Listening to Farmers

Participatory Assessment of Policy Reform in Zambia's Agriculture Sector

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Paul A. Francis
John T. Milimo
Chosani A. Njobvu
Stephen P. M. Tembo

The World Bank
Washington, D.C.
Paul A. Francis is a social anthropologist in the Institutional and Social Policy Division of the World Bank's Africa Region. John T. Milimo is a social anthropologist and director of the Participatory Assessment Group in Lusaka, Zambia. Chosani A. Njobvu is a research fellow at the Institute for Economic Social Science Research, University of Zambia. Stephen P. M. Tembo is Head of Program Planning, Monitoring and Evaluation in the Policy and Planning Division of the Ministry of Agriculture, Food, and Fisheries in Lusaka, Zambia.
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FOREWORD

Zambia's Agricultural Sector Investment Program (ASIP) is one of the first Sector Investment Programs to have been assisted by the Africa Region of the World Bank. As such, it seeks to combine the comprehensive review and reform of agricultural policies with integration of the various, hitherto fragmented, initiatives in the sector into a single organizational and operational framework.

ASIP is also predicated upon participation in program design and implementation by the full range of stakeholders in the public, private and nongovernmental sectors. Establishing systematic and regular feedback between policy makers and service providers, and those affected by programs, is a means both of improving program implementation and of promoting the active participation of beneficiaries and other actors. ASIP has therefore adopted Systematic Client Consultation methods such as Participatory Rural Appraisal and Beneficiary Assessment as an integral part of its strategy of monitoring and evaluation.

This study documents the early experience of policy transformation in Zambia's agricultural sector, and farmers' response to the changing circumstances of liberalization, from a local, grass-roots, perspective. More generally, it demonstrates the importance of client feedback to maintaining and improving the quality of services provided both by the public and the private sectors.

Alan Gelb
Regional Technical Manager
Economic Management and Social Policy
Africa Region
ABSTRACT

This study examines the impact on farmers of the radical changes in agricultural policy which have taken place in Zambia during the 1990s. Drawing on the findings of a number of participatory surveys and beneficiary assessments, and on quantitative survey data where available, the paper highlights farmers' own perceptions and priorities regarding constraints to production and the quality of agricultural services. Farming systems, and the constraints facing farmers, are described both in terms of resource endowments and allocation (climatic and environmental factors, access to land, labor, technical skills, draft power, etc.); and the quality of public and private agricultural services under conditions of liberalization. The paper outlines the coping strategies which farmers have adopted in the face of these changes, including changing farming practices, more reliance on non-farm sources of income, and modified patterns of exchange and consumption. The conclusion presents recommendations for future action and investigation.
ACKNOWLEDGMENTS

Our thanks are due first to the many farmers, community leaders, MAFF staff, and other co-investigators who gave so freely of their time and knowledge in the conduct of this research. We hope that their views will contribute to the continuing evolution of agricultural policy in Zambia.

The findings given here draw upon work of the members of a number of research teams, mainly from the Institute for African Studies, including the late Ms. L.W. Chinkumbi, J. Kabongo, E. Kasuta, N. Bwalya Mukumbuta, G. Mukanda, Alex Nkomeshya, Harriet Ntalasha, John Kalumbi, Mr. C. Kalonga, and Mr. M. Sooka. The study also draws heavily on other participatory surveys of social and economic conditions in Zambia, notably those undertaken by Dr. John Milimo and his associates in the Participatory Assessment Group.

We are indebted to the Central Statistical Office, the Institute for African Studies and Klaus Deininger of the World Bank, for access to preliminary data from the Living Standards Monitoring Survey and the Post-Harvest Surveys.

The paper has benefited considerably from the advice of four external reviewers of an earlier draft: Andrew Norton, Daniel Owen, Jules Pretty and J. Michael Warren. We are also grateful for the support and comments of World Bank staff, including: Kevin Cleaver, Klaus Deininger, Jacomina de Regt, Maniza Naqvi and Roger Sullivan. The authors, of course, take full responsibility for any errors or omissions which remain.

Nwanzi Okidegbe, Bachir Soulal, and Tekola Dejene, past and present World Bank Task Managers for the Zambia Agricultural Sector Investment Program, are to be credited with the foresight of appreciating the value of local participation, and anticipating the potential of beneficiary feedback to improve program performance.
**ABBREVIATIONS AND ACRONYMS**

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<th>Description</th>
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<td>ACMP</td>
<td>Agricultural Credit Management Program</td>
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<td>ASIP</td>
<td>Agricultural Sector Investment Program</td>
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<td>BA</td>
<td>Beneficiary Assessment</td>
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<td>DAC</td>
<td>District Agricultural Committees</td>
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<td>IAS</td>
<td>Institute for African Studies</td>
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<td>IESSR</td>
<td>Institute for Economic and Social Science Research</td>
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<tr>
<td>IFAD</td>
<td>International Fund for Agricultural Development</td>
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<tr>
<td>LSMS</td>
<td>Living Standards Monitoring Survey</td>
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<td>PAM</td>
<td>Program Against Malnutrition</td>
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<td>PAG</td>
<td>Participatory Assessment Group</td>
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<td>PRA</td>
<td>Participatory Rural Appraisal</td>
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<td>SCC</td>
<td>Systematic Client Consultation</td>
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<tr>
<td>SPA</td>
<td>Sector Performance Analysis</td>
</tr>
<tr>
<td>MAFF</td>
<td>Ministry of Agriculture, Fisheries and Food</td>
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<td>MT&amp;V</td>
<td>Modified Training and Visit</td>
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1,273 Kwacha = US$1 (February, 1997)
EXECUTIVE SUMMARY

Since 1991, radical changes have taken place in the policy and institutional environment governing the agriculture sector in Zambia. New policies of liberalization and privatization have entailed the replacement of previously state-supplied agricultural services (notably credit, inputs supply and agricultural marketing) by private sector provision. The Agricultural Sector Investment Program (ASIP), assisted by the World Bank, provides the context for continuing agricultural policy development, as well as for the integration of previously fragmented projects and programs in the sector.

This paper brings together the findings of a number of Beneficiary Assessment and Participatory Rural Appraisal studies of the agricultural and rural sectors of Zambia during this period of transition. It briefly describes the farming systems found in the communities surveyed in terms of resource endowments and resource allocation. An analysis of the various problems faced by farmers follows. Constraints enumerated relating to resource endowments included: climatic factors, natural resource degradation, access to land, access to labor, lack of technical skills, livestock disease, and lack of animal draft.

The study then goes on to examine local perceptions of the efficacy of agricultural infrastructure and services, including credit, input supply, agricultural marketing and extension. Agricultural credit and marketing has become the responsibility of the private sector, and coverage in the early years of liberalization was found to be uneven and unpredictable, due to poor infrastructure, lack of capacity in the private sector, and inadequate enforcement mechanisms. Public services such as agricultural extension and animal health, on the other hand, were found to suffer from staff shortages, and lack of operating funds, transportation and equipment, and were not responding well to farmers' needs. At least in some cases, private sector extension appeared to be performing well. The difficulties faced by farmers were further exacerbated by severe drought in parts of the country.

Farmers have adopted a range of strategies in their attempts to cope with the vicissitudes of transition. These include: changing farming practices (such as reverting to subsistence crops and traditional cropping systems, diversification, and planting drought-resistant crops), more reliance on non-farm sources of income, reducing consumption, and selling off their assets.

The study concludes with a number of recommendations directed at improving the quality and equity of services received by small farmers from the public and private sectors. These include: increased investment in infrastructure; support for the local institutions with the potential to provide credit and marketing services; and more explicit objectives and institutional mechanisms to address food security. Some suggestions are also made for the continued use of participatory assessment and beneficiary feedback in the monitoring and management of ASIP.
Zambia's agricultural sector
Zambia is blessed with a relatively favorable climate and abundant natural resources. Seasonal rainfall is adequate over most of the country, and little over 3 percent of suitable arable land is cultivated annually. However, agricultural performance has been poor. The agricultural growth rate has been low (averaging only 1.5 percent per year between 1965 and 1995); food security has worsened; incomes have declined; and natural resources are deteriorating. Agricultural exports remain meager, contributing only 1 percent of export earnings. This poor performance is in spite of large inflows of donor aid over several decades—an average of US$166 million a year in 1990-94, accounting for 80 percent of expenditure in the sector (ZLLL 1997).

Nevertheless, the potential of agricultural growth to contribute to incomes and welfare is unequivocal: agriculture is the largest sectoral employer, being the primary occupation of over a half of the rural population (or 26 percent of the total population of the country), and contributing three-fourths of the income of the average rural household (unpublished LSMS data for 1996). The large majority of Zambia's approximately 800,000 agricultural producers are small-scale farmers, who farm about 1.4 hectares per family; and perhaps a half of them sell part of their produce. The more commercialized medium-scale farmers generally rely on animal traction to cultivate about 5 hectares. In addition, there are less than 1,000 large-scale farmers operating with high capital intensity and western-style technology. These commercial farmers are mainly located along the line-of-rail or near major urban centers. In rural areas, 65 percent of the population are women and a large and increasing proportion of them are heads of households (Deininger 1997; World Bank 1994).

The Agricultural Sector Investment Program (ASIP)
The poor performance of the agricultural sector has been attributed to inappropriate policy and strategy, and inadequate institutional capacity. The main thrust of agricultural policy during the post-independence period was to promote the small-scale production of maize through inputs of subsidized credit and fertilizer. However, controls on grain prices, high maize and fertilizer subsidies, artificially low interest rates, overvalued exchange rates, and extensive but inefficient parastatal involvement in both marketing and input supply, all inhibited the achievement of this goal. Institutionally, the sector has
been characterized by a large number of poorly coordinated and sometimes duplicative projects, financed by donors and managed in parallel with MAFF. By the end of 1992, there were 184 projects in the ministry (ZLLL 1997).

In order to formulate appropriate agricultural strategies and policies, and to promote the integration of activities in the sector, it was decided in 1992 to prepare an Agricultural Sector Investment Program. The Zambia ASIP represents a departure from the traditional project approach in that it attempts to reduce the fragmentation of donor-supported projects and thereby improve the effectiveness of development assistance. The integrated sector approach which ASIP exemplifies has five defining characteristics: it covers the entire sector; it was prepared by local stakeholders; it is supported by all donors; it minimizes the use of international long-term consultants; and it involves common implementation arrangements. The overall goal of ASIP is to improve efficiency, effectiveness and productivity of the agricultural sector by coordinating, harmonizing and integrating public sector services and investment, while providing an enabling environment for private sector participation. The four-year program includes policy and legal reform; institutional restructuring of MAFF; investments in research, extension and livestock services; private sector development; and pilot financing schemes for small-scale rural investments (World Bank 1994; ZLLL 1997).

**Client consultation in the monitoring and evaluation of ASIP**

As part of the monitoring and evaluation of ASIP, a Sector Performance Analysis (SPA) of the agriculture sector is being undertaken by the Institute for Economic and Social Science Research (IESSR – formerly the Institute of African Studies) of the University of Zambia. In addition to econometric analysis of the sector utilizing data from the Central Statistical Office, the SPA includes the use of qualitative Systematic Client Consultation (SCC) methods to diagnose the problems facing farmers, and assess their perceptions of program effectiveness. The term Systematic Client Consultation conveys the need for a systematic process of communication between policy makers and service providers on the one hand, and those individuals and groups affected — directly or indirectly — by programs and projects on the other. The purpose of this communication is to enable a continuous upgrading of knowledge of client needs and a corresponding improvement in the ability of implementing agencies to respond to these needs (World Bank 1994a). SCC encompasses a range of methods: a number of these, such as Participatory Rural Appraisal, Rapid Rural Assessment, Farming Systems Research, Beneficiary Assessment, and indigenous knowledge studies are already familiar or established within MAFF or other development agencies in Zambia. These methods are characterized by the use of a range of informal techniques to obtain, in a timely manner, information on clients’

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1 Farming Systems Research methods are well established within Zambian agricultural research: see, for example, Kean, Singogo and Sutherland 1990. For an example of the analysis of indigenous knowledge, see the ethno-scientific study of local soil classifications by Kerven, Dolva and Renna 1997. On Beneficiary Assessment and Participatory Rural Appraisal in Zambia, see references cited in the main text under ‘Sources’.
perceptions and priorities. In contrast to the output of traditional surveys, such information is frequently, though not exclusively, of a qualitative nature. The Africa Region of the World Bank recently committed itself to incorporating SCC into all agriculture sector operations.

This paper summarizes the results of the participatory assessment surveys undertaken by the Institute for Economic and Social Science Research as part of the SPA, and of other participatory assessment work undertaken in the sector. These surveys, primarily designed to provide timely feedback to management on program implementation, offer a picture of the impact of the radical changes in the sector's policy environment as seem from the farmers' perspective.

Sources
Two participatory assessment studies of ASIP have been undertaken by IESSR to date. The first, a 'Pre-ASIP' survey of six communities in Zambia's three agricultural zones, was undertaken in 1995 (Njobvu and others 1996a). A second participatory assessment undertaken in 1996 focused on decentralization and a number of other substantive issues (Njobvu and Tembo 1996b).

In addition to the reports on these two participatory assessments, and the site reports for the 1995 survey, the present review draws on a number of other sources. A review of fifteen studies using Systematic Client Consultation was undertaken by the Participatory Assessment Group (PAG) in 1995. While not directly focused on the agricultural sector, this paper yields useful information about farmers' perceptions covering, in all, 258 communities in 46 districts and all 9 provinces (Milimo 1995a). Other sources include the Participatory Poverty Assessment of 1994 (Norton, Owen and Milimo 1994), and the Participatory Poverty Monitoring work undertaken as a follow-up to it (PAG 1996); an impact assessment of the IFAD funded Smallholder Services Rehabilitation Project (SSRP) in three districts in Luapula Province using BA methods (Milimo and others 1995b); and a brief review of other sources, including project evaluation documents (Muntemba 1995).

The next section briefly reviews the methods used in the ASIP participatory assessments. Chapter 2 summarizes some of the features of the agricultural systems; Chapters 3 and 4 review farmers' perceptions of the problems which they face, first in terms of resource endowments, and second with regard to agricultural services. Chapter 5 notes some of the ways in which farmers have responded to these constraints. The final chapter offers some conclusions and recommendations.

Methods

Site selection
For the ASIP participatory assessments, two districts were selected from each of the three main agro-ecological zones of the country (see Chapter 2). Within each of the selected districts, two agricultural camps were sampled. A contrast between high and low production areas was sought both in the selection of districts and of agricultural camps. One Village Extension Group was selected within each camp area for more intensive discussion and investigation.

Data collection methods
A wide range of methods were used in the research. Core methods comprised semi-structured interviews, formal interviews, focus group discussions and observation. In addition to farmers and community members, interviews were conducted with community leaders, local extension agents and other MAFF staff. Interviews and discussions were complemented with a range of more visual Participatory Rural Appraisal techniques including wealth ranking, seasonal calendars, institutional diagrams, time lines, resource mapping, and causal diagrams. In some cases, these qualitative methods were supplemented by quantitative data collection. The field investigations were undertaken by multi-disciplinary teams. As in other PRA exercises, the trustworthiness of findings was assured through credibility, transferability, dependability, and confirmability. Credible information is built upon trust and rapport with informants, knowledge of the local context, and the convergence of information obtained from different sources, by different methods, or by different investigators (known as ‘triangulation’ by PRA practitioners). Other checks on reliability include the testing of data and interpretations with informants and peers, the study of exceptions and outliers, and parallel investigations (Pretty 1995).
Chapter 2

FARMING SYSTEMS

Agro-ecological zones
Zambia is divided into three main agro-ecological zones with thirty-six sub-zones. The main characteristics of the three main zones are outlined in Table 1. As already noted, survey sites were selected so as to represent the three agro-ecological zones.

Table 1: Main features of Zambia’s agro-ecological zones

<table>
<thead>
<tr>
<th>Zone</th>
<th>Location</th>
<th>Elevation (m)</th>
<th>Rainfall (mm)</th>
<th>Growing Season (days)</th>
<th>Temperature (Centigrade)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Major valleys (e.g. Gwembe, Lunsemfwa, Luangwa) Southern parts of Western and Southern Province</td>
<td>300-900</td>
<td>&gt;800</td>
<td>80-120</td>
<td>20-25º</td>
</tr>
<tr>
<td></td>
<td></td>
<td>900-1200</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>II</td>
<td>Sandveld Plateau of Central, Eastern, Lusaka and Southern Provinces. Kalahari sand plateau in Western Province</td>
<td>900-1200</td>
<td>800-1000</td>
<td>100-140</td>
<td>23-25º</td>
</tr>
<tr>
<td>III</td>
<td>Part of degraded Central African Plateau covering Northern Luapula, Copperbelt, Northwestern Provs., and parts of Serenje and Mkushi Districts</td>
<td>1100-1700 (&gt;1000 in case of Luapula)</td>
<td>100 mean annual</td>
<td>120-150</td>
<td>16-25º</td>
</tr>
</tbody>
</table>

Source: Compiled from Bunyolo, Chirwas and Muchinda 1995

There is considerable variation in the elevation, temperature, rainfall, vegetation and soils both between and within these regions, meaning that a wide range of crops can be grown in the country, subject to rainfall (more precarious in the south), and limitations of soil fertility (for example, the strong acidity of soils in Zone III).
Socio-economic characteristics
Female-headed households constituted between 25 and 50 percent of the samples (Njobvu, Tembo and Kabongo 1996a:15). Wealth-ranking exercises revealed considerable inequality within communities in terms of resource levels: the most wealthy cultivated larger areas, and owned more draft animals and other livestock, as well as other productive assets such as hammermills and ploughs, and bicycles. Those ranked as poorest within their own communities tended to be households without access to labor, draft power and equipment for land cultivation: the disabled, aged without children, and female-headed households. This evidence is confirmed by the results of quantitative surveys: the cash income of female-headed households was significantly lower than that of male-headed households. Female-headed households are also vulnerable in being dependent for more than one-half of this income on remittances and transfers, rather than the sale of produce and wages (unpublished LSMS data for 1996).

Farm size
The average farm sizes in the communities sampled in ASIP studies ranged from 1.7 to 4.2 hectares. Higher average cultivated areas were correlated with higher average household labor forces and the use of animal draft power. Given the pattern of oxen ownership noted above, cultivated areas tended to be lower in female-headed households (Njobvu, Tembo and Kabongo 1996a:18; Njobvu and Tembo 1996b:11).

Cropping patterns and the use of improved varieties
Cropping patterns were influenced by the availability of inputs and markets, labor availability, and prices. Maize was the dominant crop in all districts, both as a food and cash crop. Other food crops include sorghum, cassava, finger millet, sweet potatoes, and pumpkins. More diverse cropping patterns were noted in Zone 1, an attempt to spread risk in the event of drought. Cash crops besides maize included groundnuts, cotton and rice (Njobvu, Tembo and Kabongo 1996a:19). Although improved crop varieties were noted in all areas, most smallholder farmers have reverted to using retained seed or the traditional seeds due to reduced access to credit and seed supplies. Improved maize was the most widespread of non-traditional cultivars, especially short-maturing varieties in Southern Province (Njobvu and others 1995:14).

Use of fertilizer
A minority of farmers used chemical fertilizers: the range in the pre-ASIP study sites was from 4 - 30 percent. (Post-harvest surveys for 1996 imply a somewhat higher usage, with 31 percent of farmers using at least some fertilizers. Over 96 percent of fertilizer was used on maize; Deininger 1997.) Farmers at most sites surveyed said that the use of fertilizer had declined. This was in part due to shortcomings in the credit and input supply systems (considered in the next chapter). At the same time, kraal manure was less available because of the decline in animal numbers as a result of drought and corridor disease in Southern Province (Njobvu, Tembo and Kabongo 1996a:19).

3 For example, informants gave the characteristics of a one household in Syampande as: ‘having no cattle, goats, or chicken, cannot plough enough to provide food for his household’ (Milimo 1995a:30-32).
Livestock
Cattle, goats and chickens were the main livestock found in all districts. Pigs were kept in Eastern Province. Livestock were mainly local breeds, except for a few cross-breeds in Southern Province. Oxen were used for cultivation most commonly in Southern Province. Female-headed households were less likely to own draft oxen: none of the female household heads interviewed in Southern or Eastern Provinces owned cattle, though a few in North-Western did (Njobvu, Tembo and Kabongo 1996a:22,15; Njobvu and Tembo 1996b:12). Drought and disease had taken a severe toll on livestock numbers in recent years (see below).

Equipment and cultivation methods
Thirty-eight percent of households in the pre-ASIP study owned ploughs; 12 percent owned cultivators; 10 percent ridgers; and 9 percent scotch carts. These compare with the results of the 1996 Living Standards Monitoring Survey (LSMS) given in Table 2. The LSMS noted a decline in plough ownership in recent years.

<table>
<thead>
<tr>
<th></th>
<th>Southern</th>
<th>Central</th>
<th>Western</th>
<th>Eastern</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxen</td>
<td>33</td>
<td>21</td>
<td>17</td>
<td>16</td>
</tr>
<tr>
<td>Plough</td>
<td>47</td>
<td>33</td>
<td>19</td>
<td>18</td>
</tr>
</tbody>
</table>

Source: unpublished LSMS data for 1996.

Minimal tillage was observed in some areas, mainly as a measure against late rains (Njobvu and Tembo 1996b:26-7; IAS 1995). While semi-permanent cultivation by hoe or plough was the rule, the highly extensive slash and burn cultivation (citemene) traditional to Northern and Luapula Provinces persists in those areas, and may indeed be increasing as farmers reduce maize cultivation (see Chapter 5).

Soil conservation methods
Soil conservation practices were quite common in Southern Province, contour ridging being the most frequently observed. Elsewhere, soil conservation measures were not much in evidence. Other ways of maintaining soil fertility included fallowing, crop rotation, intercropping and (at least in the south) manuring. A typical cropping cycle from Southern Province consisted of a three to four year cereal-legume rotation (for example, maize-groundnuts-maize-cowpeas), followed by two or three years of fallow. Farmers cited lack of technical knowledge and the non-availability seeds for green manuring material as reasons for land conservation methods not being more widely adopted (Njobvu, Tembo and Kabongo 1996a:20; Njobvu and Tembo 1996b:29).

Farm labor supply and seasonality
The household is the main source of agricultural labor. Within the household, women are responsible for most farm work (especially weeding and harvesting), in addition to household chores such as cooking, fetching water, cleaning, and looking after children and the sick. Men are responsible for operations such as tree cutting, land clearing and ploughing. Although women provide most of the labor, most significant decisions about
planting are made by men. Women in Hamilumbe, Southern Province, drew charts illustrating their daily activities during the dry and rainy seasons. These are reproduced in Figure 1, which illustrate the pressure on women’s time due to the combination of domestic and agricultural responsibilities (from Norton, Owen and Milimo 1994).

The single growing season makes labor requirements highly seasonal, with a peak between November and January, when most land preparation, planting and weeding is undertaken. Figure 2, based on diagrams drawn by men and women in Zimba, Southern Province, illustrates this seasonal pattern of labor allocation. This chart also shows the seasonal nature of food availability in both normal and drought years.

Some households hire in labor, which is generally remunerated in kind (by beer, clothes, or food), on a piecework basis. However, working for others means neglecting work on one’s own fields at critical times, and tends to perpetuate a state of dependence. It is therefore usually only a short-term survival strategy of the poor. Reciprocal labor groups, working on the farms of each of their members in turn, were found to persist in some areas, being especially active during the harvest season (Milimo 1995a:28; Milimo and others 1995b:39).

**Crop storage**
Crop storage facilities were usually of a traditional kind, constructed from poles or maize stalks, frequently open at the top. Granaries are a often seen as a mark of wealth. Seeds are typically stored in the house in sealed calabashes. Termites and rodents were noted as threats to stored crops in many areas. At one site, a local NGO (the Mutanda Center) had provided credit and technical support for improved storage (Njobvu, Tembo and Kabongo 1996a:21). The adequacy of on-farm storage facilities has inhibited the ability of small-scale farmers to take advantage the liberalized marketing system. Being forced to sell immediately after harvest, they are unable to benefit from seasonal price fluctuations.

**Non-farm activities**
The off-farm income-generating activities undertaken by men and women were numerous. Those of economic significance included fishing, livestock trading, handicrafts (mat and basket weaving), bee keeping, beer brewing, charcoal burning and selling, timber felling and selling, and hunting (Njobvu, Tembo and Kabongo 1996a:17; Njobvu and Tembo 1996b:12).
Figure 1: Daily activity charts for women in Hamilumbe, Southern Province: dry and rainy seasons
Source: Norton, Owen and Milimo., 1998 (reproduced in Milimo, 1995a:26)
Figure 2: Seasonal labor calendar, women and men, Zimba, Southern Province
Source: Tembo and others 1995.
Chapter 3

FARMERS’ ACCESS TO RESOURCES

Setting
The period under review was seen by farmers as a time of crisis, as they were confronted simultaneously by radical changes in agricultural policy and extreme drought. This and the following chapter attempt to analyze farmers’ perceptions of, and response to, these conditions, the present chapter focusing on farm-level constraints, and Chapter 4 on the delivery of agricultural services.

Nationally, during this period, average cropped area per household declined from 1.6 hectares in the 1990/91 season, to 1.5 hectares in 1994/95, and 1.3 hectares in 1995/96. Declines were most apparent in the southern, dryer, agro-ecological Zones 1 and 2 (rather than the semi-humid northern Zone 3); among male-headed households (rather than female); and near the line of rail, rather than in less accessible areas. By the 1996/97 season, with the resumption of favorable rains, there were signs that this decline was reversing, with average cropped area rising to 1.58 hectares (Post- harvest surveys, Zambia Central Statistical Office).

At community level, the crisis has manifested itself in different ways according to particular circumstances, especially local agro-ecological conditions and the accessibility of markets. Many farmers found themselves unable to meet their own household food requirements. In drought conditions, farmers in Zimba, Southern Province, could produce only enough food to meet their subsistence needs for three months. Food security was observed to be highest where diverse cropping systems, including more drought resistant crops such as cassava, were found (Njobvu, Tembo and Kabongo 1996a:21; Njobvu and Kabongo 1996b:13).

In discussing the problems and constraints which they faced, farmers exhibited a sophisticated notion of the nexus of causes which resulted in low productivity and welfare. As an example, the causal diagram elicited from farmers in Jumbe (Figure 3), shows poverty being caused by drought, in turn ascribed to divine causes, and linked to the lack of fertilizer, credit, and employment. The consequences of poverty include inability to pay medical costs, and ultimately death (Milimo 1995a:13-14).

Some sense of farmers’ perceptions of the relative importance of the constraints facing them is given by Table 3, which summarizes the results of the pre-ASIP study. This table illustrates regional variation. For example, climatic factors caused most concern in Southern Province; infrastructure and marketing in the communities in Eastern Province; and markets and labor in the North-Western Province.
Figure 3: Causal diagram depicting origins and consequences of poverty, Jumbe, Eastern Province
Table 3: Major constraints to crop production elicited from farmers, by study site

<table>
<thead>
<tr>
<th>Province</th>
<th>Agro-climatic Region</th>
<th>Major constraints</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eastern</td>
<td>I</td>
<td>unreliable marketing, lack of credit facilities, lack of farm implements, poor roads, lack of inputs (seed, fertilizer)</td>
</tr>
<tr>
<td></td>
<td>II</td>
<td>poor roads, poor marketing, low commodity prices, late supply of inputs</td>
</tr>
<tr>
<td>Southern</td>
<td>I</td>
<td>drought, lack of inputs, lack of draft animals, poor roads</td>
</tr>
<tr>
<td></td>
<td>II</td>
<td>drought, lack of inputs, lack of draft animals, army worm, poor roads</td>
</tr>
<tr>
<td>North-Western</td>
<td>III</td>
<td>lack of market, labor bottlenecks, lack of farm implements, lack of inputs, short rainfall period (1994-5), poor roads</td>
</tr>
</tbody>
</table>


The following sections consider the various constraints elicited of farmers in a little more detail.

**Climatic factors**

Climatic conditions were ranked by farmers as amongst their most severe problems, especially between 1992 and 1994, when drought affected the country, most severely the south and the Luangwa and Zambezi valleys. Droughts resulted in crop failure, reduced grazing, and a lack of water for both humans and livestock. The changes in grazing and watering patterns for livestock which were necessary as a result, either took children out of school, or, in smaller households, made livestock keeping nonviable. Floods and frosts were cited as problems in Western Province. In 1994, frosts destroyed the mango industry in Mongu and Senanga (Milimo 1995a:16).

**Natural resource degradation**

Leached, acidic soils are characteristic of much of the north of Zambia, and farmers in Mpika (Northern Province), and Luwinga, Nchelenge and Samfya (Luapula Province) complained that soils could no longer support a maize crop without fertilizers (Milimo 1995a). The degradation of common property resources has lead to the degeneration of water sources, of grazing land, and of the forests and woodlands which are a source of manifold timber and non-timber products. Deforestation was particularly identified as a problem by informants in Southern and Central Provinces. Scarcity obliged women to make long forays for fuelwood collection. Deforestation was also seen by some farmers

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4 Simanansa, Monze District; Syakalyabanyama, and Mwanchnmwa, Siavonga District.
as responsible for the changed weather patterns being experienced. In some places, deforestation was exacerbated by charcoal burning, and the re-emergence of shifting, slash and burn cultivation (Milimo 1995a:33). In other areas, in contrast, the inhabitants of forest areas, such as elephants and monkeys, were a distressing cause of crop damage.

**Access to land**

Farmers say that they are finding it increasingly difficult to obtain land for cultivation. Ironically, it was in the relatively sparsely populated Northern Province that this concern was voiced most frequently (Milimo 1995a:20). In these areas, a move away from maize growing on semi-permanent plots, and a reversion to the highly extensive *citemene* system of shifting cultivation has led to land scarcity (see also Chapter 5).

Some migrants also reported difficulty in obtaining land. Mbunda-speakers in Senanga district (Western Province), who arrived in the area some fifty years ago and inhabit the uplands, complained that they do not have access to the rich soils of the Zambezi plains farmed by the indigenous Lozi. Migrants in Sinazongwe District (Southern Province), who had come to the area primarily for fishing, felt similarly disadvantaged. In other areas, farmers had migrated from land-poor areas such as Southern Province expressly in order to gain title to land. This was the case in much of Central Province.  

Women generally have access to land only through their husbands, though they rarely identified this as a constraint to investigators.

In spite of the growing perception of land scarcity, titling was not considered by villagers as a solution to land shortage. Land titling was seen as something for the rich and politically well-connected, most expressing preference for the traditional system of tenure through which rights of long-term occupancy and use are allocated to families by chiefs (Njobvu and Tembo 1996b:30).

**Access to labor**

The marked seasonality of agricultural labor requirements has already been noted. The peak period of labor demand also coincides with the season when food stocks are lowest, and the incidence of malaria highest, both of which circumstances further reduce the availability and energy of labor (Milimo 1995a:28). This is also the time when, with health and education expenditures at their peak, money is at its most scarce (Norton, Owen and Milimo 1994).

The lack of male labor for clearing and tree cutting, together with their unfavorable dependency ratios, makes female-headed households particularly vulnerable to labor shortages. Polygamous households tend to be better situated with regard to labor supply.

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5 In Chankomo (Kapiri Mposhi District) and Nangoma (Mumbwa District), as well as Serenje District (Milimo 1995a).
Lack of appropriate skills
Some farmers considered that they had insufficient knowledge of husbandry methods. Areas cited included: planting methods and timing; the application of correct dosages of fertilizers; the application of pesticides; cultivation of drought resistant crops; cultivation on sloping terrain and terrace making, using animals as draft power; book keeping; processing sunflower and soybeans; and storage techniques (Milimo 1995a:34-6).

Draft power
Lack of access to animal draft was identified as a constraint in Luangwa valley and Luapula province, as well as by farmers in Southern Province who have lost their animals through corridor disease. In Monze, at least, this has resulted in a reduction in areas cultivated. Farmers in Mpika, Chinsali and Serenje also expressed the need for draft oxen, though these are not areas where animals have been traditionally used for draft (Milimo 1995a:20). Given their very limited ownership of animals and equipment (noted above), lack of draft power particularly affected female-headed households. Draft equipment (ploughs, etc.) was said to be hard to find in some areas (e.g. Lundazi, Eastern Province).

Livestock disease
Livestock disease was ranked as the greatest problem facing farmers in some communities. The most frequently cited diseases were corridor disease and East Coast fever in Southern and Eastern Provinces respectively, and black quarter in North-western province. Anthrax, heart-water, and anaplasmosis were also noted. Cattle numbers had suffered serious decline, the proportion of households owning cattle falling from 15 percent in the 1990/91 season to 9 percent in 1993/94 and 7 percent in 1994/95. The proportion owning oxen fell from 7 percent to 3 percent over the same period (Post-harvest surveys, Zambia Central Statistical Office).

The increased burden of disease was linked to declining veterinary services and availability of drugs, especially in remote areas. A causal diagram elicited from farmers in Simanansa, and reproduced as Figure 4, shows how livestock losses underlie a complex of social, as well as economic problems. As a result of mortalities or emergency sales, households become unable to meet social obligations such as making marriage payments or holding initiation ceremonies. Cattle are also the customary currency for traditional judicial payments and sanctions, as well as a means of transporting both goods and people (as in the diagram, for example, for taking the sick to hospital). Livestock losses can thus seriously disrupt the social fabric. As well as disease, the theft of cattle was a growing problem, cited especially in Monze and Mumbwa districts (Milimo 1995a:18-20).
Figure 4: Causal diagram depicting effects of livestock losses, Simanansa, Southern Province
Chapter 4

FARMERS' PERCEPTIONS OF AGRICULTURAL SERVICES

Policy context
The present Government of Zambia has introduced many far-reaching policy changes since its inception in 1991. However, perhaps none of these have had such visibility and impact for its citizens as those affecting agricultural markets. The last few years, which have seen the retreat of government from the purchasing and provision of agricultural produce, inputs and credit (or at least from direct involvement in these spheres), have utterly changed the institutional and financial landscape facing producers, both large and small. It has been a time of opportunity, but also, for some at least, one of confusion and despondency.

In the area of rural credit, the public and de facto public sector institutions which constituted the agricultural credit system between 1987 and 1994 — namely Lima Bank, the Zambia Cooperative Federation—Finance Services (ZCF-FS) and the Credit Union and Savings Association of Zambia (CUSA) — have all collapsed. Due to a combination of drought, fertilizer shortages, poor delivery mechanisms, and the liberalization of crop marketing, by 1993/94, the recovery rates of these agencies had deteriorated to 9 percent, 10 percent and 23 percent respectively. By the following season, the government stopped supporting all three institutions (ZLLL 1997:40-58).

The Agricultural Credit Management Program (ACMP), piloted in 1994, sought to fill the resulting gap in the rural finance market by facilitating the involvement of the private sector in credit provision. Under this program, Credit Managers, selected by MAFF and provided with inputs (mainly fertilizer) in kind, distribute to Credit Coordinators, or stockists. Some 40 billion (1 billion equals 1,000 million) Kwacha (K) was distributed in this way through the two Credit Managers operating in the seasons 1994/95 and 1995/96. However, the ACMP has experienced very low rates of loan recovery (approximately 4 percent), attributed to late delivery of inputs, lack of sound credit policy, conflicting political announcements, and drought. Further, as far as private sector participation is concerned, credit managers and coordinators have merely acted merely as conduits for government funds, rather than mobilizing private capital (ZLLL 1997).

The agricultural marketing system, too, has radically changed. Between national independence and the early 1990s, maize marketing had been the responsibility of government-supported marketing organizations (NAMBOARD, the Zambia Cooperative...
Federation, and Provincial and district Cooperative Unions). Through them was administered a program of uniform pricing (i.e. irrespective of location of season), which promoted the provision of subsidized maize meal to urban consumers. By the 1980s, maize subsidies accounted for perhaps 10 percent of all government expenditure (ZLLL 1997).

Immediately after the change in government in 1991, the Ministry of Cooperatives was abolished, and the liberalization of agricultural markets became the declared policy of MAFF. Government marketing interventions have since been minimal, and the removal of subsidies and floor prices maintained. It is estimated that the private sector purchased some 500,000 MT of local maize to the value of $120 million in the 1994/95 season, and that it now handles some 80 percent of maize sales (the balance going to local households, NGOs, input dealers, cooperatives, etc.). In 1994, the government made some K5 billion available to the private sector for maize marketing through an Agricultural Marketing Revolving Fund. However, this fund, equivalent to some 2 percent of purchases, failed to revolve or to draw in funds from the private sector (ZLLL 1997:68, 74).

Rural finance

Farmers identified, during the participatory assessments, a complex of linked problems related to the lack of capital, and of access to markets for credit, inputs, and produce. They complained that they were often unable to purchase inputs because of late payment for the previous season’s crops, while the established lending institutions had stopped giving loans (Milimo 1995a:38-39, 1995b).

Such credit as was available, farmers considered to be granted at overly high interest rates. The terms of loans were also said to be inflexible: the repayment schedule did not accommodate emergencies, and was unduly oriented to maize to the exclusion of other crops and livestock. Farmers in Senanga and Monze needed credit to replace the cattle on which they relied for draft. In Kabwe and Kapiri Mposhi, farmers would have also have preferred to be able to use the credit which was on offer only for implements and scotch carts, to buy draft animals (Milimo 1995a:40-2, 19).

Farmers also complained of the difficulty of raising the commitment fee required to secure a loan (normally 10 percent of the loan being requested), even when they might be owed for the previous year’s crop by the same agent. The application procedures for loans were felt to be long and cumbersome, requiring several trips to the district headquarters. Few farmers had title to land which could be used as collateral (Milimo 1995a:39; Milimo and others 1995b:41). Some had been defrauded by unscrupulous agents (Box 1).

The scarcity of formal credit had led to the evolution of a variety of contract farming arrangements. In one case in North-western Province in 1996, a business man from Chingola on the Copperbelt was advancing maize seed, basal fertilizer and top dressing in exchange for maize. Two 90 kg bags of maize had to be repaid for each 50 kg bag of
fertilizer, and one for each 10 kg bag of seed. Similar arrangements were found in Southern and North-western Province, although the terms of trade varied from place to place. In some areas, the relationship was exploitative. One farmer in Lobufu apparently paid sixty bags of maize for only four bags of fertilizer (Njobvu and Tembo 1996b:24).

Although farmers did not identify this as a specific problem, there is a history of low repayment for agricultural credit in Zambia.

**Box 1: Credit and enforcement in Lundazi District**

‘Dinga-Dinga is a familiar name in villages in Lundazi District (Eastern Province). Mr. Dinga-Dinga has told farmers in the surrounding villages that he is a credit coordinator for Lundazi District and that he can provide inputs on credit if they register with him at K60,000 per farmer. All the farmers in Gwaza Pansi Village and its neighborhood registered with him in 1994. Since that year the farmers have never seen Mr. Dinga-Dinga. He has gone with their money and will never return to this village.

‘The assessment team learnt from both farmers and private traders that enforcing credit obligations and commitments has been difficult. Farmers are avoiding selling to credit coordinators, preferring to sell to those offering higher prices. Farmers in Gwaza Pansi village in Lundazi District have defaulted because of late supply of inputs, low commodity prices and wrong type of inputs. They sold their crops to those who never financed the crop. The private sector is also encouraging this practice. In 1994, LINTCO lost much of its cotton to Sable and Foodya Investment, who offered just K50 above the LINTCO price. While farmers where blaming all their problems on the private traders, traders on the other hand blamed farmers for the high default rates.’

*Source: Extract from research report, Lundazi District, 1995 SCC study by IESSR.*

**Input supply**

Farmers complained of the high costs and limited availability of fertilizers, especially outside provincial and district centers, from which transportation costs were high. The perception was frequently voiced that deregulation had allowed input costs to rise without affecting the prices which farmers received for their crops. Although private traders, companies and NGOs had entered the terrain left by the defunct cooperative marketing boards, there remained a shortage of agents, and inputs were frequently delivered too late to be of use to farmers. In at least one case, farmers said they were sold the wrong seeds. The Programme Against Malnutrition (PAM) was distributing maize, sorghum, cowpeas and groundnut seed in all sample areas. NGOs were also active in seed distribution at some sites (Milimo 1995a:40, 48-9; Milimo and others 1995b:32, 21, 24).
Agricultural marketing

Many farmers stated that selling their produce was their main problem. As in the case of input supply, there was a shortage of dealers, and the prices offered were felt to be very low compared with the price demanded for fertilizer. Farmers' attitudes to traders were characterized by considerable suspicion and distrust, fed by experiences of late purchases and later payments, and of fraud by purchasers who left the district without paying farmers for the produce which they had collected, or who passed off void checks. The cost and difficulty of transporting produce to market (especially where draft oxen had been decimated by disease) was also mentioned, as well as the high cost of grain bags. The lack of markets had in some cases lead to a reversion to bartering. On-farm storage was typically seen as insufficient, and farmers also felt they lacked adequate market information (Njobvu, Tembo and Kabongo 1996a:31). Box 2 below shows how some of these constraints were manifested in a community in North-western Province.

Box 2: Agricultural marketing in Mujimanzovu, North-Western Province

'The crops produce in Mujimanzovu include local maize, sesame, cabbages, sorghum, millet, beans and sweet potatoes. Most of these are sold locally, apart from maize and cabbages which one of the farmers sells to Solwezi Technical Secondary School and Solwezi District Hospital 105 kilometers away. He hires trucks to transport his produce. Other crops are sold locally. Sorghum is given away in exchange for labor between November and January, and when some farmers with relatively smaller portions of cultivated land run out of stock, they work for food.

'However, the small scale farmers in Mujimanzovu do not usually sell their produce at the market. In the case of sesame, the local people were encouraged to grow it by an NGO, ZAMS, who promised to buy the output. But ZAMS has not been back. Otherwise sesame and other crops have had no market generally. Other reasons for farmers not selling their produce were: low yields, little profit realized, similar crop base in the area, lack of labor due to illnesses and deaths within the family, poor condition of the road, and lack of transport even when [a surplus] was available.'

Source: Extract from Kabongo and others. 1995.

Despite these negative views, some farmers stated that they were being paid promptly, and appreciated the opportunities of a year-round market, enabling them (if they had storage capacity), to sell when they wished and take advantage of seasonal price fluctuations. Maize purchasing services seems to have improved during 1995 along the major rail and roadways, although not in remote parts of the country. Markets were also operating effectively for other crops in addition to maize: for example, private traders from the Copperbelt travel all the way to Luapula to buy groundnuts. The market information services provided by the Kabwe Smallholder Development Project in Kabwe and Kapiri Mposhi were well appreciated by farmers. In general, however, farmers felt that the transition to free markets for agricultural inputs and produce was being implemented too quickly for them to be able to adjust (Milimo 1995a:5, 54; 1995b:26; Njobvu, Tembo and Kabongo 1996a:xii; Njobvu and Tembo 1996b:21,23; PAG 1996).
**Infrastructure**
The absence, or poor state of repair, of infrastructure, especially of feeder roads and bridges, was a widespread complaint (e.g. Njobvu, Tembo and Kabongo 1996a:xi, 13; Njobvu and Tembo 1996b:9). While community members appeared willing to contribute to the construction of facilities such as health centers and primary schools, they seemed to regard road maintenance as a government responsibility. As one woman in Mbala put it:

> Why should we make and repair feeder roads? We do not use these roads. Those who use them should come and repair them. We do not want to be used for nothing. If they do not want to repair the roads, it is them who will suffer because they will find it hard to come and buy food from us. If they do not come, hunger will one day make them come' (quoted in Njobvu, Tembo and Kabongo 1996b:27).

**Effectiveness of agricultural extension**
The government agricultural extension system is focused mainly on small farmers. Under the Modified Training and Visit (MT&V) system, which involves regular field meetings with organized farmer groups, key seasonal messages are disseminated through a system of 9 provincial offices, 64 district offices, 327 block offices and 1,591 camp offices (ZLLL 1997:85). As one of the few government services that reaches village level, the extension branch has unique potential for affecting the incomes and welfare of resource-poor and women farmers.

However, farmers expressed very unfavorable views of the agricultural extension services which they received. According to the participatory poverty assessment, ‘villagers viewed agricultural services as basically non-existent’ (Milimo 1995a:43-5). Extension agents were said never to visit, or to exhibit favoritism in their patterns of work. The youth and inexperience of many extension workers added to an impression that their knowledge was theoretical and derived only from books. Others thought their messages repetitive, focused too much on maize cultivation to the exclusion of other cash and subsistence crops, and felt meetings to be unnecessarily frequent. Women farmers said that they didn’t feel male extension workers communicated effectively with them. This was reflected in their attendance at meetings, which was generally lower than that of men.

Farmers’ assessments of the relevance and effectiveness of extension was apparent from their lack of enthusiasm for extension meetings, which were often poorly attended. For example, only half of the farmers’ groups established in the camp visited in Kaputa were active (Njobvu and Tembo 1996b:32).

Farmers’ perceptions of the significance of agricultural extension services was elicited through institutional diagramming techniques. Figure 5 was drawn by women farmers in Manondo, Jumbe. The perceived importance of various institutions in people’s lives is represented by the size of the circle drawn and its distance from the large circle representing the community. Compared to the church, the headman, the hospital, the district council and the school, an NGO, and LINTCO (the cotton marketing
Figure 5: Institutional diagram drawn by women in Manondo, Eastern Province
Source: Milimo, 1995a:56.
organization) the Department of Agriculture was represented as a mere speck on the perimeter (Milimo 1995a:55).

Evidence from adoption rate surveys of farmers in ten districts, undertaken by the Department of Agriculture itself, supports this view of the limited effectiveness of extension services (GRZ 1994). These surveys show an apparent bias against farmers with no formal education, and those farming less than one hectare. Farmers with more than ten hectares were over-represented in the membership of Village Extension Groups. There was no evidence of a consistent bias against female-headed households. While in all but one district, farmers had adopted new farming practices in the last three years, higher rates of adoption among extension group members than non-members were only apparent in five districts (statistical significance is not given, but in two of these, the difference was less than 5 percent). Three districts actually showed lower rates of adoption by members than among non-members.6

There were exceptions to the generally unfavorable views which farmers held of extension. In Kabwe Rural and Kapiri Mposhi Districts, a group approach to extension being promoted under the Kabwe Smallholder Development Project was proving very popular. Under this system, groups of about 25 farmers, meet, discuss, obtain advice, and are able to transmit their problems upwards to the extension and research system (Milimo 1995a:44).

Village extension groups were also popular with farmers in the three districts of Luapula Province supported by the Smallholder Services Rehabilitation Project (SSRP). Their success was linked by farmers to support for dry season farming and the Small Plot Adoption Technique — mini-demonstration plots introduced by the project (Milimo 1995b:49-50).

The 1995 field report on southern province notes tellingly that ‘both extension messages and workers were appreciated by farmers, despite several constraint which affected the farmers’ production and productivity’. However, the report then goes on to note tellingly that ‘farmers understood that most factors affecting their productivity were outside the domain of such workers’ (Tembo and others 1995). Farmers thus feel that even and effective extension service can have limited impact, when constraints other than those of technical knowledge — poor infrastructure and the non-availability of seeds, fertilizers, and markets — are the most binding.

6Some caution should be exercised in interpreting these data, given the reservations about ‘disappointing’ sampling and supervision of the survey expressed in the introduction to the paper: ‘Supervision appeared to be generally lax with many inconsistencies in the data, and the impression in some districts was that certain data had been fabricated’ (GRZ 1994:1). It is unlikely that these errors were in the direction of underestimating the impact of extension services. In general, these conclusions confirm the findings of earlier work (e.g. Francis and Rawlins-Branan 1987).
The shortcomings in extension identified by the farmers were attributed by district extension staff to a number of administrative and organizational weaknesses in the service. These included: shortages of staff, means of transport, operating funds and equipment (Njobvu, Tembo and Kabongo 1996a:27-30).

- **Staff shortages:** in one district, for example, almost one-third of the agricultural camps were not staffed. The figure for Eastern Province as a whole was 16 percent.

- **Transport:** the bicycles supplied were not considered robust enough to cover the large distances necessary to reach farmers (in some cases up to 30 km, though 15 km is the recommended radius). A preference was expressed for motor cycles.

- **Lack of operating funds and equipment:** including subsistence allowances, protective clothing, camping equipment.

- **Weak research-extension linkages:** staff perceived research stations to be oriented to national programs rather than local needs, and noted a lack of resources for joint activities.

Field staff felt that they were not involved in the planning of field activities, in spite of their knowledge of local conditions. Combined with what they perceived to be low salaries, poor housing conditions, and poor prospects of promotion, district staff felt neglected, and morale was low. The intended number of visits to farmers (thirty-two visits to sixteen groups per month) was not taking place. Staff requested closer supervision and training.

**Veterinary Services**

Under the ASIP Animal Production and Health sub-program, a new Department of Animal Production and Health (DAPH) will have responsibility for the control of livestock diseases of national economic importance, while the provision of all other veterinary services will be at full cost to the livestock owner.

According to farmers, there had been a drastic decline in veterinary services during the 1990s, resulting in higher animal morbidity and mortality, and declining cattle numbers. With the introduction of the policy of commercialization for veterinary services in 1993, free acaricides are no longer distributed by the government, and although most farmers expressed willingness to purchase veterinary drugs, these were for the most part unavailable to them without their traveling the long distances. Of 136 farmers interviewed in the 1996 participatory assessment, 121 (89 percent) said they needed veterinary services, and 91 percent were willing to pay for these. However, many farmers felt that the cost of drugs was too high, and in particular thought the consultation fees now charged by staff to be unjustified (Njobvu and Tembo 1995b:34-7). Farmers were also unhappy about having to pay veterinary assistants for vaccinations. Services were largely centrally based at district headquarters: most veterinary camps were not staffed (for example, eight of ten camps in Gwembe were unmanned) and District Veterinary Officers lacked transportation to get outside the district headquarters. In the absence of drugs, farmers felt that Livestock Assistants had little to offer them. Farmers were not
receiving training on animal husbandry. Dip tanks were frequently out of commission: for example, none of the eighteen in Lundazi district were functioning (Njobvu, Tembo and Kabongo1996a:30). Drugs had often expired, and there was a lack of refrigeration for vaccines.

Decentralized planning
One of the ways in which MAFF has sought to improve services to farmers under ASIP is through the decentralization of planning to the district level. The second ASIP participatory assessment focused on early experience with decentralization (Njobvu abd Tembo 1996b). As a cornerstone of this process, District Agricultural Committees (DACs) have been formed with wide representation from the farming community, NGOs, traditional leaders, and other stakeholders. Provincial and district staff were required to prepare their work programs and budgets for the first time in 1996, and the beneficiary assessment of that year evaluated the experience. In general, district staff felt that they had not been well prepared for the process, and that little supervision was provided from headquarters, with no budgetary ceilings provided. Staff noted large disparities in funding between sub-programs within and between districts. Further, the Financial Management Unit staff at district level were not considered well qualified or competent to handle the work.

District staff and farmers complained of a lack of information about ASIP, the restructuring of the ministry, and the role and functioning of the DACs, as well as of a lack of coordination with other stakeholders and agencies (especially the District Development Coordination Committee and its Agricultural Sub-committee). Restructuring was seen as favoring agricultural extension above other sub-programs, and the release of funds was frequently delayed or curtailed.

Private sector extension
Another response to the changing policy environment in the agriculture sector has been the establishment of private extension systems. A brief study by IAS (1995) compares the Lonrho cotton extension system with the district extension service in Mumbwa District (Central Province).

The Lonrho scheme covered some 4,350 farmers in 1994/95, most growing between 1 and 2 hectares of cotton. Many farmers had increased cotton acreage in recent years, because it was the only crop for which credit was available.

Table 4 summarizes the Lonrho extension system and that the public extension service differences between the two systems. The private service remunerates workers on a target system, with bonus related to output, and is focused on a single crop. It also provides a integrated extension package, including chemicals, seed and a market. This system allocates a relatively small number of farmers to each extension agent, who has a smaller radius of operation and reliable means of transport. Field staff at Lonrho are selected from within their areas of operation. Overall, while costs per farmer are higher, the cost-benefit ration may well justify them.
<table>
<thead>
<tr>
<th>T and V Element</th>
<th>MAFF</th>
<th>Lonhro</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Area coverage</strong></td>
<td>staff member may be responsible for up to 20-25 km radius which is often not covered due to transport problems</td>
<td>staff cover up 10-15 km radius</td>
</tr>
<tr>
<td><strong>Organization and supervision structure</strong></td>
<td>1. provincial agricultural officer 2. provincial Subject Matter Specialists 3. district subject matter specialists 4. block supervisors 5. field extension or camp officers 6. contact groups or village level extension groups</td>
<td>1. agricultural manager 2. project extension coordinator 3. zone extension coordinator 4. center extension coordinator 5. sub-center extension supervisor 6. operational groups</td>
</tr>
<tr>
<td><strong>Farmer/extension ratio</strong></td>
<td>600-700</td>
<td>120-160</td>
</tr>
<tr>
<td><strong>Field extension worker/supervisor ratio</strong></td>
<td>20-30</td>
<td>4</td>
</tr>
<tr>
<td><strong>Training</strong></td>
<td>1. irregular, due to inadequate materials for training 2. at separate fora for different categories of extension staff</td>
<td>1. training fortnightly 2. all extension staff, including extension manager, and coordinators at all levels receive the training together</td>
</tr>
<tr>
<td><strong>Visits</strong></td>
<td>irregular due to inadequate transport and fuel required for field work and supervision</td>
<td>regular due to adequate transport and fuel for field work and supervision</td>
</tr>
<tr>
<td><strong>Information coverage</strong></td>
<td>broad range of activities affecting farm households, including food and cash crops</td>
<td>covers only cotton production. However, staff do give advice where required by farmers and if information is available</td>
</tr>
<tr>
<td><strong>Credit facilities</strong></td>
<td>system does not provide credit</td>
<td>credit is provided for cotton chemicals; planting material is also provided</td>
</tr>
<tr>
<td><strong>Marketing</strong></td>
<td>farmer makes own arrangement and extension service does not provide much information</td>
<td>the company buys up all cotton</td>
</tr>
<tr>
<td><strong>Incentives</strong></td>
<td>paid work related allowance if one sleeps outside work station, but often allowances are not available</td>
<td>paid a bonus related to tonnage of cotton delivered</td>
</tr>
<tr>
<td><strong>Contact with research</strong></td>
<td>supposed to be very regular</td>
<td>some very limited interaction with research staff, and knowledge about other crops not regularly forthcoming</td>
</tr>
</tbody>
</table>

*Source: Adapted from IAS (1995).*
Farmers’ recommendations for improving agricultural services

Farmers had many suggestions as to how services might be improved. In Sinazongwe and Zimba (Southern Province), for example, they advocated: the involvement of extension staff in produce marketing and input supply; more coordination between government agencies involved in agriculture; the re-establishment of quasi-government marketing agents to compete with private buyers; and government assistance in the provision of irrigation infrastructure (Tembo and others 1995). Box 3 reproduces a set of recommendations proposed by farmers in Eastern Province.

**Box 3: Farmers’ suggestions for improving agricultural services in Eastern Province**

The following suggestions were made by farmers in Lundazi and Chama Districts in eastern Zambia:

- **Agricultural Marketing:**
  - restoration of the old marketing system
  - improvement and rehabilitation of feeder roads and bridges
  - establishment of input shops in rural areas
  - establishment of floor prices

- **Agricultural Credit:**
  - abolition of the 20 percent upfront ledger fee

- **Agricultural Extension:**
  - reduce number of visits in the rainy season from 2 to 1.

*Source: Njobvu and others 1995:27.*

Many of these recommendations appear to reflect a yearning for the bygone era of interventionist policy, and, more generally, a tendency to look to the state as patron. Others proposals, however, appear to accept the inevitability of new marketing and finance policies, but seek more range and flexibility within them. Such suggestions include appeals for more flexible credit policies (supporting a wider range of crops and with adaptable schedules); more research and extension support for traditional crops, (e.g. for growing millet in permanent plots); and the promotion of group extension methods.
Chapter 5

COPING STRATEGIES

The poor weather and unreliable services which have characterized the period of transition led to declining production and a retreat (voluntary or involuntary) from the market. There is evidence that, with the return of good rainfall, there has been some revival in the agricultural economy. According to recent official statistics, area cultivated, income derived from agriculture, and diversification have all increased, and rural poverty has declined from its 1993 high, when the headcount of extreme rural poverty had increased to as much as 80 percent in some provinces (Deininger and others 1997). However, this sanguine view is not shared by rural households themselves, fully one half of which believed their standards of living to have deteriorated over the last five years, compared to the 25 percent who considered that they have improved. The perception of declining welfare was particularly high amongst female-headed households (61 percent) and in Western Province (64 percent) (unpublished LSMS data for 1996).

Farmers have responded to the crisis of transition with strategies of adaptation, diversification, and sheer survival. These strategies have entailed changes in patterns of production, of consumption, and of exchange. Some examples are considered below. Table 5, based on the Living Conditions Monitoring Survey, provides a quantitative indication of the frequency of these coping strategies.
Table 5: Coping strategies: rural households

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Percent mentioning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reducing food intake/ meals</td>
<td>67</td>
</tr>
<tr>
<td>Substituting ordinary meals with, e.g. Mango</td>
<td>54</td>
</tr>
<tr>
<td>Reducing other household items</td>
<td>51</td>
</tr>
<tr>
<td>Piecwork on other farms</td>
<td>40</td>
</tr>
<tr>
<td>Food for work</td>
<td>39</td>
</tr>
<tr>
<td>Begging from friends</td>
<td>34</td>
</tr>
<tr>
<td>Other piecework</td>
<td>25</td>
</tr>
<tr>
<td>Substitution of wild food</td>
<td>19</td>
</tr>
<tr>
<td>Informal borrowing</td>
<td>16</td>
</tr>
<tr>
<td>Sale of assets</td>
<td>12</td>
</tr>
<tr>
<td>Relief food</td>
<td>11</td>
</tr>
<tr>
<td>Petty vending</td>
<td>9</td>
</tr>
<tr>
<td>Taking children out of school</td>
<td>5</td>
</tr>
</tbody>
</table>

Source: unpublished LSMS data for 1996.

Changing farming practices

Reversion to subsistence crops/cropping systems
The rising costs of fertilizers and the breakdown in maize marketing arrangements has led to a shift back to traditional crops such as millet, cassava, beans and sorghum, grown without purchased inputs. More use was also being made of recycled seed (Tembo and others 1995:26). In North-western Province, farmers were growing sweet potatoes for the Lusaka market, others were producing beans for the Copperbelt.

Reversion to traditional subsistence crops was associated, especially in the north, with a return to traditional, shifting, agricultural systems. Some farmers were abandoning the densely settled areas along main roads to settle in the hinterland where more land was available for these extensive cultivation methods (e.g. Mpika, Luwinga, Nchelenge and Samfya Districts – Milimo 1995a:40,49; Milimo and others 1995b:2, 15).

In cattle-keeping areas, farmers were relying more on cattle manure to maintain soil fertility. The cultivation of maize and other crops (such as dry season vegetables, cassava, and local maize in Luapula) in *dambos* (river margins) was becoming more common (e.g. in Luapula: Milimo and others 1995b:19). Livestock owners also said that they had reverted to the use of traditional medicines to cure animals (Njobvu and Tembo 1996b).

Farmers also report working longer hours in an attempt to compensate for declines in relative prices by investing more of their own labor (Kabongo and others 1995:50).
**Drought-resistant crops**
Farmers in drier areas (for example in Jumbe, Southern Province) were increasingly turning to cotton. Cassava was also becoming more widely planted in southern parts of the country. In addition to the drought-resistance of cotton, farmers found the supply of inputs from cotton marketing agencies to be more reliable than those for maize (Milimo 1995a:16).

**Non-farm activities**
Hunting and fishing were becoming more important sources of income in some areas (Njobvu and Tembo 1996b:13). In others, however, such as around lakes Mweru and Banguelu in Luapula Province, the depletion of fish stocks has meant an increased reliance on agriculture. Beer brewing was now more often seen as a commercial activity, rather than, as it had been in the past, a largely social and recreational pursuit (e.g. Milimo and others 1995b on Luapula).

Rural-urban migration in search of employment in urban areas is no longer a coping strategy: less than 3 percent of households report that household members had left in search of employment for three months or more. There is, indeed, evidence of reverse migration to rural areas from town (unpublished LSMS data for 1996).

**Patterns of exchange**
Many farmers had been forced to sell livestock to meet the costs of inputs and consumption (a practice contrary to custom in the south). Where draft animals had to be sold, the result is a cycle of declining agricultural productivity. Others had resorted to bartering to obtain their needs, or have to rely more on casual labor on the farms of their better-off neighbors (e.g. Milimo 1995a:53 on Monze). Petty trading and baking were other alternative income-generating activities noted.

**Patterns of consumption**
Other ways of coping with shortfalls in subsistence include attenuating consumption by reducing the number of meals eaten per day, and the relying on fruits, vegetables, nuts and other produce collected from the wild (such as consuming the wild grass, punga, or making cooking oil from the mungongo nut).
Chapter 6

CONCLUSIONS AND IMPLICATIONS

Findings
Radical changes in agricultural policy during the 1990s, especially as regards input supply, credit, and crop marketing, combined with unfavorable climatic conditions, have provoked a crisis for small-scale farmers in Zambia. At the community level, the nature and severity of the crisis has varied according, in particular, to agro-ecological zone and the accessibility of markets.

Farmers voiced a range of concerns stemming from this crisis, some familiar, some new. Constraints enumerated relating to resource endowments included: climatic factors, natural resource degradation, access to land, access to labor, lack of technical skills, livestock disease, and lack of animal draft.

The consultations also examined local perceptions of the efficacy of agricultural infrastructure and services, including credit, input supply, agricultural marketing and extension. Emerging private marketing and credit institutions were found to provide uneven and unpredictable services. Their operation was felt by farmers to be impeded by a combination of factors, including: limited private sector capacity; inadequate geographical coverage; low levels of familiarity, trust and confidence; and a lack of enforcement mechanisms and sanctions (e.g. for credit and payments for produce). At the same time, traditional public services such as extension were not seen as responding to farmers' felt needs, and suffered from staff shortages, lack of transportation, operating funds and equipment. The consequence of the declining quality and relevance of agricultural services has been disillusionment on the part of farmers and a demoralized public service.

Farmers have developed a range of coping strategies in response to these circumstances, including the diversification of cash crops and reversion to traditional crops and farming systems, as well as looking to non-farm sources of income and subsistence, reducing consumption, and running down their assets.

While good rains appear to have brought recovery from the low levels of income and productivity experienced in the early period of liberalization, the extent to which recovering averages mask growing regional and social inequality is not yet clear. Provisional figures suggest such regressive distributional implications, and the fact that
the perception of declining living conditions is highest among female-headed households and in Western Province suggests that those who are socially or geographically marginal may well be losers in the new scheme of things.

Policy implications
Farmers had suggestions for improving the quality and relevance of agricultural services. Amongst the most frequent was the plea for the provision of infrastructure. In addition, in response to the lacunae in these areas, many felt that the government should resume its role in credit provision, the input distribution and crop marketing. Others, accepting the logic of the new, market oriented, system, were more concerned to see the effective regulation of the private sector, to have more information on markets for agricultural produce, and to have access to more flexible and responsive credit facilities. In the area of agricultural extension and information, farmers expressed a preference for group extension methods, and for advice on subsistence crops and storage methods.

As regards the distributional implications of new agricultural policies, a recent study of progress in the implementation of ASIP notes that 'there is no comprehensive program that specifically addresses the needs of the vulnerable and chronically food insecure households' (ZLLL 1997:105). While part of the response to the situation faced by vulnerable groups will be to protect their consumption through food-for-work programs and the like, the remote and economically vulnerable can also be assisted through building their capacity to participate in agricultural markets. Possible mechanisms include: the promotion of local seed production systems; micro-credit; and research and extension directed at subsistence crops and low-input agriculture. The necessary local organizational basis for participatory extension, and for economically viable joint activities such as marketing, local-level financial services and cattle dipping, would need to be promoted through support to producer associations, service-providing NGOs, and other organizations active at community level.

Methodological implications
This review has exemplified the potential of participatory assessment methods in accessing the views of clients, as well as the scope for beneficiary input into the planning and programming of ASIP. The case for participatory assessment is particularly strong in this instance for two reasons. First, the program, and the rural and agricultural sectors as a whole, are diverse and complex. Participatory and qualitative assessment methods can help to understand the complex of factors involved in rural development a holistic way. Second, broad ownership of ASIP's strategies, and participation by a diverse range of stakeholders, are central to the philosophy and approach of ASIP, and will be key to its success. Participatory research enables the inaccessible and marginal, whose voices are frequently not heard, to have a say in program formulation.

Now that the general terrain of perceptions and constraints has been mapped, future participatory assessment work will need to be focused on specific issues of concern to the
management of the component ASIP sub-programs. Possible themes include rural finance, informal (farmer-to-farmer) seed multiplication system, veterinary drug supply, or participation in RIF programs. These studies will be designed in conjunction with relevant sub-program staff so as to yield answers to key questions about impact, beneficiary perceptions, and possible actions of relevance to management. There is also scope for a more fruitful combination of qualitative and quantitative methods in survey design and analysis in the assessment of performance in the agricultural sector, and in particular to answering questions about the social and distributional impact of changing policies and programs.
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