPC debt forgiveness are simulated. For policies that are under the control of the government, the impact of increased spending on HIV/AIDS, increased spending on education, increased productivity in subsistence and export agriculture, and increased investment in transportation and rural roads are simulated.⁴⁰

4.92 The simulation results provide several useful insights. First, targeting traditional and nontraditional crops, which have strong links to foreign markets, is the best way to enhance growth and household welfare. The pro-poor outcomes of agricultural expansion would be greatly enhanced if market access were widened on a large scale. Improving the condition of the road network and extending the network to remote areas is a key step not only to increasing growth but also to reducing rural poverty significantly. Second, rural households will be cushioned from the negative effects of a likely decline in copper prices (and output) over the next decade, while urban households will face increased poverty. Finally, unless the funds released by HIPC are used to finance policies that favor the poor, the impact of debt relief on poverty reduction is likely to be very modest. Urban growth would need to focus on reducing cost of doing business in Zambia and initially on attracting businesses that can absorb relatively low skilled workers

4.93 The simulation results also suggest that Zambia is unlikely to achieve the Millennium Development Goal (MDG) of halving poverty by 2015. Under the base case growth scenario, Zambia will not be able to halve poverty until after 2040. However, if the government “breaks with the past” by implementing various pro-poor policy measures the headcount poverty rate can be reduced by two to three additional percentage points over the next decade. Still, this is not sufficient; Zambia needs to move to a much higher growth path—estimated to be between 8-10 percent per annum—to reach this particular MDG.

4.94 No sustainable poverty reduction in Zambia can be achieved without positive growth. But to stimulate growth and to strengthen poverty reduction, it is imperative to reduce inequality or to prevent it from increasing disproportionately. Therefore, poverty reduction depends critically on growth that facilitates asset accumulation, human as well as physical, and provides opportunities for the poor, urban and rural to participate in the market economy by reducing transaction costs in doing business through reducing indirect costs of operating a business (See FIAS and ICA 2004) and decreasing transportation cost for rural dwellers to access markets.

4.95 In addition, redistribution of wealth to poor people can have a positive impact on growth. For example correcting credit market imperfections that have not allowed poor individuals to access savings for viable investment projects to take place given the fact that they lack collateral should be growth enhancing as more profitable investment will be able to be undertaken if such a constraint gets lifted. Hence, such market imperfections prevent poor people from seizing investment opportunities that would benefit both the poor people as well as society as a whole.

⁴⁰ For a detailed presentation of the various scenarios see the CEM, Volume 2.

Therefore, Zambia underutilizes its productive and growth potential, as long as these types of market imperfection remain in place. A carefully thought through redistribution of land in rural as well as urban areas which would allow individuals to pledge their land holdings as collateral could potentially lift such a credit market imperfection. A careful look should also be given to prioritization of income transfers that enable the accumulation of human capital, e.g. transfers that improve the health status of beneficiaries or their ability to attend school.

4.96 For growth to be sustainable one requires a balanced and multifaceted approach. Consistent policy implementation, evenhanded and well sequenced interventions along the following dimensions: macro environment, infrastructure (human as well physical), business environment, empowerment and sustainable development (see Stern, Dethier, and Rogers 2005). Particular focus should be given to infrastructure that facilitates access to markets for subsistence farmers that are willing and able to produce cash crops.