CHARTING A COURSE TO FOOD SECURITY FOR SOUTHERN PROVINCE

MID-TERM EVALUATION OF THE CARE LIVINGSTONE FOOD SECURITY PROJECT

Associates in Rural Development, Inc.
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ARD-RAISE

CHARTING A COURSE TO FOOD SECURITY FOR SOUTHERN PROVINCE: MID-TERM EVALUATION OF THE CARE LIVINGSTONE FOOD SECURITY PROJECT

by

Andrew Lyons
Anthony Johnson
Godfrey Mwila
Austin Muyaba

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ARD-RAISE Consortium
1601 North Kent St., Suite 800
Arlington, VA 22209
Tel: 703-807-5700, Fax: 703-807-0889
gkerr@arddc.com

The ARD-RAISE Consortium:
Associates in Rural Development, Cargill Technical Services,
Associates for International Resources and Development, CARANA Corporation,
A.P. Gross & Company, International Programs Consortium, Land O' Lakes,
Purdue University, and TechnoServe

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EXECUTIVE SUMMARY

The CARE Livingstone Food Security Project (LFSP) Phase II is currently in its fourth year under a five year financing agreement with USAID. It evolved from a food relief project that was established in response to repeated food shortages in the early 1990s in Zambia's Southern Province. These food shortages were caused primarily by drought, but were compounded by a changing agribusiness environment, long-term climatic shift, and the cumulative loss of production assets for smallholder farmers.

The primary objective for this midterm evaluation is to determine whether USAID investments in LFSP are achieving their desired impact, and explain why or why not. A second objective is to generate ideas on how the impact of USAID investments can be improved, and a final objective is to generate ideas on how LFSP experiences can influence ongoing or future USAID and other institution investments in increasing rural incomes and improving food security.

LFSP currently falls under USAID's Strategic Objective One: "Increasing the rural incomes of selected groups". Over the past four years, the program has made important contributions towards SO1 by increasing agricultural production in beneficiary households through the use of appropriate technologies developed within the project agroecological context. This is quite a notable achievement considering that the service area is in the drought-prone districts of Kazungula, Kolomo, and Livingstone, which have a recent history of food relief.

The overall goal of the project is to improve food security and vulnerability to drought by addressing the underlying causes of food insecurity. The project operates through four self-reinforcing lines of action:

1. building the capacity of community-based organizations (CBOs)
2. developing improved farming system practices
3. expanding the adoption and effectiveness of water harvesting technologies
4. supporting small scale income generation

The evaluation team finds that LFSP has overall made significant progress in achieving its goals in the first three objectives. The development of community-based organizations (CBOs) provided the means to identify the underlying threats to food security and develop interventions which are demand-driven and relevant to beneficiary needs. The strong focus on CBO capacity building has also proven to be an effective way of increasing the efficiency of delivery of services such as seed inputs and extension training, and strengthened the ability of rural people to manage their own development activities so they may gradually become less dependent on LFSP. The benefits of working together in small groups have been solidly demonstrated to both rural farmers and other institutions; this may very well be the most lasting legacy of LFSP.

The introduction of early maturing drought resistant crop varieties may be the intervention which has had the greatest impact on improved food security for the

estimated 26,000 direct beneficiaries and their families. These improved varieties are bulked in a community-based seed multiplication scheme, ensuring sustained supplies of seed stocks. Although yield data is somewhat inconclusive, project monitoring data shows clearly that there is greater food availability in the communities than there was before the project started.

The improved farming practices are complimented by a program to improve water supply. Over 20,000 farmers and their families benefit from the 80 water harvesting structures that have been built or rehabilitated with USAID financing. Although the water harvesting structures have not made much impact on crop production, which remains largely rainfed, they have had a demonstrated positive impact on the health of people. Improved water supply has also benefited the production of livestock and vegetables which are sources of both food and income.

However LFSP has been challenged to demonstrate significant impact in the last objective, income generation. The project has found it difficult to boost production of cash crops and other goods and services to a volume and level of efficiency high enough to compete in the market economy. It was also sidetracked on a savings and credit scheme that was based on an urban model and never achieved success in small scale rural communities. However the project has demonstrated on a limited scale a number of approaches for developing viable group enterprises, and the recent reorientation on strengthening market linkages bodes well for future progress.

The overall strategy of LFSP is to demonstrate how new technologies, community structures, and participatory methods can improve food security and increase rural income, and then hand-over the lessons learned to institutions and investors with greater longevity and resources, such as the private sector, government agencies, and the CBOs themselves. Thus as the project nears the end of the current funding period, its major challenge is to begin to gradually move away from direct facilitation of activities, and develop institutional partnerships or structures that will carry the proven methods beyond the project completion date. The strong focus on action research has made laudable strides in extracting lessons learned from technology demonstrations, however LSFP has had much less success in building the necessary bridges with private sector and government institutions that will be needed to sustain impact. The project acknowledges the need to strengthen partnerships and improve market linkages, but may have to reexamine its current staffing skills and activity focus to prepare for the transition period.

The evaluation team recommends that USAID continue to support LFSP, and encourage the recent programmatic reorientation on developing stronger market linkages, NRM, and livestock health. The people of Kalomo, Kazungula, and Livingstone Districts will continue to benefit from these efforts, and there is great promise that the lessons learned will expand to other sectors and areas of Zambia.

ACKNOWLEDGEMENTS

This mid-term evaluation could not have been possible without the generous assistance of the staff of the LFSP and CARE International. Many thanks go to the project team in Livingstone for putting up with not just one but two consultants on two separate occasions for a total of three weeks of fieldwork. In particular thanks go to Sylvester Kalonge and Robby Mwiinga for generously offering their time to the consultants, and Florence Chawelwa, Agnes Bwalya, and Yvonne Siankweleku for ensuring that the logistics of the evaluation went smoothly. Catherine Pongolani, Fungaloko Patson, Felix Lombe accompanied the consulting team in the field for several days at a time, and provided valuable technical information. Jasper Hatwiinda was invaluable in helping the evaluation team navigate through a mountain of monitoring data, and worked extra hours to enter data from the Community Self-Monitoring ledgers, even while suffering from malaria. Both Sarah Mwale and Alice Whitehead went above and beyond the call of duty by taking a break from their annual leave to plot the location of AMCs and enter CSM data respectively. Fred Sichone put together an excellent budgetary analysis of the project expenses tailored to the evaluation scope of work. Special thanks are also due to the Permanent Secretary of Southern Province, Mr. D.H. Hakayobe for sharing his time.

In the CARE Lusaka office, thanks go in particular to Mark VanderVort and Godrey Miiti, who provided background information and documentation and liased with the Livingstone office to facilitate the evaluation.

Many others who were instrumental in providing information for the evaluation are listed in Annex I. Anything positive that comes out of the evaluation deserves to be shared with the many people who made this report possible. However responsibility for any errors or misrepresentation of the project lies only with the consultants.

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ACRONYMS

ADMADE	Administrative Management Design
ADO	Agricultural Development Office
AMC	Area Management Committee
ASIP	Agricultural Sector Investment Program
CBO	Community Based Organization
CIDA	Canadian International Development Agency
CLUSA	Cooperative League of the USA
CSM	Community Self Monitoring
DACO	District Agriculture Coordinator
DDCC	District Development Coordinating Committee
DFID	Department for International Development (UK)
FEWS	Famine Early Warning System
FPST	Food Production Trends Survey
GART	Golden Valley Agricultural Research Trust
GRZ	Government of the Republic of Zambia
IDE	International Development Enterprises
IGA	Income Generating Activity
LFSP	Livingstone Food Security Project
M&E	Monitoring and Evaluation
MAFF	Ministry of Agriculture Food and Fisheries
MENR	Ministry of the Environment and Natural Resource
MOU	Memorandum of Understanding
NEAP	Natural Environmental Action Plan
NRM	Natural Resources Management
PRA	Participatory Rural Appraisal
RIF	Rural Investment Fund
RGBP	Rural Group Business Program
SC	Sector Coordinator
SCCI	Seed Certification and Control Institute
SEAD	Small Economic Activity Development
SWDRP	South Western Drought Relief and Mitigation Project
T&V	Training and Visit
UNZA	University of Zambia
USAID	United States Agency for International Development
USGS	United States Geological Survey
VMC	Village Management Committee
WASHE	Water Sanitation and Health Education
ZFAP	Zambia Forestry Action Plan

1.0 OBJECTIVE

The primary objective of the CARE/LFSP midterm evaluation is to determine whether USAID investments are achieving their desired impact, and explain why or why not. To guide this assessment, the evaluation examines the performance indicators for LFSP as set out in the 1996 Cooperative Agreement between USAID and CARE International.

A second objective is to generate ideas on how the impact of USAID investments in CARE/LFSP activities can be improved.

A final objective is to generate ideas on how CARE/LFSP experiences can influence ongoing or future USAID and other institution investments in increasing rural incomes, improving food security or managing natural resources.

2.0 METHODOLOGY

The evaluation took place over an eight week period between 2 April and 5 June 2000. For the first five weeks, the evaluation team consisted of three technical specialists in the areas of agronomy, agribusiness and wildlife management, and a fourth consultant brought in to provide technical support and assist in final document preparation. Three USAID projects were evaluated concurrently by the evaluation team, the CARE Livingstone Food Security Project (LFSP), the Zambia Wildlife Authority's Administration Management Design (ADMADE) program, and the Cooperative League of the USA (CLUSA) Rural Group Business Program. One technical specialist was assigned to evaluate each project. In the CARE/LFSP case, the agronomist was initially assigned full evaluation responsibility.

After a preliminary analysis of relevant documents along with general administration activity in Lusaka, the agronomist and a local consultant traveled to Livingstone for approximately two weeks to meet with project staff and beneficiaries. The first week in Livingstone was spent meeting with project staff and visiting several Area Management Committees (AMCs) in Kazungula and Kalomo districts. The AMCs were selected to represent a range of levels of success in project implementation.

Date	AMCs Visited
12-April	Mukuni[1] and Jack[3]
13-April	Delevu[2], Sekute[1], and Makunka[3]
14-April	Sinde A[3], Katapazi[3]
15-April	Mabwa[4], Mweemba[3]
16-April	Shindu[2]
17-April	Kasukwe[4]

Notes: 1 - weak AMC, 2 - average AMC, 3 - good AMC, 4 - new area.

The evaluation team also met with government officials while in Livingstone, including the District Agricultural Officer, Ward Councilors, District Development Coordinating Committee members, and the Permanent Secretary of Southern

Province. During the later half of the second week, the evaluation team sponsored a two-day workshop to solicit stakeholder views of LFSP. Participants at the workshop included farmers, MAFF District personnel, community development personnel, forestry personnel, representatives from the Southern Province Planning Section, and CARE/LFSP staff. (For a complete list of people contacted for the evaluation, see Annex I.)

A rough draft of the LFSP project evaluation was presented in late April to USAID and project stakeholders. Following this presentation, it was agreed that the evaluation did not adequately address the scope of work, and that additional fieldwork and writing was needed. Subsequently a second evaluation team, consisting of an environmental scientist and local agronomist, assumed responsibility for completing the evaluation over an additional three-week period.

The second evaluation team first spent five days in Lusaka reviewing documents and holding meetings with staff from USAID and CARE/Zambia. The team then traveled to Livingstone for an additional five days, meeting with project staff and collecting additional data. This team spent all its time in Livingstone and did not make any additional community visits. One of the activities of this team was assisting the LFSP Monitoring and Evaluation section to set up a database to process and analyze data from the Community Self-Monitoring ledgers. Approximately 235 household records were entered (see 6.1.4 on page 35).

A second draft of the evaluation report was submitted in late May, followed by a second presentation for USAID and CARE stakeholders. Feedback from this presentation was taken into consideration and the final report submitted to USAID on 5 June 2000.

3.0 BACKGROUND

3.1 Prelude to a food security crisis

During the first half of the 1990's, Zambia's Southern Province experienced several of the worst years of drought since independence, resulting in widespread food shortages and relief efforts. Three long-term changes compounded the effects of these droughts, setting the stage for the food crises:

- removal of state marketing and input subsidies, leading to the collapse of an agricultural economy based on hybrid maize
- deterioration of the means of food production for small scale farmers, including depleted seed stocks, and production assets such ploughs and oxen
- a long term trend in reduced rainfall in the region leading to a lower water table and depleted supplies of surface water .

The interaction of these factors left the 1,000,000 people of Southern Province highly vulnerable to food shortages when drought struck in the early 1990s.

3.2 The Physical Environment

The three districts where LSFP operates, Kalomo, Kazungula, and Livingstone, together comprise about 32,000 km^2. In 1996, Kalomo District was divided into Kalomo District to the North and Kazungula District, to the South, with the greater Livingstone area remaining a separate district.

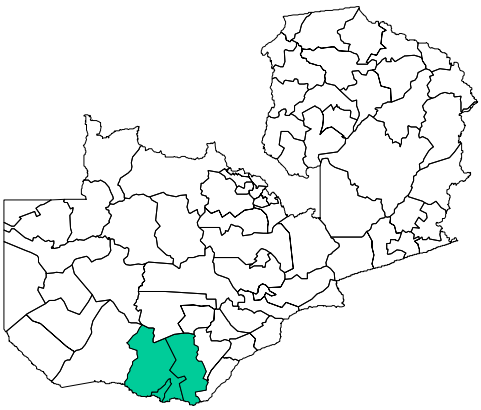


Figure 1. Kazungula, Livingstone, and Kalomo Districts in Southern Province, Zambia
Source: USGS.

Topographically the area can be divided into a broad plateau area and valleys along the major river corridors (see Figure 2).

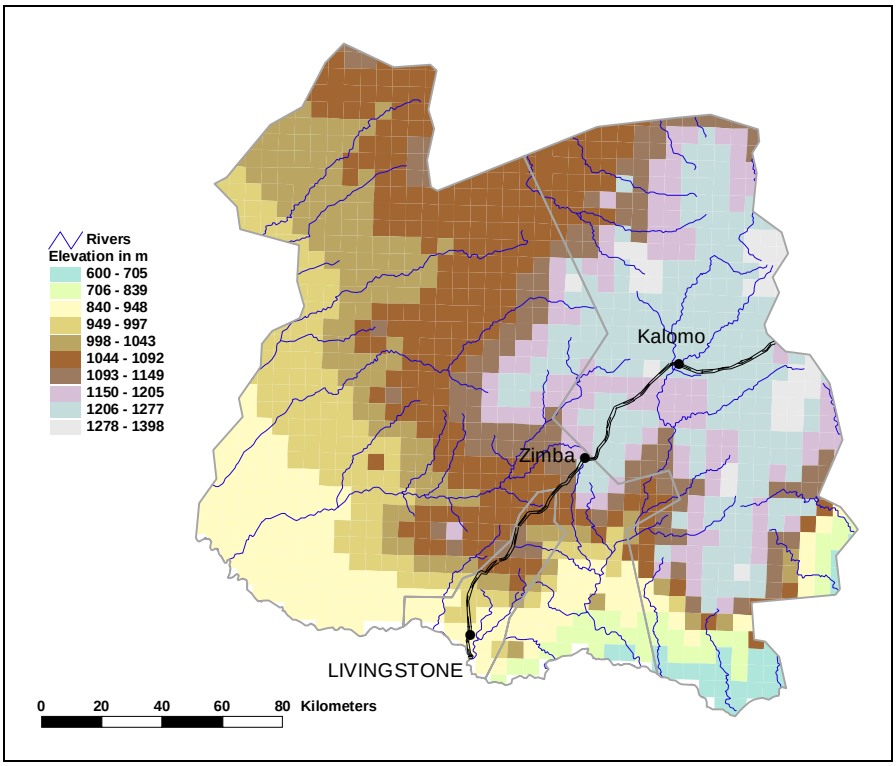


Figure 2. Digital elevation model of Kalomo, Kazungula, and Livingstone Districts.
Source: USGS

Ecologically, the project area cuts across three zones based agroecological zones defined by soils, topography, and rainfall:

- Kalahari – Sandy soils in the southern portion of Kazungula District, with short grass and scattered mopane woodland. Rainfall represented by the Livingstone Meteorological Station. Range during the last ten years from 400-750 mm/annum.

- Plateau – Loamy soils with approximately equal calibration between sand, silt and clay. Mainly found in Kalomo District. Flat, higher altitude (1,300 msl) than the Kalahari zone. Rainfall range during the last ten years estimated between 650-900 mm/annum.

- Escarpment – A smaller area mostly in Livingstone District with better water supply due to higher rainfall and proximity to rivers. This is also a hilly area with slopes of 10-60% inclination common.

Many of the technologies promoted by LFSP are targeted to specific zones based on soil, topographic, and climatic requirements. Impact monitoring results are also stratified by agroecological zone, as each of the AMCs have been placed into one of the categories (see Figure 3).

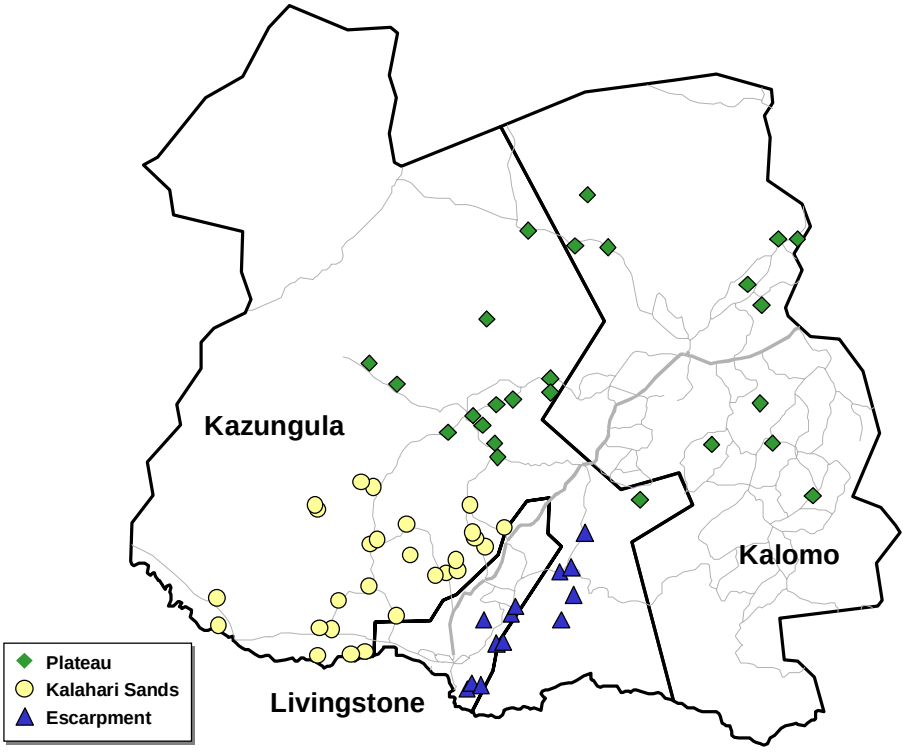


Figure 3. LFSP Area Management Committees grouped by agroecological zone.
Source: LFSP.

3.3 Rainfall

Rainfall in Southern Province has probably always been erratic, but there has been a noticeable long-term downward trend in total rainfall in the last 100 years. This pattern was identified by farmers during a series of PRA exercises held in Kalomo South in 1995, who perceived the rainfall decline accelerated in the 1970s and 80s

(CARE, 1996). The long-term decline has resulted in wells and surface water drying up more rapidly after the rains have ended. The decline in rainfall has been noted in other parts of Zambia as well as Malawi and Zimbabwe, and is verified by meteorological data (see Figure 4). Possible causes for the change in rainfall include a broader regional climatic cycle or effects from deforestation.

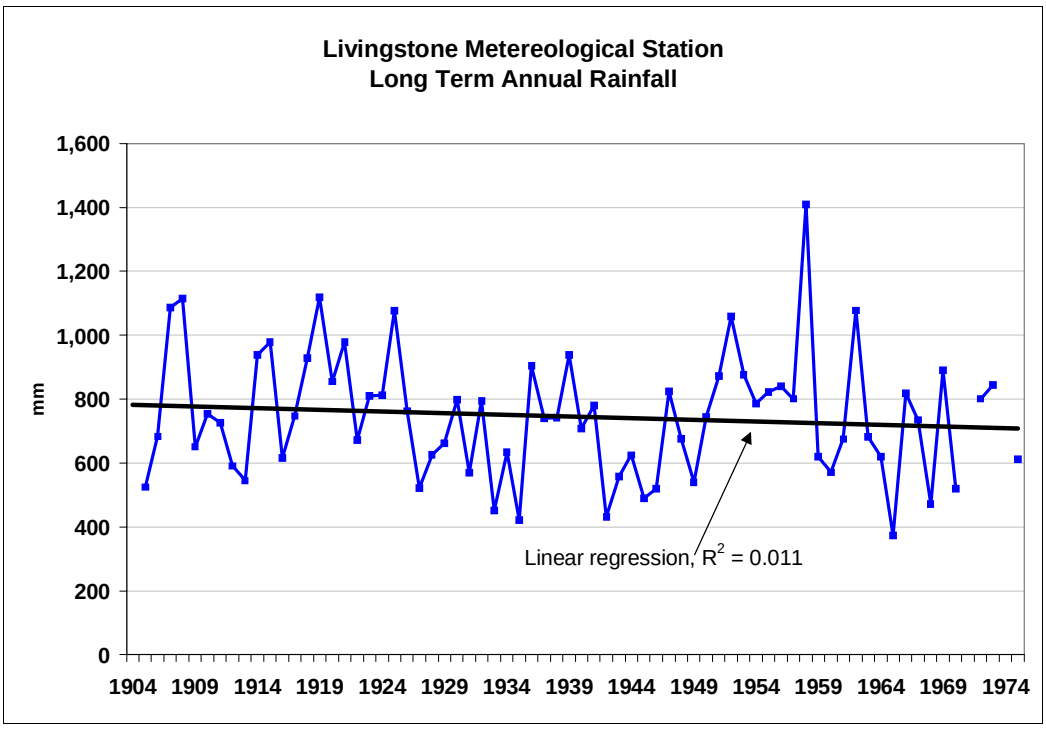


Figure 4. 70 year annual rainfall from Livingstone Meteorological Station.
Source: Nicholson, 1995

3.4 The People

Like much of Zambia, the LFSP area is sparsely populated, with approximately 8.6 people/km^2. In 1995, the rural population of Kalomo District was estimated to be 205,000 inhabitants. It is estimated that the rural population in Southern Province is increasing at a rate of 5% per annum.

The people in the LFSP area are predominantly Tonga speaking. In the southern part of the LFSP area are predominately Toka-Leya, who belong to the Bantu-Botatwe group. In the Kalahari sands, there is a large presence of people of Lozi origin, who came from Western Province. Kalomo West is dominated by the Plateau Tonga with some migrants from the middle Zambezi basin, mainly from Sinazongwe area (Milimo, Kasonde-Ng'andu, Pongolani, Zulu, & Mwanza, 1997).

3.5 Land Tenure

The largest portion of land in the project area is held under the traditional land tenure system, with use and occupancy rights allocated by chiefs. The GRZ Commissioner of Lands cannot allocate any land under customary tenure without first consulting the chief and Local Authority. To convert customary land to

formal leasehold tenure, it is necessary to obtain consent from the chief and it is also subject to the approval of the Commissioner of Lands." According to DACO of Kalomo, "90% of the land in the District is still governed under traditional authority."

3.6 Agriculture

The two districts where LFSP operates are characterized by low population density, with land for farming purposes generally available for all. Livestock, especially cattle, is a major component of the traditional farming system. The Tonga ethnic group will leave the village and move to 'greener pastures' when serious water shortages provide inhospitable conditions for people and livestock.

Figure 5. Demonstration of ripping using draught power in Siamasimbi AMC.
In Tonga-speaking culture, cattle represent both a production asset as well as an indicator of social status. Source: LFSP.

The cropping system practiced is extensive agriculture with main cereal crops being maize, sorghum and pearl millet. Total annual rainfall in some parts of the project area can go below 600mm, conditions generally comparable with the Sahelian zone of West Africa. In these areas, pearl millet and sorghum have a comparative advantage over crops such as maize. Agriculture by small-scale farmers in Southern Province is mostly rainfed, with irrigation being used for vegetable, fruit and other specialty crops, only on small areas and primarily during the dry season. The major food crops are produced under rainfed conditions.

Crops grown under rainfed conditions have critical periods when minimum moisture conditions are absolutely essential, such as field preparation and

planting, and crop development periods such as germination/emergence, stalk-elongation, flowering and grain fill. Crop failure and low production can be caused by both low overall rainfall amounts and poor distribution of rainfall during the rainy season. Southern Province suffers from frequent micro-droughts within a single season, see Figure 7 below.

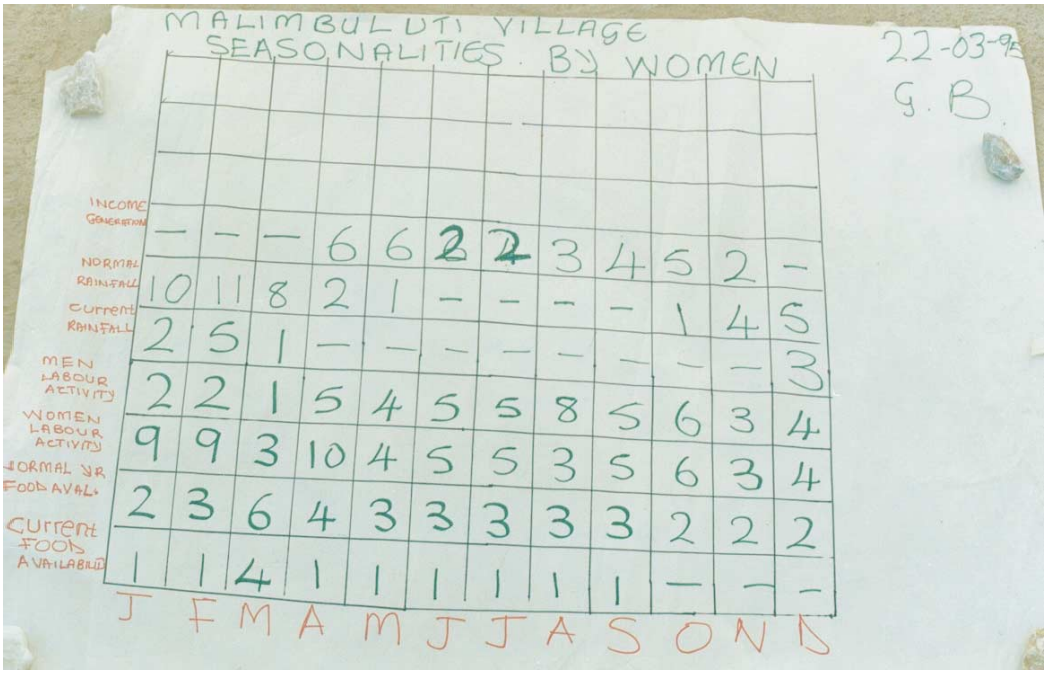
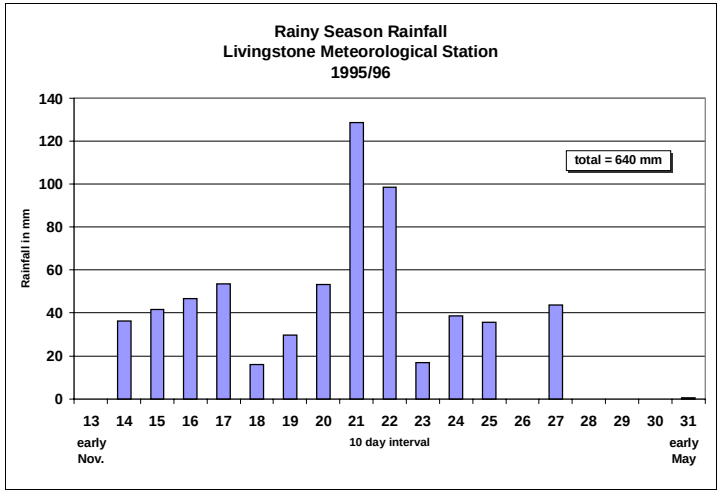
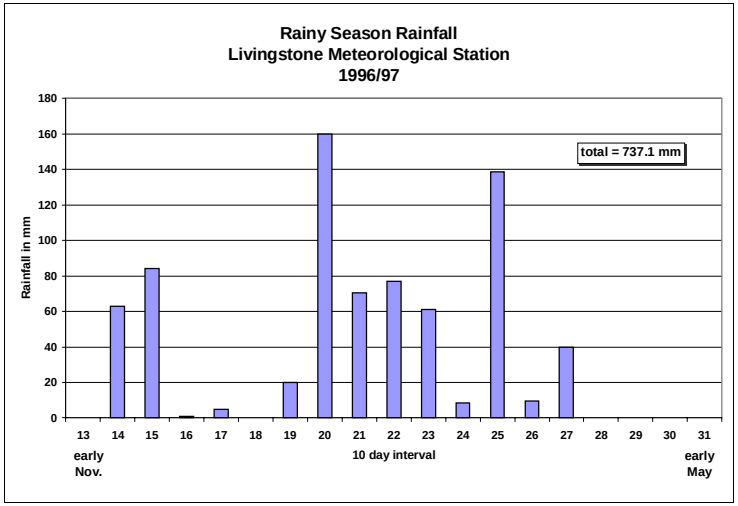
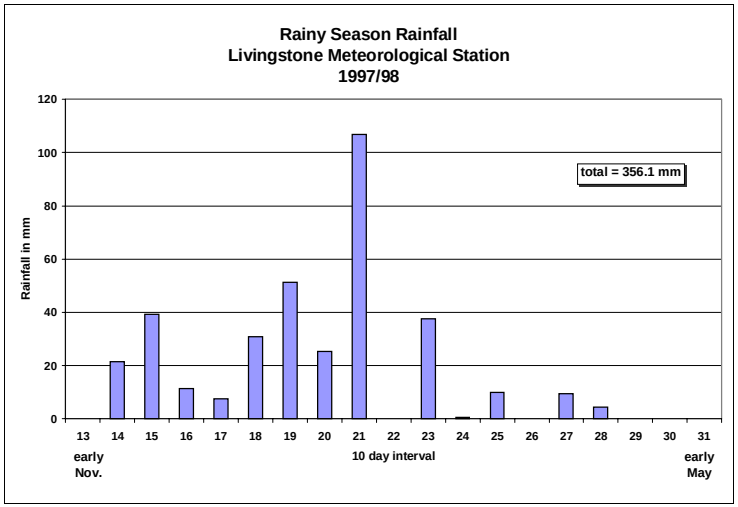


Figure 6. Worksheet from Katapazi PRA, 1995.
Information from PRA exercises highlights farmer perceptions that the climate is becoming drier.







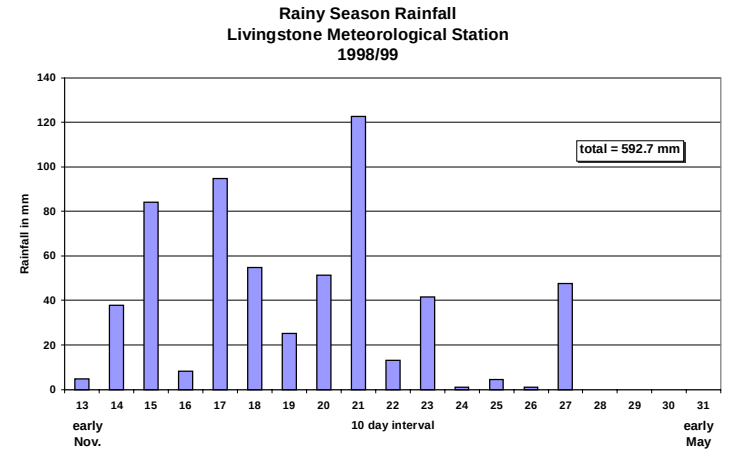


Figure 7. 1995-1999 Seasonal rainfall from Livingstone Meteorological Station. Source: FEWS.

3.7 LFSP Phase I, and the South-Western Drought Relief and Mitigation Project

As a result of several consecutive years of poor rainfall, whose effects were intensified by the economic and political changes discussed above, widespread food relief was needed in Southern Province in 1991/92, 1994/95, and 1995/96. CARE Canada began activities in Zambia in 1991, and served as the lead NGO for food distribution in Kalomo south and Livingstone Districts.

The cost of mounting relief exercises year after year prompted CARE to take a broader and longer-term view of food security amongst smallholder farmers. The priorities for a new approach were ranked as:

- develop an integrated program that promotes appropriate farming systems
- improve methods of water harvesting and utilization
- build the capacity of community institutions to enable them to plan independently implement and manage activities
- develop new private sector and market networks in an area previously served exclusively by state or parastatal institutions

To begin exploring and addressing the underlying causes of food insecurity, CARE implemented the Livingstone Food Security Project Phase I (LFSP-I) in November 1994, with approximately two years' funding from Canadian International Development Agency (CIDA) and the UK Overseas Development Agency (ODA). They continued to distribute food in the rural areas of the Province even as the original LFSP project was being implemented.

In October 1995, CARE launched the South-Western Drought Relief and Mitigation Projection (SWDRP) to manage the food relief distribution activity. SWDRP was supported by USAID, ODA, CIDA, and UNICEF.

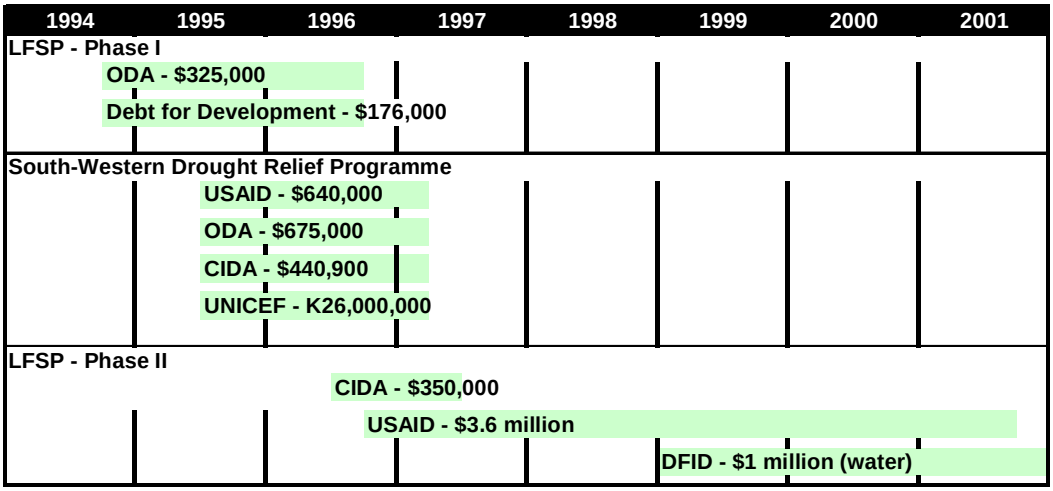


Figure 8. Timeline of donor support for CARE's food security interventions in Southern Province. Source: USAID Zambia.

As can be seen in Figure 8, USAID's $3.6 million investment in LFSP Phase II builds off of a substantial amount of non-US donor investment, totaling around $2 million USD. This amount was largely spent designing the program and developing the project capacity to implement LFSP Phase II.

3.8 Livingstone Food Security Project Phase II

Building upon the lessons from LFSP-I, CARE decided to extend the project into a second phase. A series of PRA exercises were conducted in March to May 1995 in Kalomo South to further probe the underlying causes of food insecurity in the region and begin to develop intervention strategies. The PRAs identified the following factors as the most important threats to food security:

- lack of seed
- lack of water for (humans and livestock)
- lack of organization at the community level
- depletion of natural resources

Figure 9. Women engaged in PRA exercise
LFSP was designed based on the results of a series of PRA exercises in 1995. Source: Robby Mwiinga.

Based upon the results of the PRAs, CARE developed and submitted an unsolicited proposal to USAID/Zambia in 1996 for LFSP-II. The operational framework of LFSP is founded on three basic paradigm shifts from previous food security interventions:

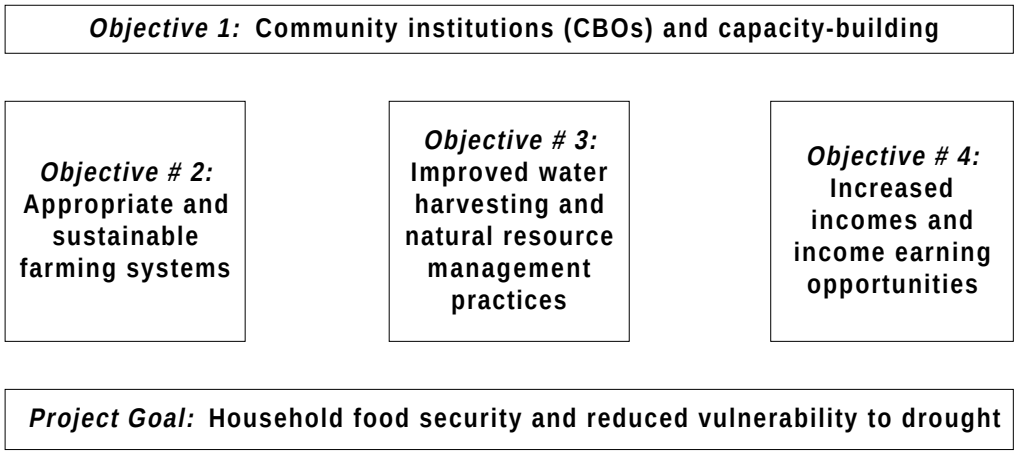
- a shift from a focus on regional and national food security to household and individual nutritional status
- shift from food first (and only) perspective to livelihood perspective. The livelihood approach focuses not only on the production of food, but also the ability of households and individuals to procure the additional food they require for an adequate diet.

- shift from materialist perspective focused on food production to a social perspective which focuses on the enhancement of people's capability to secure their own livelihoods. (CARE, 1996)

> *The overall goal of the LFSP is to reduce vulnerability to drought and achieve household food security by addressing the underlying causes of vulnerability and food insecurity.*
> - LFSP Cooperative Agreement, 1996

4.0 PROJECT IMPLEMENTATION

LFSP is based on a livelihoods approach which focuses on strengthening the ability of households to produce food and withstand drought. This holistic approach requires a multi-faceted intervention program, focused around four operational objectives. These four objectives serve as the nucleus of the primary lines of action.



4.1 Project Components

4.1.1 Community Based Organizations

The establishment of community based organizations in LSFP defines the operational context for all the remaining interventions. Capacity building of CBOs is one of the characteristics that distinguishes a development project from a relief effort. LFSP recognizes the importance of CBOs in implementing activities and ensuring sustainability of the technologies and systems introduced by the project. Indeed CBOs development is included as the first of the four operational objectives, a status which elevates capacity building as a end in itself as well as a means for achieving other objectives.

LFSP has introduced a multi-tiered CBO structure in the project area (see Figure 11). Individual household members first belong to a farmer group, also called a cell group, whose main function is managing the seed scheme.

Representatives from these farmer groups in turn comprise a Village Management Committee (VMC), whose main functions include managing the seed scheme, maintaining the community self-monitoring ledger, and coordinating extension training. Three to ten VMCs federate to form an AMC, which coordinates the seed scheme and is the main entry point for project extension services. The geographic size of AMCs approximates the size of an administrative and political Ward.

The LFSP CBOs are integral elements of the extension and monitoring systems, and greatly increase the effectiveness of LFSP field officers allowing one field officer to work with approximately 1,000 farmers. They also serve as the vehicle through which rural farmers can voice their opinions in the design and management of project activities, and secure access to services. Presently there are 54 AMCs and 598 VMCs in the three districts. Figure 12 below shows the locations of the AMCs.

A newer addition to the LFSP CBO structure is the Interest Group (IG). Interest Groups are focused around a specific income generating activity (IGA), such as poultry or basket making, or a capacity building theme. Members of an Interest Group fall under an AMC, however may not necessarily be from the same VMC. Project guidelines limit the number of Interest Groups that an individual farmer can join to three. Interest Groups serve as a mechanism through which the project tries to build market linkages and provide training. As the seed loan scheme becomes more established and self-sustaining, many LFSP staff predict that farmer groups will gradually evolve into Interest Groups, and Interest Groups will become the main focal point of project activities.

Figure 10. Interest Group receiving training on mungongo nut oil extraction
The use of CBOs extends the reach of LFSP extension staff. Source: LFSP.

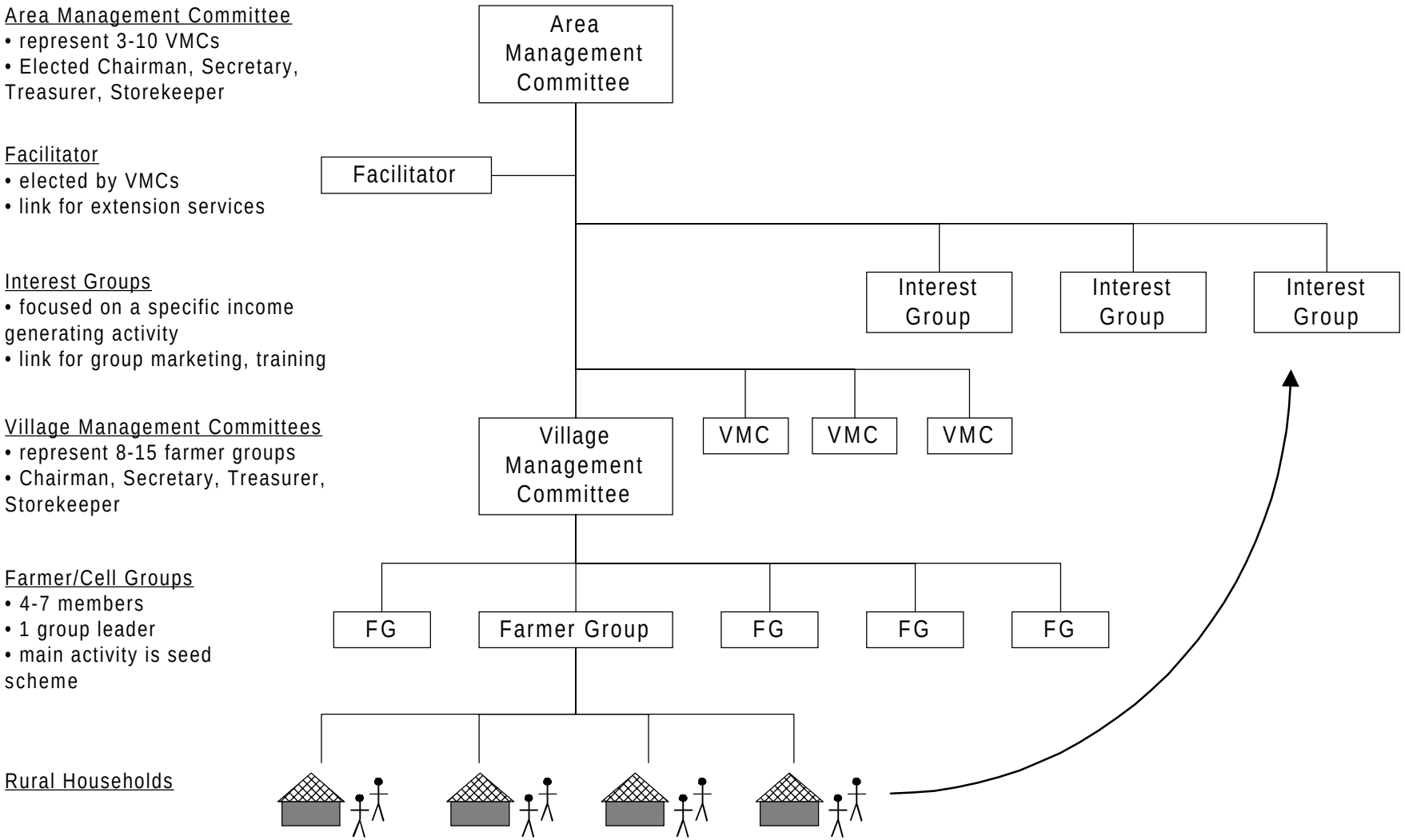


Figure 11. LFSP CBO Structures

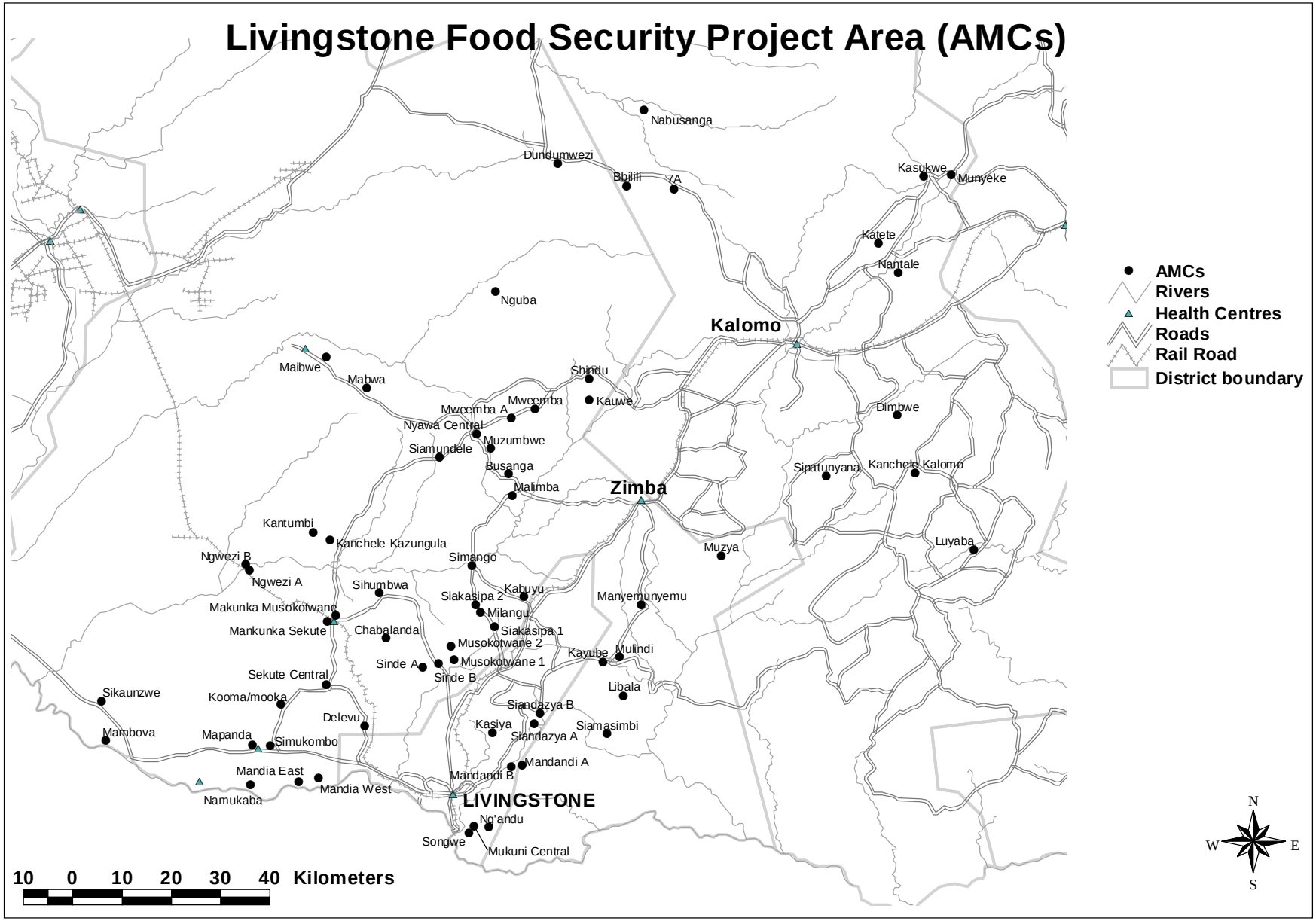


Figure 12. LFSP Area Management Committee locations

4.1.2 Seed Scheme

Loss of local seed stocks, over-dependency on inappropriate hybrid maize varieties, and the collapse of government subsidized input programs were among the factors identified during the formative PRA exercises in 1995 as negatively impacting food security. Subsequently LFSP's major intervention in the project area has been the provision of early maturing and drought-tolerant crop varieties that were previously unavailable to farmers or depleted after years of repeated drought. The seed scheme was the focus of the LFSP's initial entry into communities, and remains the backbone of the farming systems section. The seed scheme improves household food security by serving two different needs:

1. introducing drought resistant seed varieties
2. establishing local self-sustaining seed banks where farmers can access seed supply on a loan basis

The seed scheme intervention both builds upon the work of community capacity building, and also provides an activity focus for the establishment of CBOs. The level of participation of communities in the management of CBOs has been strengthened to the point that several AMCs are now managing their own local seed banks with little or no assistance from the project.

The seed scheme operates by making seed loans to farmers. LFSP supports the seed scheme by providing training on managing the seed scheme, sourcing appropriate crops and varieties, and providing the initial injection of new seed stocks. The logistics of seed distribution and repayment are a bit complicated, but are captured in Figure 13 and Figure 14 below. The guiding principles of the seed scheme are easier to follow and summarized in the box below.

Guiding Principles of the LFSP Seed Scheme

- The scheme shall operate through groups only.
- The members shall form groups on the basis of need and ability to work together.
- Groups shall comprise of approximately four to seven individuals.
- Village committees shall manage the groups and resolve conflicts.
- Village committees (VMCs) shall be managed by Area management committees.
- Groups will have to repay seed based on agreed rates to their Village management committees, who will later take it to the Area management committees.
- Seed given is seed for *multiplication.*
- The group leader/contact person is responsible to distribute seed within his/her group.
- Group to monitor the performance of the seed and crop management practices.

- No one member should get more than seed of one crop seed at a time.
- In the event of failure by a member to repay, other members will pay on behalf of the defaulter.
- In the event of a specific crop not performing well, repayment of seed crop can be made via another crop within the seed scheme
- Failure by group to pay hinders their future entitlements.
- Groups will participate in agricultural experiments and other activities as suggested by the Project (CARE).
- Village Committees and groups to nominate individuals for training.
- Groups to establish what crop seeds they need for their group members.
- Group members should always be in contact with each other through meetings.

The repayment rates for the seed scheme are summarized below. Additional information about the seed scheme can be found in this report in sections 6.2 on page 45 and 10.2 on page 87.

Seed Loan Repayment Rates 1998/99 to present

Crop	Loan Amount	Expected Repayment
Maize	10 kg	25 kg
Sorghum	4 kg	10 kg
Pearl Millet	2 kg	5 kg
Cowpeas	2 kg	5 kg
Ground nuts	10 kg	12 kg
Bambara nuts	10 kg	12 kg
Green gram	1 kg	3 kg

Livingstone Food Security Project Seed Loan Scheme: Distribution

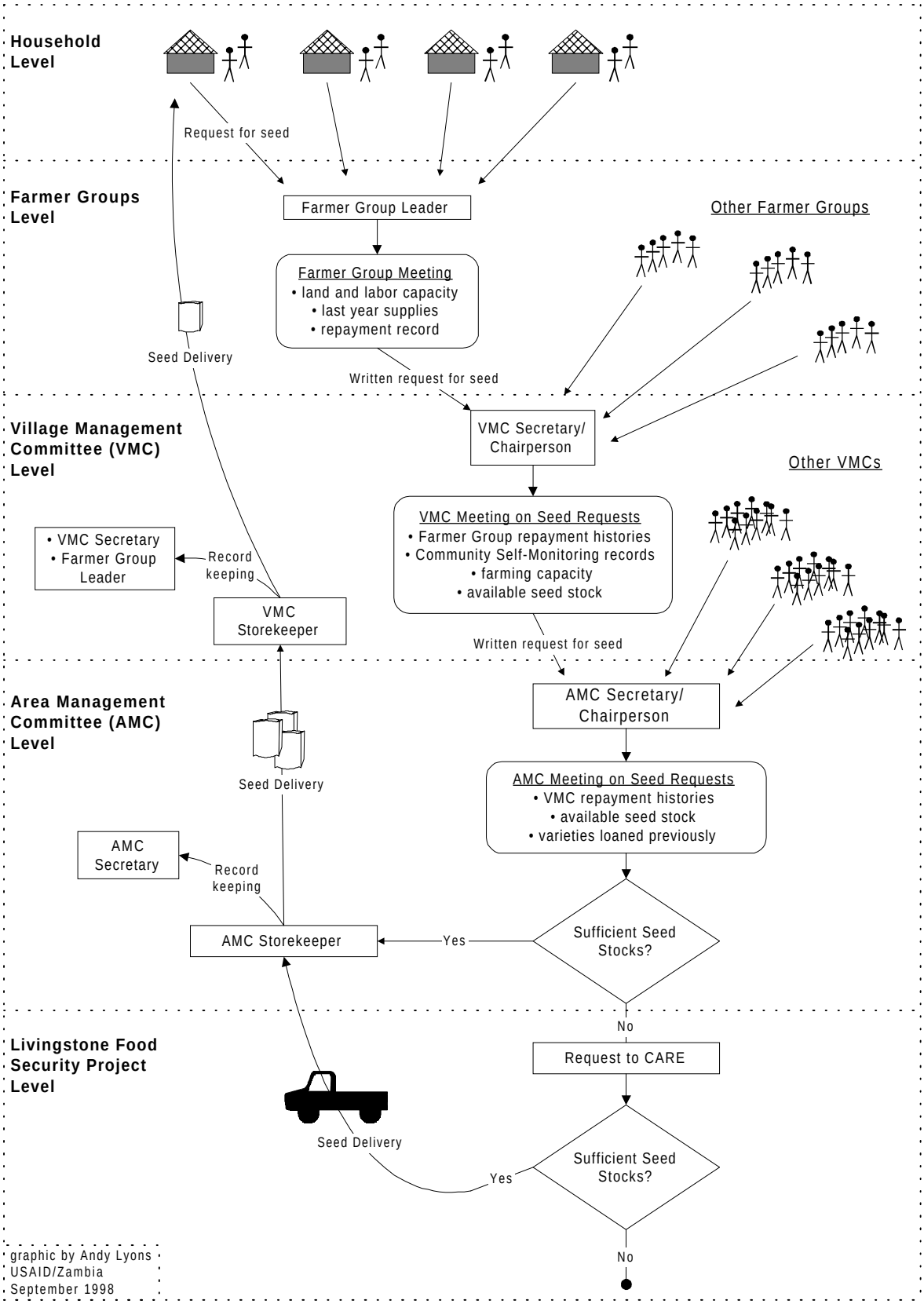


Figure 13. Seed distribution.

Livingstone Food Security Project Seed Loan Scheme: Repayment

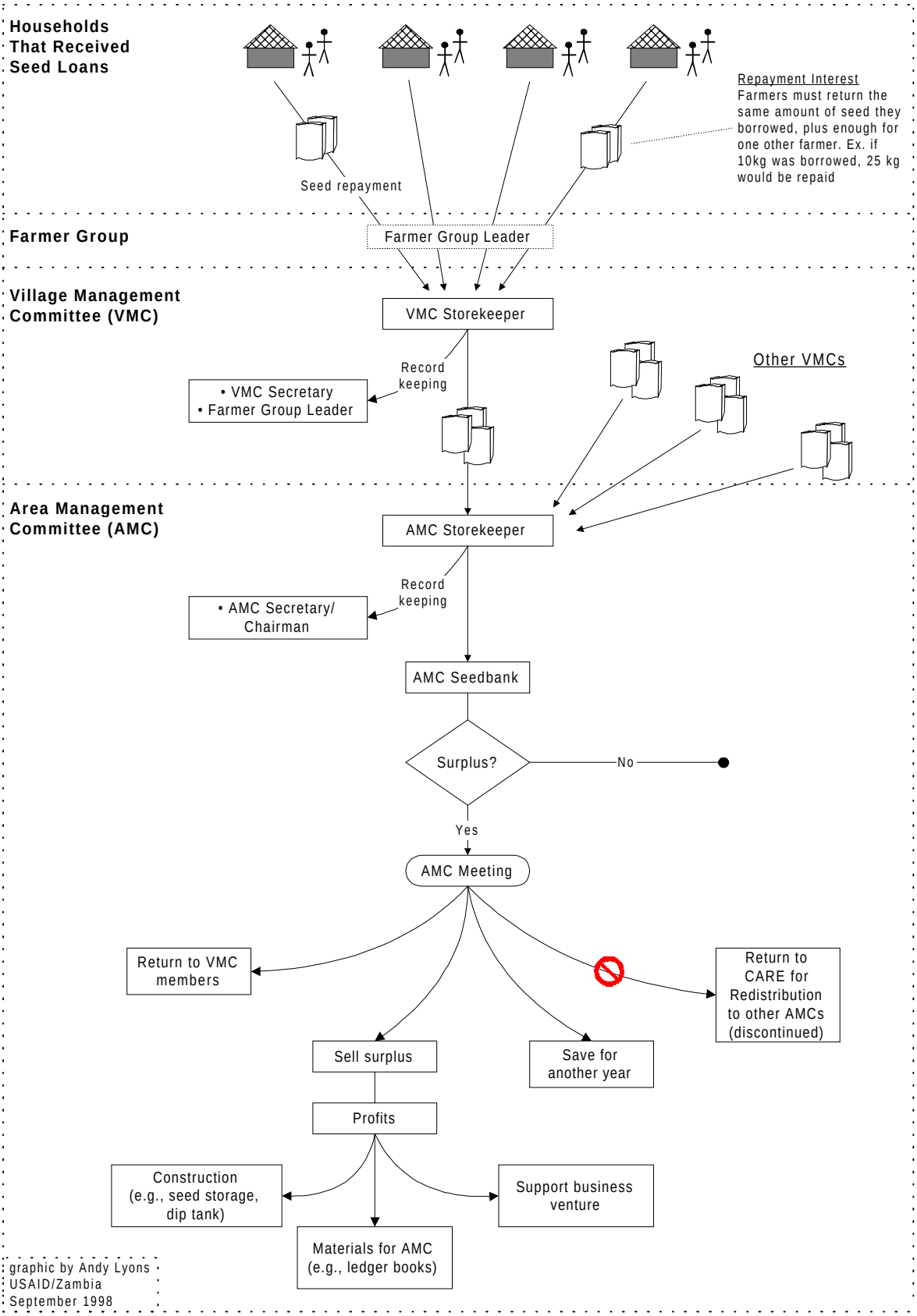


Figure 14. Seed scheme repayment

4.1.3 Improved Farming Practices

In addition to providing seed for improved crop varieties, LFSP has worked to increase smallholder production with improved farming practices. These efforts have focused on methods to improve soil fertility, retain soil moisture, and prevent erosion. Practices for improving both field crops and vegetable and fruit production have been developed.

The strategy for promoting improved farming practices is twofold. First appropriate technologies which have been proven elsewhere are identified. Secondly, the technologies are tested under field conditions and, based on the results, either adopted, adapted, or dropped. The testing phase is conducted through demonstrations and training of individual farmers. Subsequently, promising technologies are supposed to be replicated on a wider scale, again through training. Examples of technologies which have been promoted for soil fertility improvement include green manure, crop rotations, cultivators, ridgers and rippers (see Figure 5 on page 6). See Annex V for a complete list of the specific improved farming practices promoted by the project.

Figure 15. Demonstration of intercropping maize with squash to conservation soil moisture. Source: Robby Mwiinga.

4.1.4 Water Harvesting

As noted earlier, the area around Livingstone is experiencing a long-term climatic shift, with average rainfall gradually falling and becoming increasingly erratic. Droughts and dry spells within the rainy season are increasingly common, and surface and underground water supplies are much reduced and more ephemeral compared with 30 years ago. Lack of surface water was identified during the series of PRA exercises during LFSP-I as one of the major threats to food security in the region.

LFSP and the local people have tackled the issue of improved water availability and utilization in various ways. This has included construction and rehabilitation of dams, wells and boreholes. Village water, sanitation and hygiene committees (V-WASHE) have been established in association with VMCs and have promoted the healthy management of domestic water points. The benefits of these initiatives include empowerment of women, who tend to take a strong role in water management institutions.

4.1.5 Natural Resource Management

The application of NRM methods in LFSP was initially focused on the control of erosion near water points to reduce siltation and improve water quality. People understand and appreciate the fact that diminishing water resources are linked to catchment degradation. Through training and demonstrations, LFSP has helped community water committees reduce the amount of sediment flowing into water retention areas, and effectively increase the period of usability for seasonal water points.

NRM technology is now being expanded to broader watershed management and the sustainable harvesting of forest products. The strategy used is again a combination of training, small-scale pilot testing, and then replication. Taking advantage of the provisions of the new Forest Act, which provides for joint forestry management in Zambia, LFSP has also started to create forest management awareness and institutional capacity development in collaboration with other stakeholders.

4.1.6 Small Economic Activity Development

The Small Economic Activity Development (SEAD) component of the project is designed to improve food security by increasing the asset base of farmers to withstand drought years, and provide an alternative means for obtaining food. The SEAD component initially was focused around a household savings and credit program, modeled after a similar scheme from an urban development program. However the savings program stagnated after the initial initiation period. Experiments with micro-credit for vegetable production were positive but were on a pilot basis only and not repeated.

Today the project is focusing on developing linkages with small-scale group enterprises and urban markets. This appears to be a much more demand driven service, and may provide much needed infusions of cash into the LFSP communities. The project is experimenting with a host of market linkages, including vegetable production, thatching grass, and milk. The project is not looking for a universal enterprise model that will work throughout the entire project area, but to use a strategic advantage analysis of the most appropriate market linkage for each community based on agroecological variables and access to urban markets.

Some of the more successful pilots include an outgrower scheme based on maize, dry season vegetable gardening, and curios production. Other

promising linkages currently being explored include dairy production and non-timber forest products such as thatching grass. To support the development of market linkages, the project is also supporting its CBOs with business training and market research.

Figure 16. Vegetable garden at Mandia
Providing loans for vegetable production in Mandia was successful in raising rural income but can't be replicated everywhere.

4.2 Project Resources

4.2.1 Staffing

To implement the diverse range of activities required by the improved livelihoods strategy, LSFP is focused around four programmatic sections, each led by a coordinator. Backing up these sections are the Project Manager and Assistant Project Manager, and administrative and technical units (see Figure 17). Currently the SEAD Coordinator and Marketing Coordinator positions are vacant. The total number of project staff when all positions are filled is 50, including nine staff in Kalomo funded by DFID.

The project headquarters is based in Livingstone, with a separate field office in Kalomo. Sixteen staff are based at the Kalomo office, while the remaining operate out of Livingstone. All extension officers reside in either Livingstone or Kalomo, but have motorcycles to travel to the AMCs.

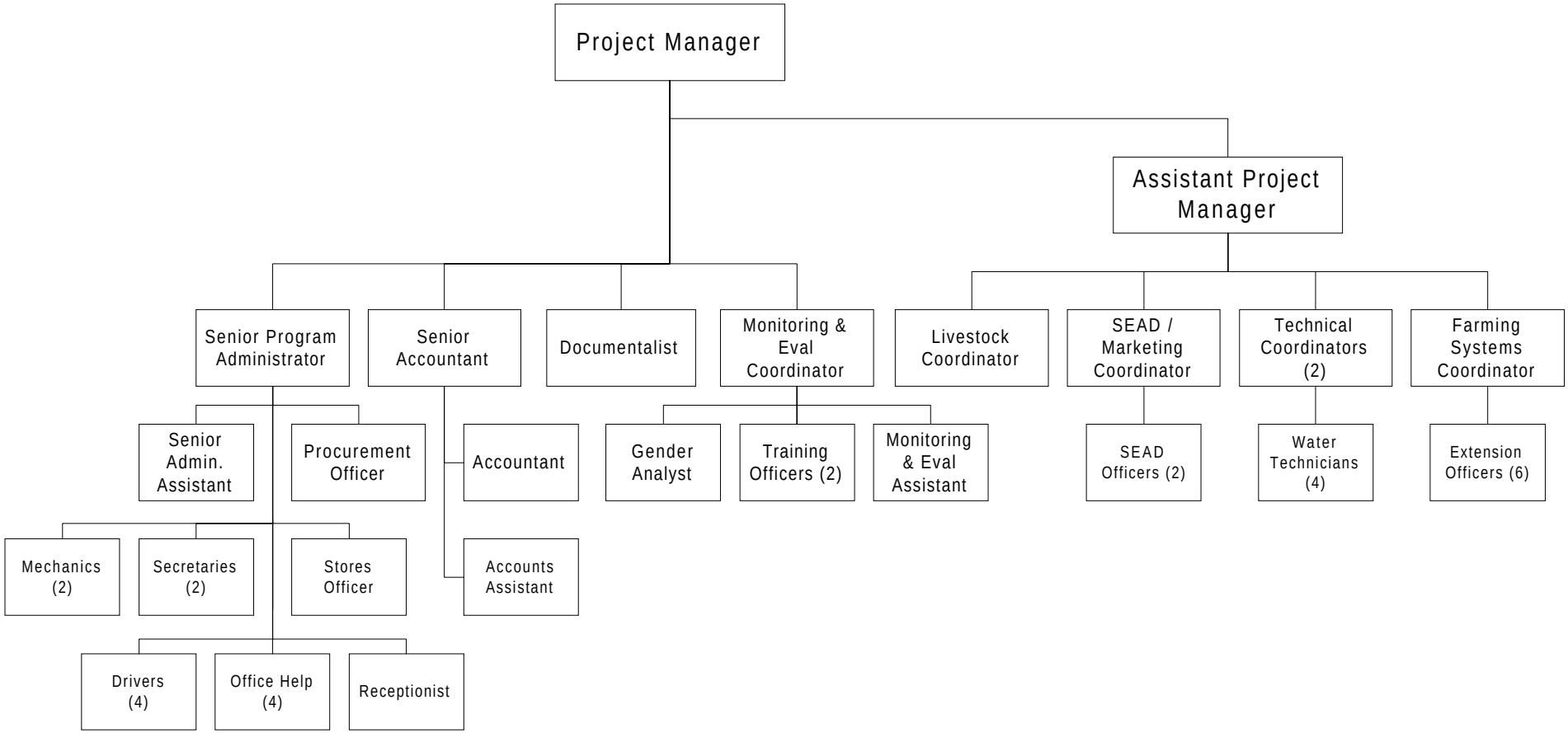


Figure 17. Organizational Chart of LFSP.
Source: Administration Coordinator, LFSP.

4.2.2 Vehicles

At the beginning of USAID financing, the project inherited two older 4-wheel drive vehicles from on–going Southwest Drought Relief Project. The project also was given an older (1992) 4-wheel drive vehicle from CARE Office in Lusaka. In November of 1996, a month into the first activities under USAID funding, the project procured two new 4-wheel drive Toyota Land cruisers with USAID funds. With use of the older vehicles, the project was able to wait until November/December 1998, before procuring the last two vehicles with USAID money. The project bought one 4-wheel drive Toyota pickup and one 4-wheel drive Toyota Land cruiser with these funds, thus closing out the vehicle line item in the project budget. In 2000, a ten-ton truck was purchased under an approved budget amendment for unused funds.

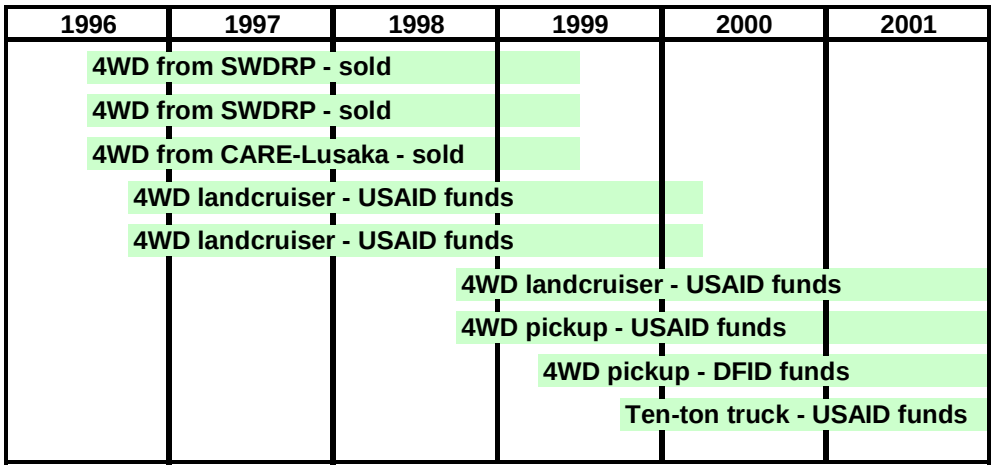


Figure 18. Timeline of vehicle procurement in LFSP.
Source: LFSP Administration.

Use of the vehicles seems well organized and restricted for moving staff where they need to go for fieldwork. Rarely are vehicles used without full occupancy by staff. The coordination of a diverse set of project activities using a restricted number of vehicles, a large staff, and two offices reflects the strong capacity of management and adherence to operational policies.

4.3 Financial

4.3.1 Spending by category

The LFSP's five-year budget from USAID totals $3,647,000 of which $276,000, or approximately 7.58%, is CARE USA overhead. The largest budget category is personnel, reflecting the large staff size and competitive compensation levels. The second largest categories are vehicles (15%) and equipment (20%).

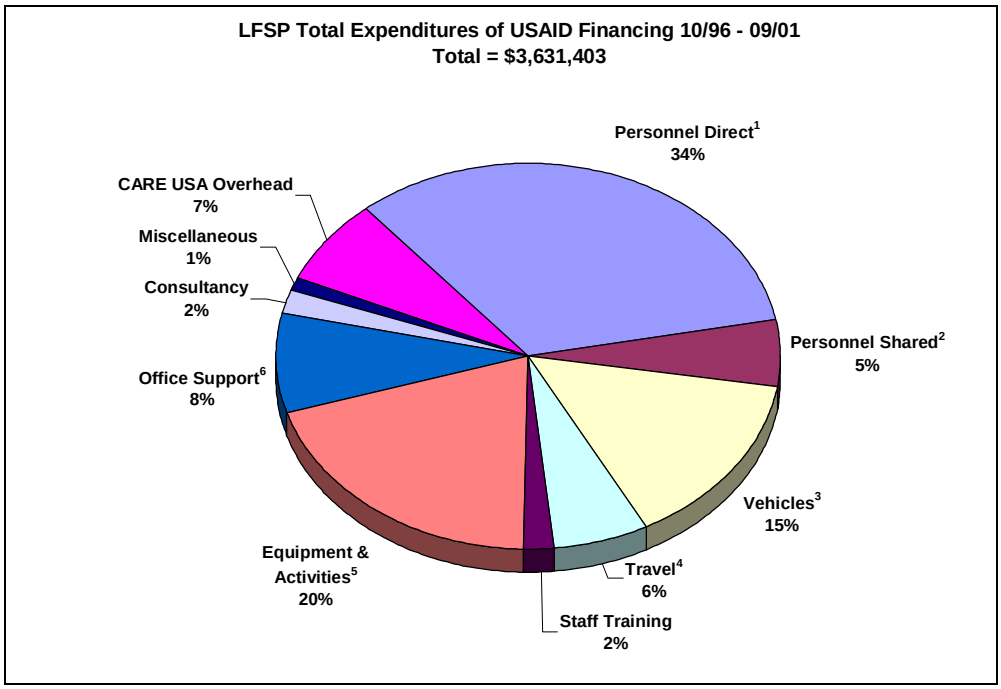


Figure 19. Total expenditures (actual and projected) by category for LFSP 1996-2001. Source: CARE Zambia.

Notes: 1 - Livingstone staff salaries
2 - shared direct costs, including portions of two expatriates salaries at head office
3 - vehicle purchases, fuel, and maintenance
4 - bus fares, airfares, per diem for staff travel
5 - computers, office equipment, seed, all materials for project activities including training
6 - stationery, communications, rent, utilities, insurance

4.3.2 Spending by Year

Through 20 February 2000, LFSP spent $1,866,000. The average monthly expenditure from July 1996 to June 1999 was $38,154. This average was significantly lower than projected, caused in large part to the use of $350,000 from CIDA funds during the first year of the project. In 1999, the project started spending more money under a plan approved by USAID/Zambia (LFSP, 1999d). Between July 1999 to February 2000, the average monthly expenditure increased to $61,541. Under the current burn rate, the project is expected to exhaust the financing as scheduled by the Close of Project date of September 2001.

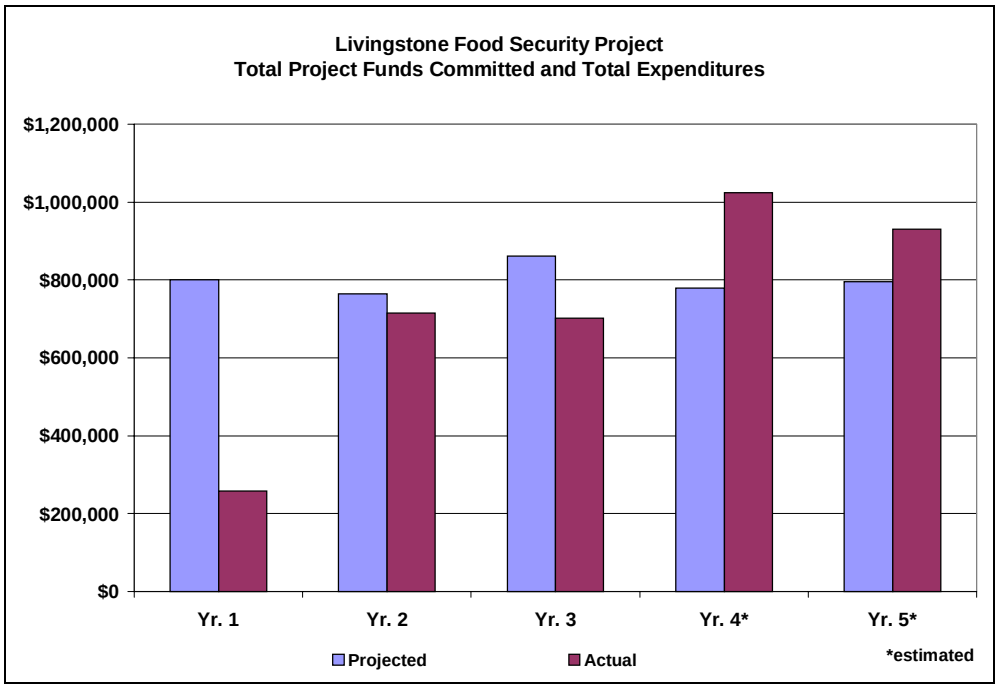


Figure 20. LFSP total funds committed and expenditures by year.
Source: CARE Zambia

Currently the project is on target with the forecasted spending per budget category. If expenditures continue as planned, it will wind up over spending on personnel by about 13%, but compensate by under-spending slightly on several other categories. See Figure 21 below.

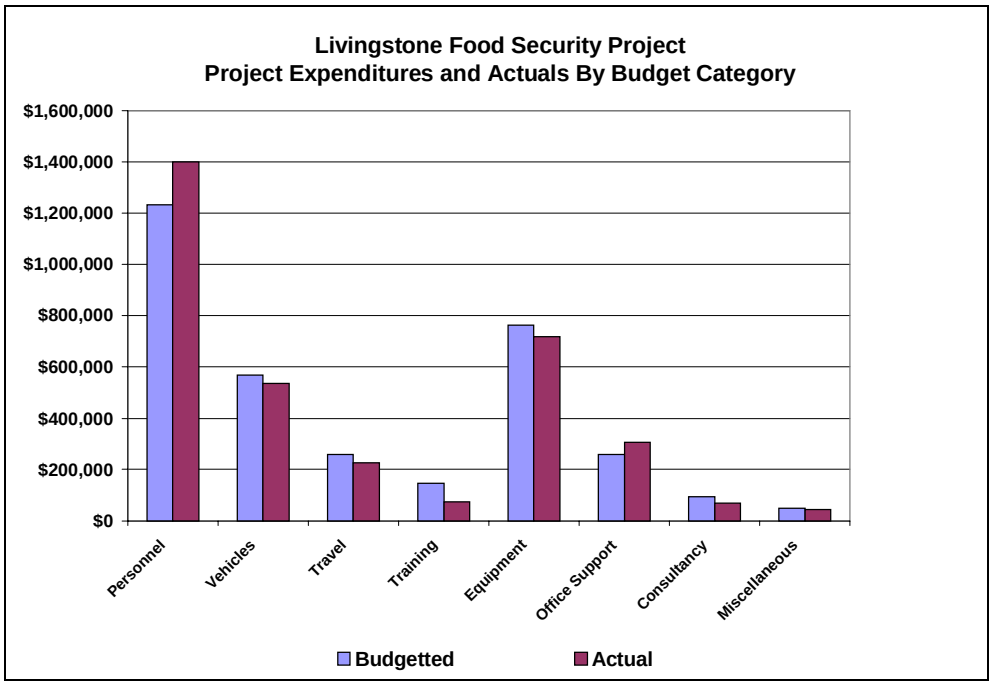


Figure 21. Total projected expenditures and actuals by budgeted category.

4.3.3 Internal/External Funding

Within Zambia, approximately 19% of USAID financing is used to support the headquarters office in Lusaka, including the now defunct MERU. Of the remaining 81% spent by the Livingstone office, 61% is spent on field operations and 20% is spent on office overhead. Thus a total of 39% of USAID financing expended in Zambia for LFSP is spent on operating the two offices in Lusaka and Livingstone. When combined with the 7.5% committed to CARE/USA, about 43% of the total financing is spent on administration and overhead. Although this percentage may seem high, what it buys is the corporate capabilities a large international NGO like CARE can deliver, including a reasonable level of confidence that project deliverables will be met, the ability to leverage project lessons into policy change (e.g., see 9.4 on page 81), external auditing, technical support, and the ability to solicit other donor funds (see Figure 8 on page 9).

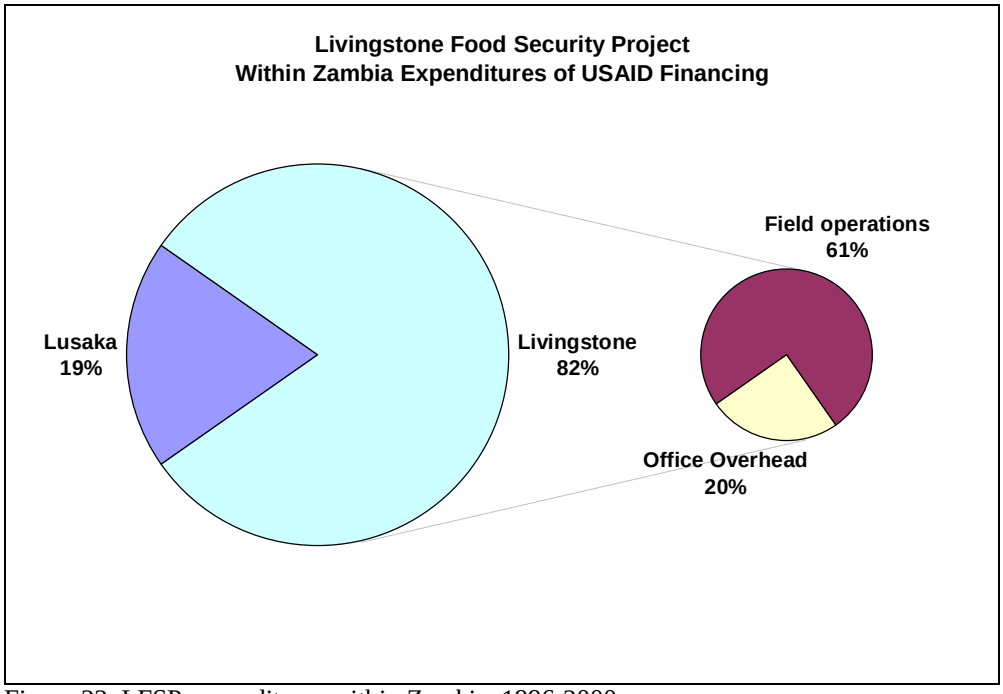


Figure 22. LFSP expenditures within Zambia, 1996-2000.
Source: LFSP, Management Accounts.

4.3.4 Cost per beneficiary

The LFSP financial office can not easily estimate the cost of specific services, because many project expenditures are used to support multiple services. However the overall cost per beneficiary is decreasing as shown in Figure 23. This is due primarily to a continuous increase in the number of beneficiaries each year with roughly stable expenditures. Year 1 should not be considered in the analysis because it included $350,000 of funding came from CIDA which has not been incorporated in the cost calculation. The cost per beneficiary remained roughly stable between year 3 and year 4 due to the graduation of AMCs, which lowered the number of beneficiaries. However once the newly formed AMCs are added to the equation, the cost per beneficiary should drop further.

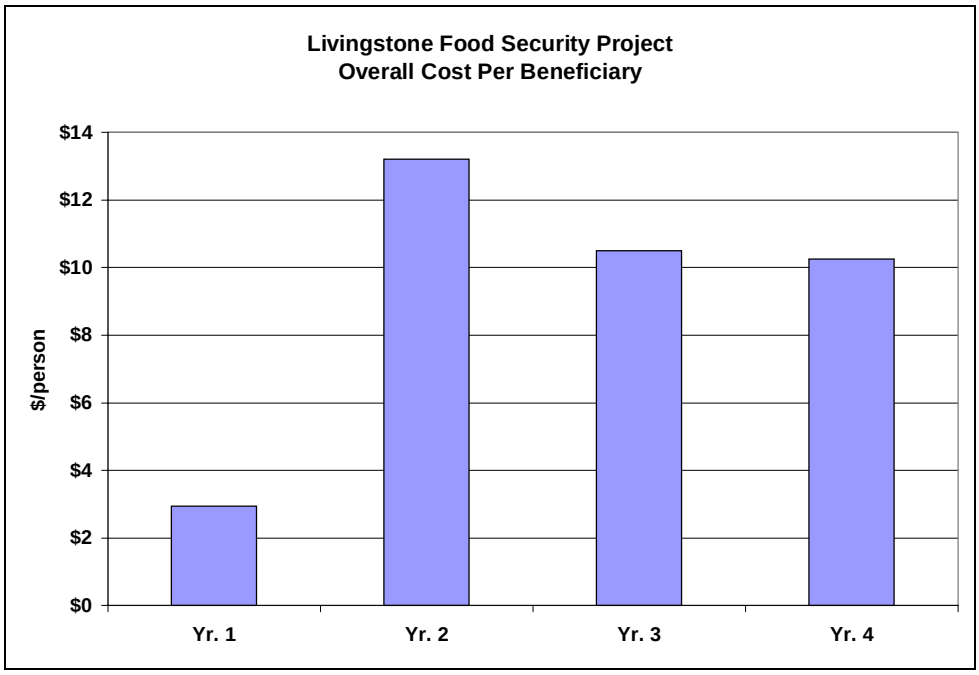


Figure 23. LFSP overall cost per beneficiary.
Cost per beneficiary = total annual expenditures from USAID on field operations / total number of beneficiaries. Source: LFSP Accounts Management.

5.0 BENEFICIARIES

Beneficiary Profile

As described earlier, the primary beneficiaries of LFSP are smallholder farmers, who happen to be mostly Tonga, in Kazungula, Kalomo, and Livingstone districts. As illustrated in Figure 24 through Figure 28 below, the majority of participating households have 10 members or less, and cultivate a total area of around 2 ha. There is a positive correlation between family size and area cultivated, suggesting that this is an extensive farming system where labor is one of the main limiting factor. There is no major gender imbalance for any of the age classes, however unlike many demography profiles in Zambia there is no increase in population in the upper age classes. This suggests that there isn't a significant return of retirees from urban areas back to the village, as is seen elsewhere in Zambia. The majority of households fall in the lowest two wealth classes with a total asset base valued at $200 or less.

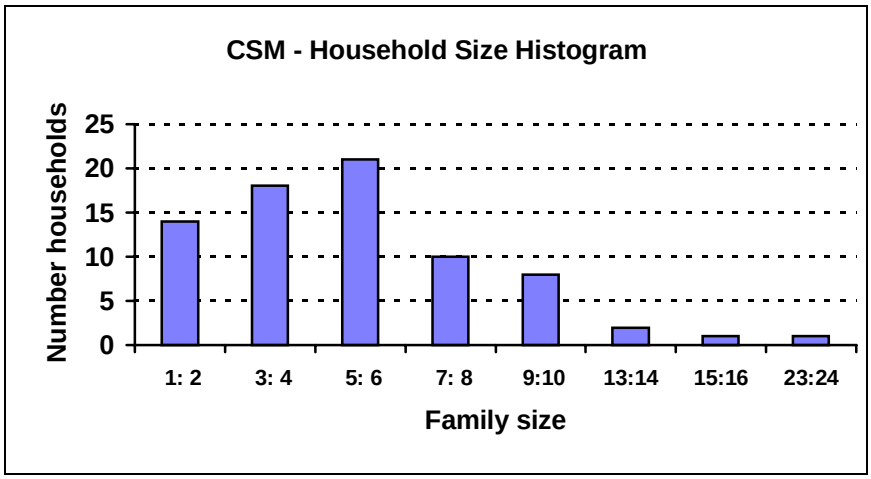


Figure 24. Household size distribution of project beneficiaries, 1998.
Source: CSM database.

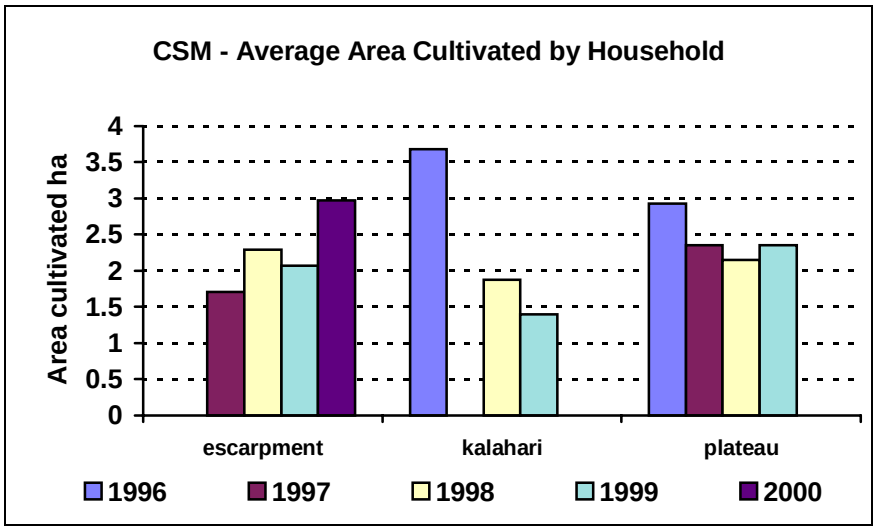


Figure 25. Average area cultivated per household for all crops combined.
Source: CSM database.

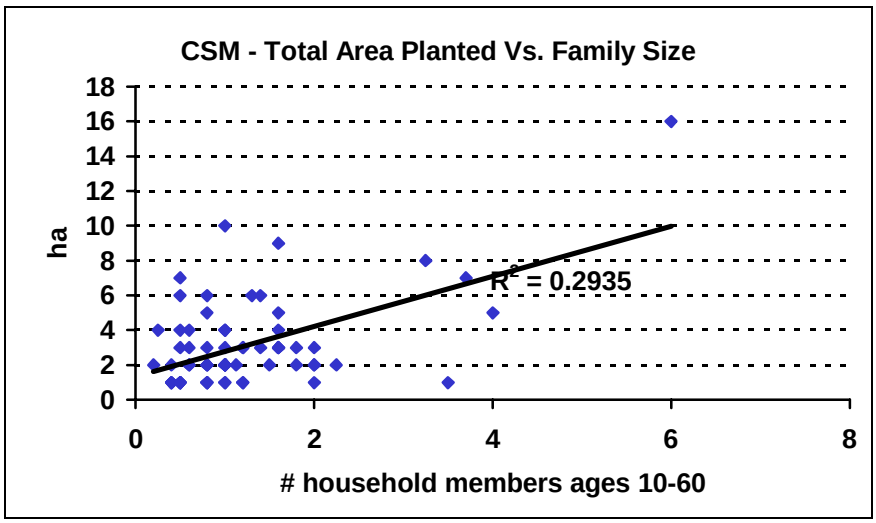


Figure 26. Relationship between family size and area under cultivation, 1998.
Source: CSM database.

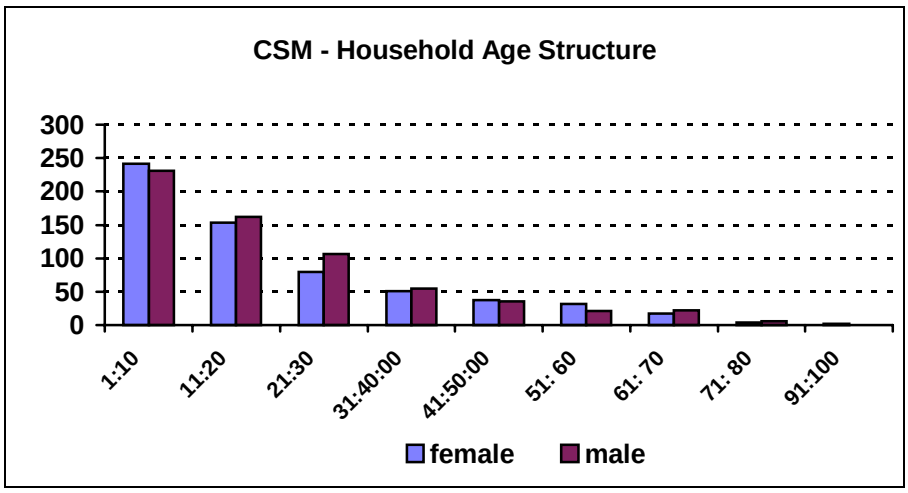


Figure 27. Age and gender profile of LFSP households, 1998.
Source: CSM database.

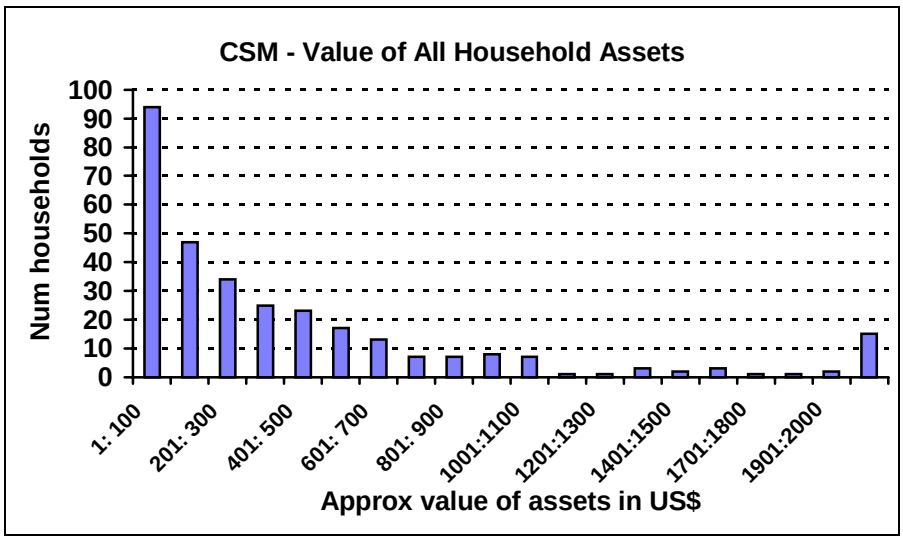


Figure 28. Wealth profile of households in LFSP, 1998.
Source: CSM database.

Number of beneficiaries

The number of direct beneficiaries is calculated either by a physical count from the membership lists of VMCs, seed distribution lists, or estimates based on the number of VMCs. As can be seen in Figure 29, the number of direct beneficiaries has been steadily increasing. LFSP has been able to reach such a large target population because of the increased efficiency of working through CBOs. In addition the CBOs that were formed by LFSP, each AMC has also formed an average two VMCs independently of direct project intervention (LFSP, 1999a).

Indirect beneficiaries are considered to be all members of the household of farmers participating in the seed scheme or one of the other project activities. The project usually uses an estimate of 6 people per household to calculate indirect beneficiaries. Other multiplier effects of LSFP interventions, such as distribution of the improved seed varieties to non-participants, have been noted by project staff but difficult to

measure. Milimo (1999) found that seed diffusion can extend up to 50 km from LFSP VMCs (see Table 9 on page 91), however he didn't try to estimate the number of these non-participating beneficiaries.

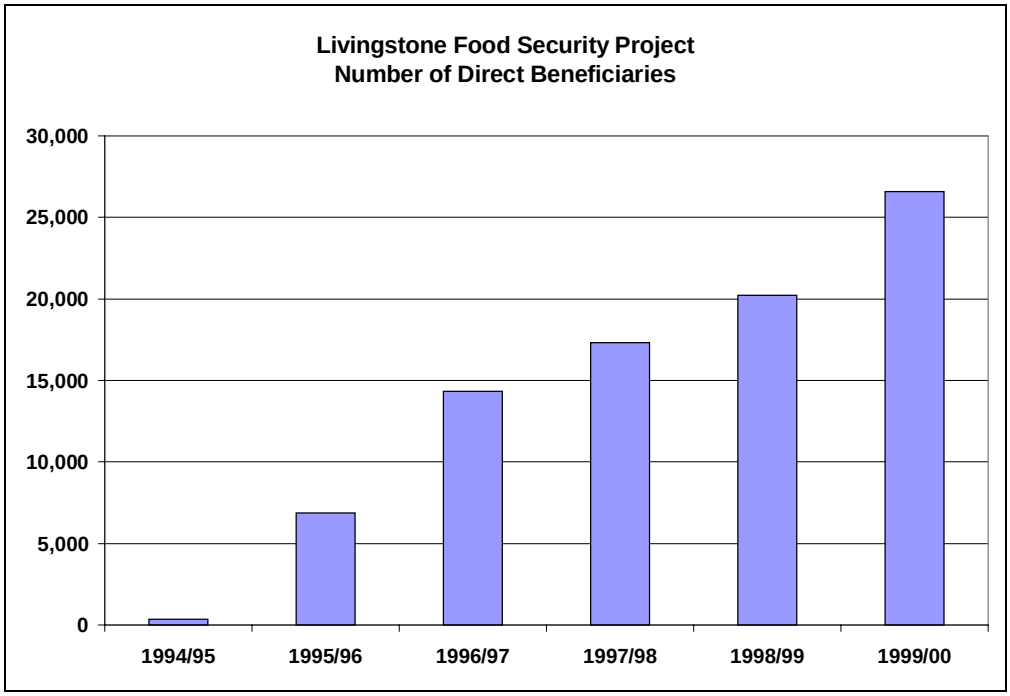


Figure 29. Number of direct beneficiaries by year
Source: LFSP. Direct beneficiaries are counted by VMC membership records, or if those are not available then seed scheme records.

Recently, the project established seven new AMCs. The purpose of this expansion within the existing district was to fill in the gaps in the service area and apply the lessons learned from the previous efforts in CBO capacity building. Figure 30 below shows the distribution of the new AMCs, which for the most part are at the edges of the project's service area or "in-fill" areas.

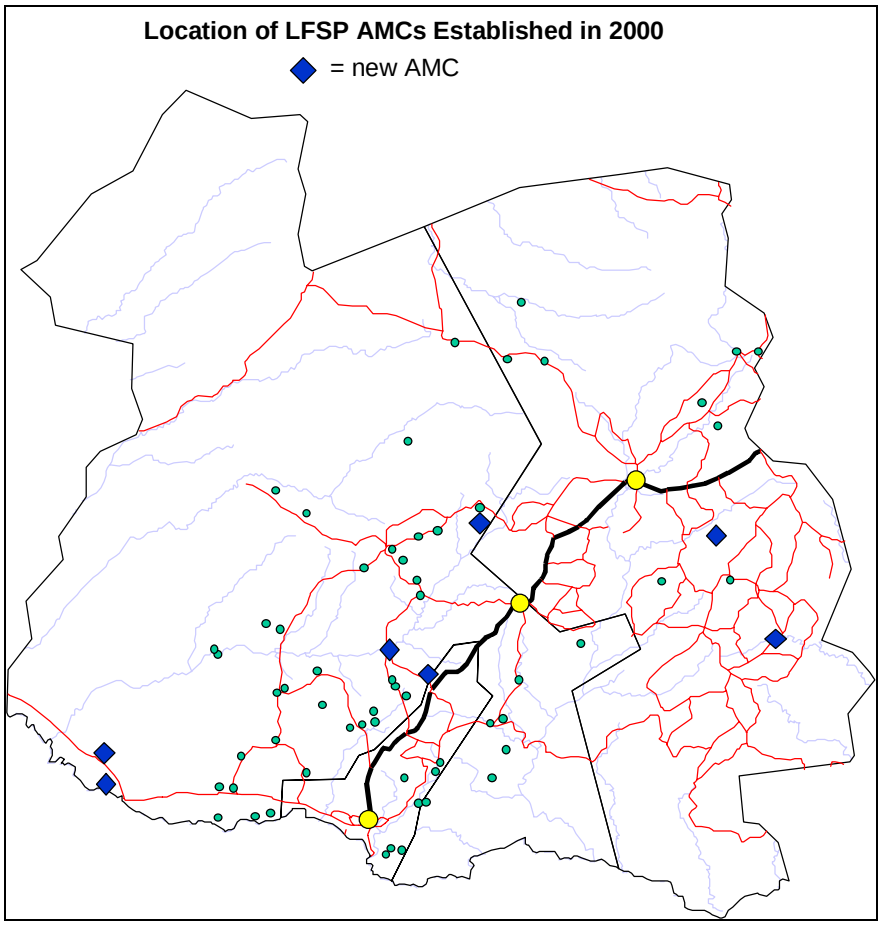


Figure 30. Location of new AMCs.

Figure 31. Dundumwezi PRA, 1998.
Entry into a new area begins with a PRA to collect information about the area, orient people to the LFSP CBO structure, and begin the capacity building process.

6.0 PERFORMANCE INDICATORS

The log framework in the LFSP cooperative agreement between CARE International and USAID/Zambia lists 32 anticipated results which should be monitored. These performance-based results are grouped into four categories, corresponding to four program objectives. There is also an indicator for the overall objective of improving food security and reducing vulnerability to drought.

LFSP reports on its performance indicators in its quarterly and annual reports. This section presents a summary of each of the performance indicators as reported by these quarterly reports, supplemented in some cases with additional data.

6.1 Community institution and capacity building

6.1.1 Within 1 year, 9,000 farmers organized in seed groups and VMCs will be receiving, multiplying and repaying seed loans according to the established seed scheme.

RESULT
ACHIEVED 100%

The results for this indicator is discussed together with 6.1.2 below.

6.1.2 Within 3 years, 18,000 farmers organized into seed groups. VMCs and area communities will have participated in the seed scheme.

RESULT
ACHIEVED 100%

Figure 32 below shows the number of VMCs and AMCs over the course of the project. These CBO structures were developed to serve multiple purposes, but were designed for management of the seed multiplication scheme. This has allowed the project to extend its reach in improving seed supply for farmers and reach its targets for the number of farmers in seed groups as shown in Figure 29 on page 30.

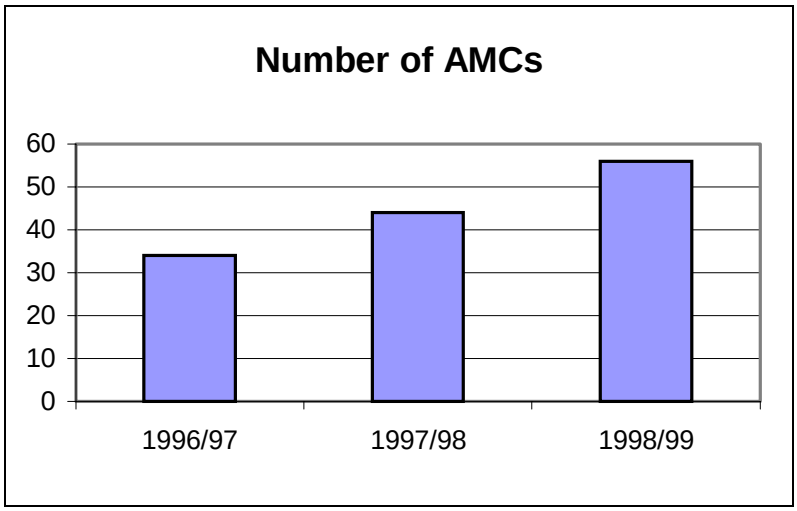


Figure 32. LFSP AMCs per year.
Source: LFSP.

Table 1 below shows the repayment rates for the seed scheme for 1996/97. Repayment is presented both as a percentage of tonnage of seed returned, as well as a percentage of the total value of the seed. These two methods of calculating repayment rates don't produce different results for individual crops, but has an effect in determining the overall repayment rate. The difference between the two methods in the overall repayment rate is due to the fact that groundnuts have the highest seed value at $2,300/Mt, and the groundnut repayment rates was extremely low for 1996/7 due to poor yields especially for Natal Common.

Crop	Expected repayment Mt	Actual repayment Mt	Value $/Mt	Repayment Rate	
				percent tonnage	percent cash value
maize	25.8	23.4	1,090	90.5	90.5
sorghum	32.4	32.6	1,015	100.6†	100.6†
millet	4.3	2.7	901	62.6	62.6
cowpeas	3.6	1.8	1,520	50.8	50.8
groundnuts	5.8	0.3	2,300	4.5	4.5
Total:	**71.9**	**60.7**		**84.4**	**61.4**

Table 1 Repayment rates on seed loans to VMCs & AMCs in 1996/7.
Source: LFSP
† percentage returned for some crops may be greater than 100 because farmers were allowed to substitute repayment seed from a poorly yielding crop with the surplus seed from another crop

6.1.3 Within one year, an overall community institutional structure will have been agreed upon with communities and accepted by GRZ extension organizations.

RESULTS
COMMUNITY ACCEPTANCE OF CBO STRUCTURES: YES
GRZ EXTENSION ACCEPTANCE: PARTIAL

The structure and function of CBOs in the LFSP has been the focus of several evaluations (Hatwiinda & Whitehead, 2000; Milimo et al., 1997; Milimo & Tripp, 1999; Ndiyoi, Bwembya, & Kasuta, 1999; Turner, 2000). These reviews note that there is some variation in the structure and functioning of CBOs, which depends on age and leadership quality. However many AMCs have developed a degree of autonomy, authority, and initiative, which are important qualities for sustainability and criteria for graduation.

That the communities served by the LFSP should accept the structure of the CBO model is no great surprise. The CBOs are also the platform through which community residents have input into project and receive valued services, namely access to improved seed varieties, training in farming systems, and improved water harvesting structures. The three-tiered model of village cells/VMCs/AMCs (see Figure 11 on page 13) was developed in close consultation with the local communities, if not initiated by them. LFSP also invests heavily in providing training to leadership of the CBOs to ensure that the roles and functions of the CBOs are understood and adhered to.

Government extension organizations have been slower to embrace the LFSP model of CBOs. Officially MAFF supports working through community groups at both the national and district levels. All stakeholders spoken to stated that the MAFF policies are conducive for closer collaboration between LFSP CBOs and MAFF extension officers. See 8.1 on page 74 for additional details on the relationship between LFSP and MAFF.

However most people will also admit that the implementation of this policy into practice at the district level has generally not gone as smoothly as was expected. There are two schools of thought on the causing for the slow progress. Representing the perspective of MAFF, extension officers state they were not very integrated into the planning and capacity building of CARE CBOs, particularly during the early phases of the program. Although MAFF was represented during the three 1996 PRA exercises which were conducted to design the strategies of LFSP, their participation in the implementation of the program was limited.

MAFF also already had farmer groups formed in the LFSP area that their extension officers worked with through the T&V extension model (see section 10.1 on page 84). Although these groups did not have the capacity building training that LFSP AMCs are taught, MAFF officers state they did not understand why CARE choose to introduce a completely new set of CBO structures instead of building on the existing groups. MAFF officers add that their interactions with LFSP AMCs were also constrained by resources, particularly transport. Some MAFF officers might also state that CARE presented a threat to their operations, stealing both target communities as well as field staff. Therefore from their point of view, a strategy of demarcating separate areas of operation seemed to be the best approach.

LFSP staff have a different perspective to the question of MAFF involvement with their CBOs. From their point of view, MAFF officers may have found it difficult to embrace the CBO approach because they did not feel comfortable with or convinced of the value of participatory extension methods. They note that extension training in MAFF has a long history of being supply-driven and focused on interactions with individual farmers. MAFF officers may also have been unmotivated due to their low pay scale and unwilling to work with LFSP staff without lunch allowance.

Undoubtedly all of the above factors identified in both schools of thought contributed to the low level of participation of MAFF extension officers in LFSP. The institutional relationship was also most certainly affected by personality dynamics. All would concede that the relationship was not helped by the lack of a formal mechanism such as an MOU defining the operational relationship between the two institutions. In fact an MOU was drafted, and might have even been signed at the national level, but according to CARE staff it was general in nature and never used to guide the relationship between the two institutions at the district level.

However this is not meant to suggest that there was no cooperation or interaction between the two organizations. Indeed there have been several MAFF extension officers who have been quite active with LFSP activities, including trainings and water projects. However it would be accurate to characterize these cases as fairly limited and based on individual interests as opposed to a strong institutional relationship.

Recent developments suggest a brighter future for the relationship between MAFF and LFSP may lie ahead. Both organizations acknowledge it is in their strategic interests to work closer together. LFSP is entering a phase where they need to scale up proven methods for food security and prepare for a possible phasing out of project services. MAFF officers recognize the advantages of working with LFSP CBOs which have the capacity to spread extension messages and test improved agricultural technologies. In 1999, MAFF and LFSP coordinated plans to support the graduation of ten AMCs. The DACO transferred five of his strongest field staff to the areas where AMCs were graduating, and LFSP helped to train the officers in participatory extension methods. Preliminary results from the graduation process suggest that future graduating AMCs will be best served by an even greater period of overlap between LFSP and MAFF field officers.

6.1.4 Monitoring and information systems established with community institutions for tracking their performance.

RESULTS
M&I SYSTEMS IN PLACE: YES
USE OF M&I SYSTEMS: ROOM FOR IMPROVEMENT

Participatory Data Collection Methods
LFSP uses various methods to collect information about the performance and impact of project interventions. PRA exercises and topical appraisals provide in-depth information about livelihood strategies, community dynamics, and farming systems in the project area. These types of exercises are initiated and facilitated by LFSP staff, and used primarily for planning purposes (as opposed to impact monitoring). The project also relies heavily on qualitative and quantitative feedback from extension officers who are required to write monthly activity reports as well as summaries of all community meetings and trainings.

Food Production Trends Survey
Still at the project level, the LFSP Monitoring and Evaluation Unit conducts an annual household food security survey called the Food Production Trends Survey. This survey is administered to the same 220 households each year in all three agroecological zones, who were randomly selected in 1996 to represent the entire population of beneficiaries. This dataset is not used by communities, but is used to study impact issues at the project level.

Community Self-Monitoring Books
To monitor project impact at the community level and provide information tools for community level planning, the project introduced the Community Self-Monitoring (CSM) ledger. These ledgers are maintained by the VMC chairman or secretary, and record data on food security indicators from an annual door to door survey of households. Information recorded includes household size, household composition, assets, agricultural production, the expected period of food availability, and anticipated strategies for coping with food shortages (Lyons, 1998a). The CSM ledgers are the primary monitoring and information tools at the community level.

While the CSM ledgers represent an innovative method for gathering information at the community level, and the project has made notable progress in training communities to use CSM ledgers, there is still room for improvement in utilization. Neither the project nor the CBOs fully utilize the information in the CSMs. A 1998 study tour found that many AMC and VMC officers didn't really know what to do with information in the CSM ledgers, other than to use it to document their own poverty in the hopes of getting more development assistance (Lyons, 1998a). However there are other examples of using the CSM including the organization of food relief operations.

A recent study by the LFSP Monitoring and Evaluation section found that slightly less than half of the AMCs use information from the CSM (see Figure 33). "Use" was defined as the presence of one or more of the following behaviors:

- using CSM data to offer guidance on production strategies to farmers at the time of enumeration

- using CSM data to manage the seed scheme, including collection of seed loans
- using CSM data to plan the distribution of food relief

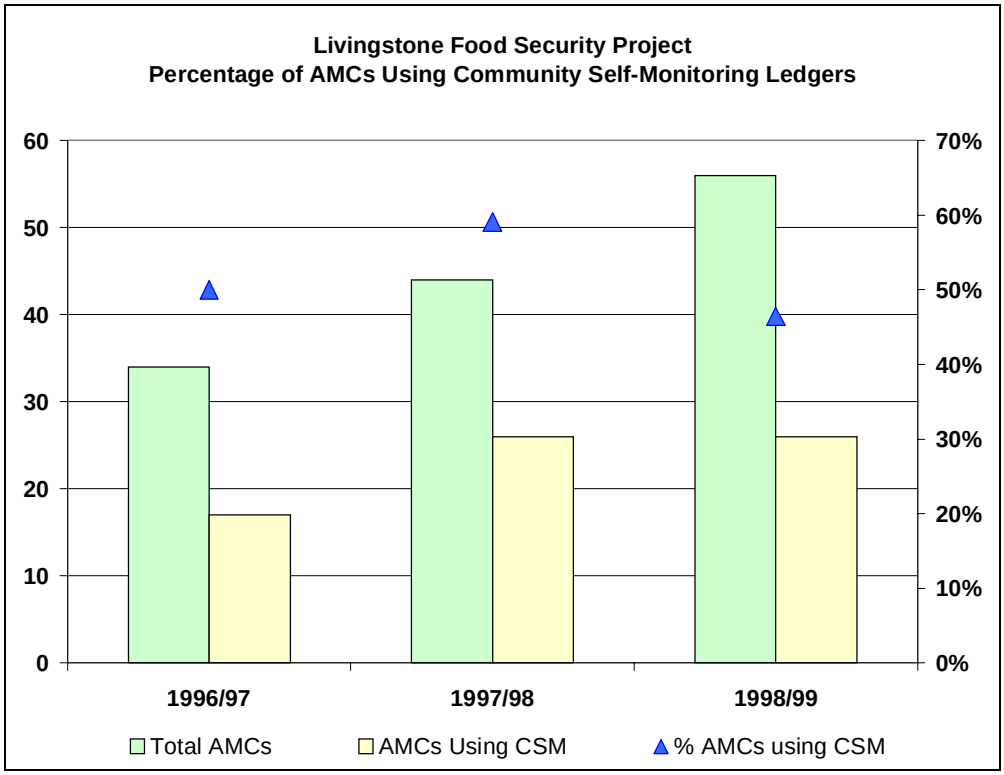


Figure 33. Percentage of AMCs using Community Self-Monitoring Ledgers
Source: (Hatwiinda & Whitehead, 2000)

Although most CBO members will probably state it is important to keep records, the CSM appears to still be primarily project driven. However ironically, the project has also not made full use of the CSM. This is partly due to the fact that the ledger books stay in the villages. This demonstrates the importance of community ownership of data but also makes it difficult for the books to be analyzed except on an ad-hoc basis.

The CSM is one of LFSP's more innovative tools for monitoring and evaluation, and has attracted outside attention. In 1999, LFSP hosted a regional workshop on participatory monitoring and evaluation on behalf of PELUM, a regional organization. Twenty-six participants from four countries participated.

CSM Database

For this evaluation, a new database was set up by the M&E unit to enter and analyze data from the CSM ledgers. The evaluation team assisted the M&E staff in designing the database which was then used to enter approximately 235 records for households from all three ecological zones (see Figure 34). Analyses from this dataset are presented throughout this evaluation report. If LFSP continues to enter data into the CSM database, it could make an important contribution to future analyses of project impact.

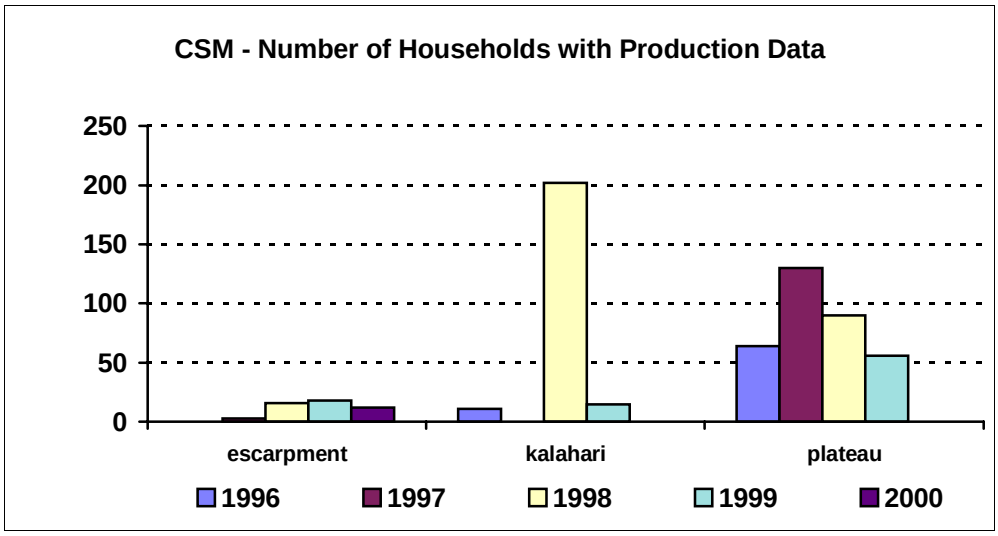


Figure 34. Amount of data currently entered into the Community Self-Monitoring database. Source: CSM database.

As can be noted from Figure 34, with the exception of the plateau zone, the current sample sizes in the CSM database are relatively small, particularly for the earlier years. This is not a result of poor record keeping practices at the VMCs, but the time constraints for data entry during the evaluation period. But as a consequence, all multi-year trend CSM analyses presented in this report must be interpreted carefully, and extrapolations to the general population made with caution. On the other hand, analyses based on data from a single year, such as the household demographic profile in Figure 27, represent a fairly large sample sizes and are less likely to be affected by sampling bias.

Seed Scheme Records

Separate from the CSM and Food Production Trends Survey, data is kept at the AMC level on the seed loan and multiplication scheme. Record keeping was taught during CBOs training exercises, and proper records is a requirement to get new inputs of seed from LFSP. The information is used by the AMCs to keep track of how much seed they have given out, and is also used in the collection of seed loans and allocation of new loans. The project uses the seed scheme records to estimate the number of direct beneficiaries, get statistics on gender balance, and record amounts of seed being distributed in the project.

Data Quality in LFSP Monitoring Systems

In any monitoring system there is of course a concern that data is accurate (e.g., unbiased) and valid (provides appropriate information to answer the question of interest). Data quality can be affected by numerous factors, including sampling, intentional bias, and measurement consistency.

The quality of information that comes out of participatory data collection methods, such as results from PRAs and topical appraisals, is generally

trustworthy, but affected by the skill of the facilitators guiding the exercise. If the focus of the exercise is too heavily focused around intervention planning, for example, community residents will naturally try to provide information which will maximize the likelihood they will receive some services. Likewise if the agenda of the facilitator is clearly evident from the line of questions, community residents will often try to tell them what they perceive is wanted.

LFSP tries to avoid such issues by dividing PRAs into a diagnostic phase and negotiation phases. CARE also has a strong reputation for developing many of the techniques used in participatory data collection, and the LFSP staff are well versed in participatory techniques. The range of exercises conducted in PRAs, such as food calendars (see Figure 35), social mapping, resource mapping, and pair-wise ranking of food security threats, are general enough to yield trustworthy results. The use of groups also tends to buffer out individual voices that would purposefully misrepresent reality, however these same forces can suppress the opinions of less powerful groups such as women. That is not to say there isn't any bias introduced into PRAs by virtue of the fact that LFSP has a specific set of services to offer, however the big findings such as the underlying production patterns and threats to food security are almost certainly valid.

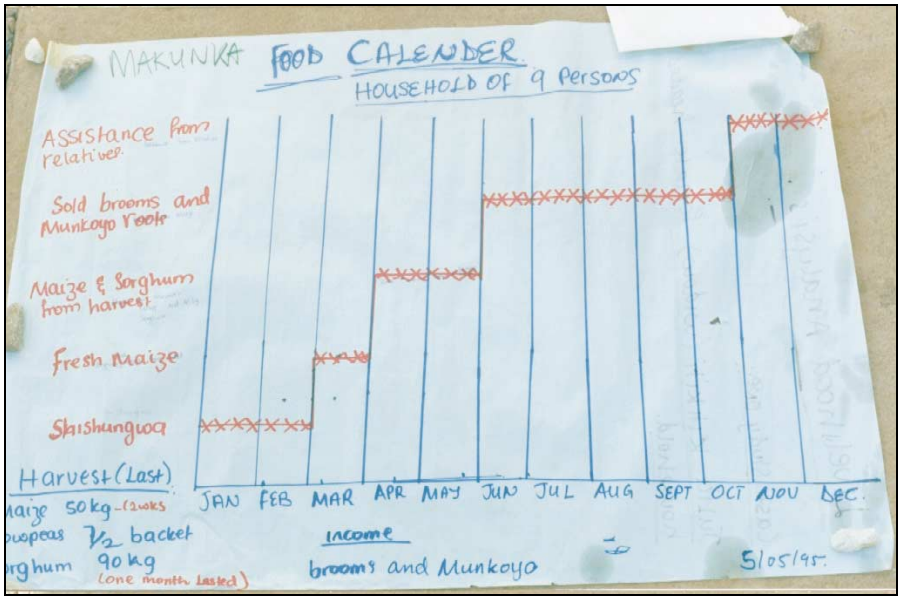


Figure 35. Food calendar from Makunka PRA, 1995.

The Food Production Trends Survey is a valuable dataset on household level indicators, but vulnerable to two types of data quality errors. First, because this is a quantitative dataset, it is particularly susceptible to errors stemming from sample size and sample selection. The respondents for the survey were initially selected at random, from VMC membership lists. Therefore they should comprise a representative sample of beneficiary households. Although the total sample size of 220 households was selected to provide an adequate sample size, subsequent surveys altered the sampling strategy when heads of households were not at home or had moved. The bias introduced by this loss

of respondents is difficult to measure, but it makes trend analyses less reliable. See 10.3.4 on page 96 for a more thorough discussion of other sampling issues in the Food Production Trends Survey.

A more serious problem with the Food Production Trends Survey is the possible under-reporting of production because of the belief that the results may be used to plan food aid. Questionnaires administered by outsiders from development or relief organizations are most susceptible to this type of bias, because they are not in the position to verify most responses and are perceived to be possible sources of assistance. Production data also fails to capture the amount of crop that was eaten from the field before harvesting, either as a coping strategy against hunger or to sell for cash needs.

The Community Self-Monitoring books are less susceptible to deliberate under-reporting because they are administered by a local person who has some knowledge of the assets and production levels for local households. However the CSM does have some problems with consistency and standardization across the project. For example, in the household assets section, some VMC chairmen record assets as small as chairs, buckets, beds, etc. However other VMC chairmen only record large assets and production assets such as ploughs, oxen, etc. This makes it difficult to compare total asset levels between different areas.

As a general strategy, data quality issues can be mitigated by examining multiple indicators from multiple data sources for the same impact question. LFSP makes use of this triangulation strategy for planning systems, but needs to do more of this for impact monitoring. For example the FPTS and CSM are almost identical in scope, but have not been often analyzed together to look for correlation between the indicators.

6.1.5 Within 3 years, members of all AMCs will have received management training.

RESULTS
AMCS WHICH RECEIVED MANAGEMENT TRAINING: 100%

As illustrated in Figure 32 on page 33, the number of AMCs in the project increased from 34 in 1996 to 56 in 1999. Part and parcel of the process of establishing an AMC is management training in CBO leadership. The project requires attendance at management training as a prerequisite for AMC establishment and participation in project activities such as the seed scheme. Hence all AMCs have received training at the time of their formation.

6.1.6 Within 3 years, AMCs will be coordinating multiple program activities in their areas

RESULTS
AMCS COORDINATING MULTIPLE PROGRAMS: YES, BUT NOT ALL

A recent internal evaluation found that 64% of CBOs are planning, implementing, and managing development activities by CARE (Hatwiinda & Whitehead, 2000). This is higher than the internal target of 60%, but still far less than the ideal goal of 100%. The remaining AMCs are either not very active or remain dependent on LFSP staff to plan, implement, and manage development activities.

6.1.7 Within 4 years, responsibility for all activities will be decentralized from project staff to community institutions

RESULTS
DECENTRALIZING: SEED MULTIPLCATION BECOMING DECENTRALIZED
GRADUATING AMCS OFF TO A GOOD START

In 1999, the project developed a set of criteria to determine which AMCs were ready for 'graduation' (see box below). Based on these criteria, 10 of the 44 AMCs were graduated. Graduated AMCs still receive occasional visits from LFSP extension staff, but manage most of their activities, including the seed scheme, on their own.

Five of the ten AMCs were linked up with MAFF extension officers at the time of graduation. Preliminary results reveal that the AMCs which were linked up with MAFF agents show less initiative and are less active than the AMCs which were left on their own. Anecdotal evidence suggests that this lack of initiative may result from dependency on the MAFF officer for guidance and facilitation. However the pattern in not universal, and there are some MAFF officers who seemed to have truly internalized the participatory facilitation approach and act more as enablers as opposed to external service providers.

Criteria for AMC Graduation
▪ Written constitution understood by at least 60% of participants
▪ Meetings held at least once a month
▪ Meeting agenda to include non-LFSP issues
▪ Meeting attendance at least 60%
▪ Minutes kept for all meetings
▪ Additional training received after core CBO training
▪ All topics from Training of Trainers course covered
▪ At least 60% of CBO participants attended training
▪ AMC visitations to VMCs at least once a month
▪ Non-LFSP issues discussed on VMC visits

- Accurate record keeping for all activities
- At least 10% of CBO members joined since initial formation
- Demonstrated examples of resource mobilization
- Demonstrated examples of partnerships with traditional leaders, other CBOs, other agencies, government institutions

A second measure of decentralization is the ratio of seed distributed by the project and by the communities. As illustrated in Figure 36 below, the amount of seed distributed by CARE has steadily declined, while the amount of seed distributed by AMCs has significantly increased. Data from the CSM book indicates that the amount of seed being purchased by farmers has also increased, meaning that the beneficiaries are becoming much less dependent on the project for seed. Training on management of the seed scheme and technologies for seed production and storage contribute to this capacity (see Figure 37).

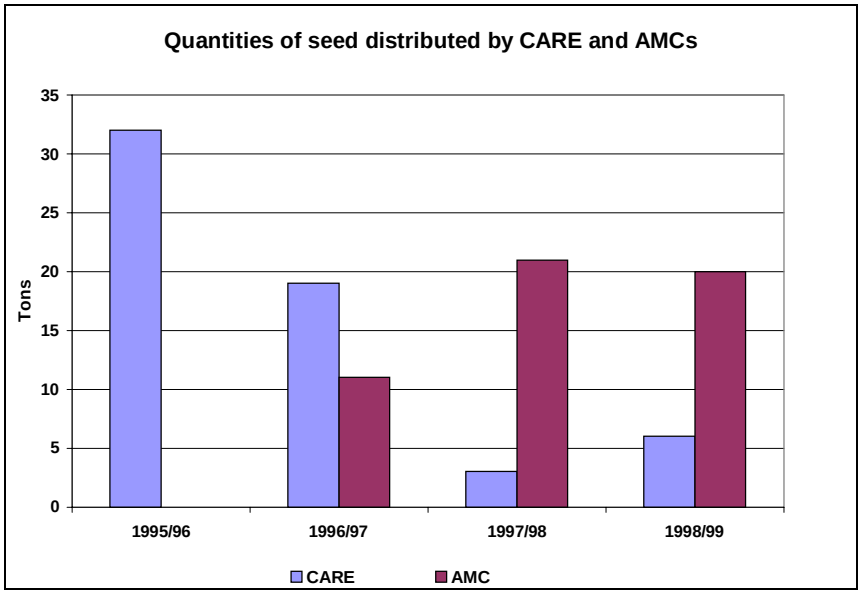


Figure 36. Quantities of seed distributed by AMCs and LFSP
Source: (LFSP, 1999c)

Figure 37. Training on constructing seed storage bins.
Training on seed storage technologies such as seed banks has helped to decentralize responsibility for key activities.

6.1.8 Within 4 years, community institutions will exhibit independent planning and management skills and the ability to enter into contractual relations with other institutions.

RESULTS
INDEPENDENT CBOS: SOME EXAMPLES, BUT NOT THERE YET

A recent internal evaluation found that only 12% of AMCs are able to be in partnership with 2-3 service providers or trainers (Hatwiinda & Whitehead, 2000). This is much less than the internal target of 80%. However the low rate is probably more a result of the few number of institutions in the LFSP areas than it is a measure of CBO capacity to form partnerships. The trend is increasing though, particularly with private sector institutions where relationships are being formed around the provision of inputs and purchasing of crops.

There are other anecdotal examples of AMCs exhibiting independent management and planning skills. In 1999, for example, AMCs in the Mapatizya Constituency were involved in organizing the distribution of relief aid. The efficiency and effectiveness of this operation was praised by Chief Moomba and even the Deputy Minister of MAFF. Other examples of AMCs taking initiative include mobilizing labor and resource of the construction of dip tanks, soliciting assistance from MAFF on specific training needs, and working with other relief agencies such as UNICEF or World Vision on borehole projects.

6.1.9 Within 5 years, community institutions will be exhibiting democratic practices and full accountability to members, and will be self-sustaining institutions

RESULTS
DEMOCRATIC AND ACCOUNTABLE CBOS: MOSTLY SELF-SUSTAINING CBOS: STARTING

The CBOs are democratic in the sense that the leadership is elected. Although there have been some issues with powerful people such as traditional authorities leading autocratically, these cases seem to be the exception and not the rule (Milimo et al., 1997). According to a recent internal evaluation, 62% of AMC have written constitutions (Hatwiinda & Whitehead, 2000). Many others have verbal constitutions or bylaws.

The question of self-sustainability is a more complex issue. Certainly the ten AMCs that were selected for graduation in 1998 met the criteria that the project felt demonstrated that they could manage on their own (see 6.1.7). The project has yet to make a comprehensive follow-up study of these graduated AMCs, but preliminary indications are that they are managing the existing activities such as the seed scheme fairly well, and some have even gone into new activities and partnerships. The fact that the majority of AMCs and VMCs still exist is also an indication that they value the roles and services that the CBOs make possible, which is a very promising indicator of sustainability.

Management of water points is responsibility assumed by many AMCs with water projects. Maintenance and collection of user fees are ongoing practices that require transparency, accountability, and self-sufficiency.

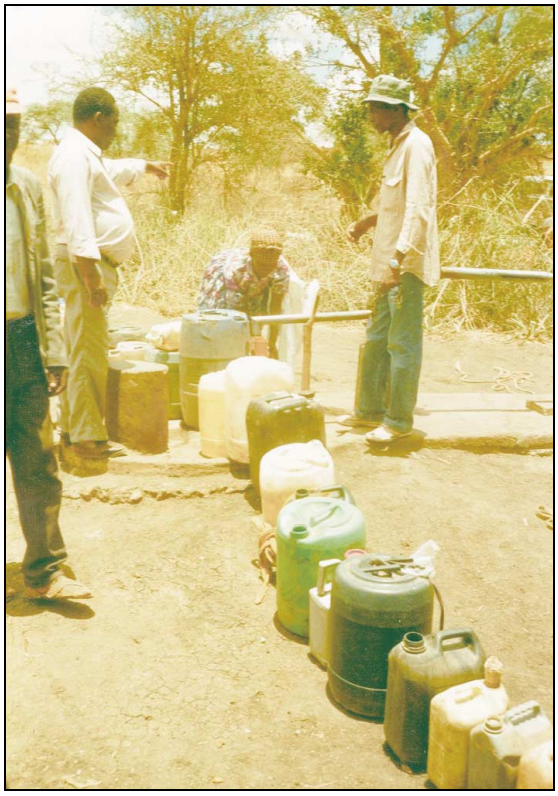


Figure 38. Management of water points.

6.2 Appropriate and sustainable farming systems

6.2.1 Within 3 years, all VMCs have achieved widespread dissemination of desired drought tolerant crop varieties

RESULTS
WIDESPREAD DISSEMINATION OF DROUGHT TOLERANT SEEDS: YES

The introduction and maintenance of drought resistant crop varieties remains the centerpiece of LFSP's contribution to improved food security in Southern Province. Within 3 years, nearly all VMCs had achieved widespread dissemination of 17-20 adapted varieties of 11 food crops within the project area of Kalomo and Kazungula Districts. The only AMCs which may not have achieved widespread dissemination of these varieties, are those where farming is secondary to other livelihoods, such as Songwe, where ornamental carving (curios) is economically more important than farming for many rural residents. Other AMCs may have become dysfunctional during the first three years, before widespread dissemination of drought tolerant varieties could occur.

Figure 39. Maize field of drought tolerant MMV400, Makunka, 1996

Figure 29 on page 30 shows the number of project beneficiaries, virtually all of whom benefit from the seed scheme. Figure 43 on page 50 illustrates the scope of crop diversification in the project by showing the total number of crops and varieties distributed by LFSP per year. Table 2 below lists the amount of seed distributed by LFSP to farmers. Once this seed reaches the farmers, it is further multiplied and disseminated both within the project area as well as to non-participants.

Seed Distributed by LFSP

(all units in kg unless otherwise noted)

Crop	1994/95	1995/96	1996/97	1997/98	1998/99
Maize				12,876	14,897
MMV400		8,250	3,600		2,500
GV 412 (hybrid)		1,480			
Pool 16		600	5,315		2,490
Total maize:		10,330	8,915	12,876	19,887
Sorghum				2,891	1,983
Kuyuma	678	3,962	3,232	194	3,555
Sima		9,123			
Total sorghum:	678	13,085	3,232	3,085	5,538
Pearl millet				56	461
Kaufela		1,580	44		
Lubasi		135	234		200
Total Pearl millet:		1,715	278	56	661
Groundnuts				3,810	1,305
Natal Common		4,748	5,005	230	6,950
Chipego		120	67		
Falcon					3,000
Total Groundnuts:		4,868	5,072	4,040	11,255
Cowpea				1,425	940
Lutemmbwe	150	1,432	850	542	650
Bubebe	128		400	403	656
Total cowpea:	278	1,432	1,250	2,370	2,246
Green Gram					
RSA 1		169		196	43
Total Green Gram:		169		196	43
Bambara nuts					475
red buddy				500	920
brown breed				493	921
freacle				500	920
Total bambara nuts:				1,493	3,236
Sunflower					
G100		390		103	
Record					2,425
Total sunflower:		390		103	2,425
Cassava (cuttings)					
Bangweulu		3,171	30	1,530	2,140
Sweet Potatoes					
Chingovwa					1,080
Zambezi					6,840

Crop	1994/95	1995/96	1996/97	1997/98	1998/99
Total Sweet potatoes:					7,920
Tree Species (seedlings)					
Cedrella		100			
Neem tree				950	
Guava				148	3
Pawpaw				174	
Mulberry				165	
Mango				58	
Nsombo				83	
Soil Improvement Crops					
Sun hemp			25	180	
Velvet Beans			36	130	270
Sesbania sesban				14	20
Tephrosia					6

Table 2. Amount of seed distributed by LFSP to participating farmers.

Figure 40 below shows the actual average amount of seed planted per farmer from each of the different seed sources. It can be noted that since 1998 the amount of CARE seed planted by farmers has been roughly constant, while the amount of seed kept or purchased seems to be increasing. This suggests that the relative importance of CARE's infusion of new seed into its beneficiaries is going down as local seed stocks and private sector sources become stronger.

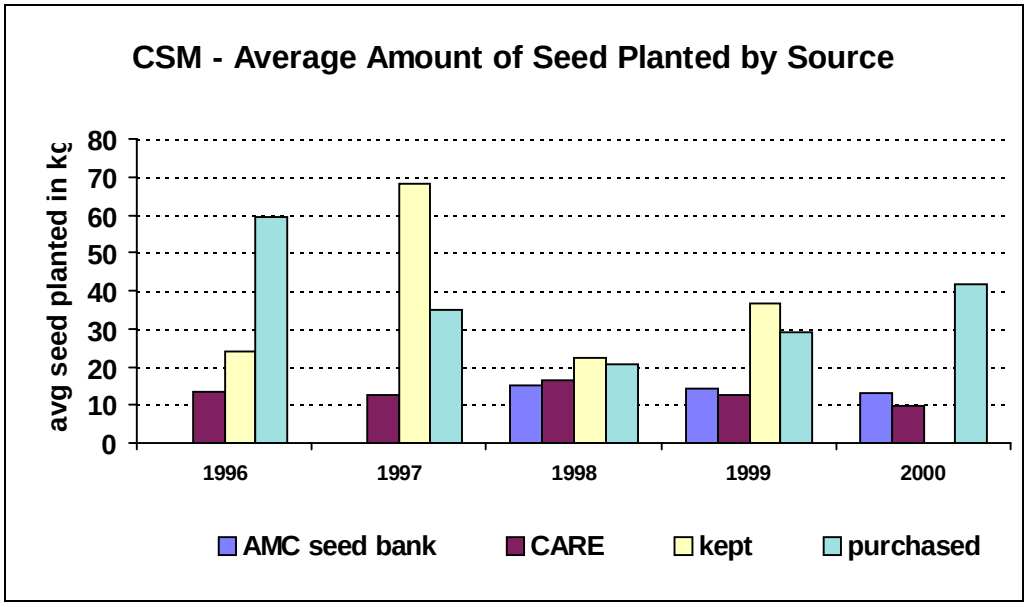


Figure 40. Average amount of seed planted per household by seed source.
Source: CSM database.

6.2.2 Within 3 years, farming system improvement experimental activities will be in process in 80% of AMCs.

RESULTS
EXPERIMENTAL ACTIVITIES: BELOW TARGET

Currently, about 24 of the 54 AMCs are conducting demonstrations of improved farming system technologies (see Figure 41). This represents about 45% of the AMCs, less than the 80% target by year three. A demonstration is defined as when the Farming Systems Technical Unit provides demonstration materials and instruction to a farmer in the AMC, usually the facilitator, who then sets up a demonstration plot for the new technology.

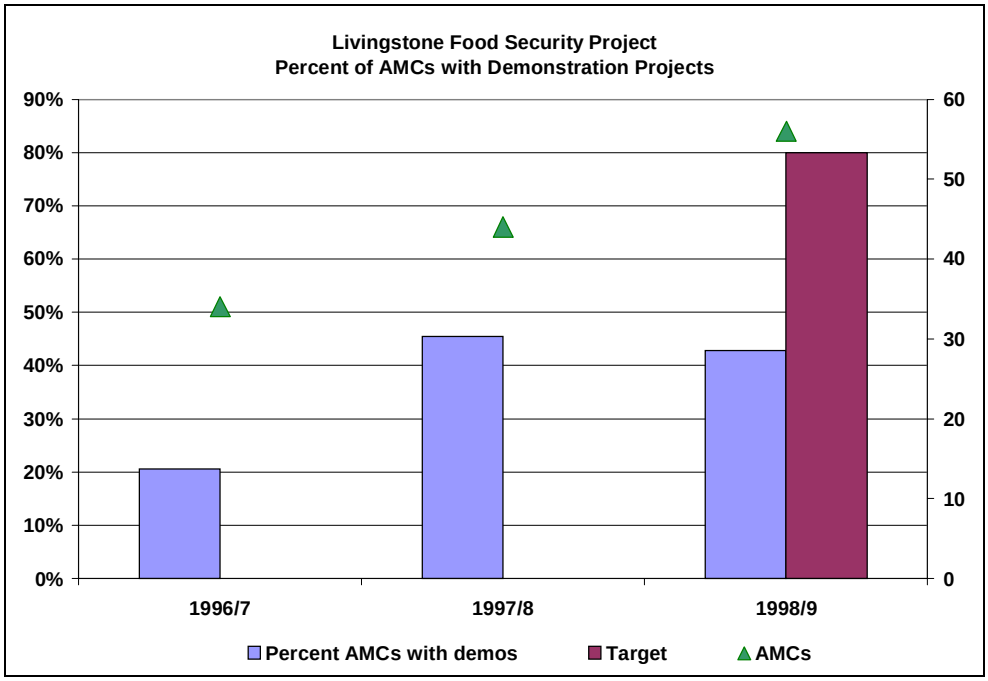


Figure 41. Percent of AMCs with demonstration farming systems projects.
Source: LFSP Farming Systems Section.

6.2.3 Within 1 year, 30 farmer extension facilitators will have been selected by communities, and will be operational. (60 after 3 years)

RESULTS
NUMBER OF FACILITATORS: ABOVE TARGET

Facilitators are elected by their communities to act as local extension agents. Facilitators serve as an important entry point for extension programs, and work with the heads of cell groups to disseminate information on activities and new technologies. Project extension officers rely on facilitators to help with monitoring and coordination of project activities, and have accordingly encouraged AMCs to elect and support facilitators. There are two to three

facilitators per AMC. The project is well above their target of 60 trained facilitators within three years (see Figure 42).

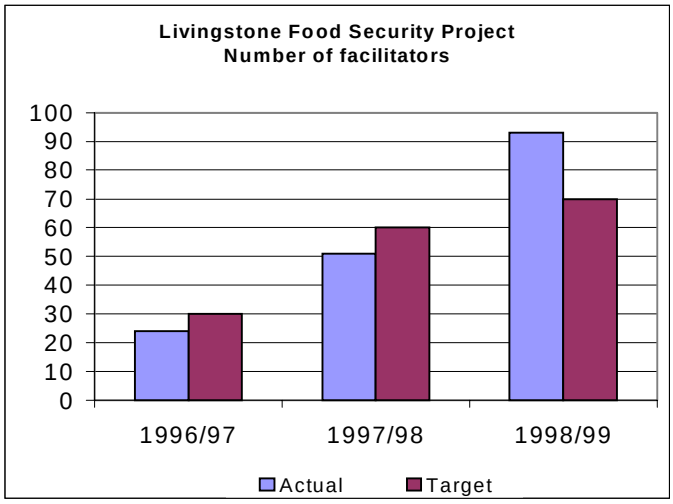


Figure 42. Number of facilitators, actual and target.
Source: LFSP.

6.2.4 Within 3 years, a farmer-to-farmer extension system will be in place with facilitators receiving and passing information, conducting training and facilitating the activities of the VMCs and AMCs

RESULTS
FARMER-TO-FARMER SYSTEM: IN PLACE

As noted in 6.2.3 above, the project is above target in establishing and supporting local facilitators in almost all AMCs. The evaluation team visited many of the facilitators during field visits, and was in general impressed with their abilities and achievements. They frequently seemed younger, quicker, more energetic than their counterpart AMC Chairmen. They are often the most innovative in the community, and anticipate and challenge risk associated with trials of new technologies.

LFSP has supported the community facilitators with an on-going training program. Table 3 below lists the training of trainers courses which have targeted facilitators since 1996.

Year	Focus of Training	Participants	
		male	female
1996	Facilitation skills	24	0
1998	Facilitation skills	34	1
1999	Participatory Interest Group Training	47	5
1998	NRM around dams	18	0
1999	Soil moisture conservation	90	10

Table 3. Training of trainer programs held since 1996 which included facilitators in the target audience.

6.2.5 Within 5 years, 30% of farmers in seed groups will have adopted one or more farming system improvement practices

RESULTS
HOUSEHOLD ADOPTION OF IMPROVED FARMING PRACTICES: DATA NOT AVAILABLE

The Farming Systems section has worked closely with selected farmers and CBO facilitators to setup a network of demonstrations of improved farming practices. See the Technology Matrix in Annex V for a complete list of the improved farming practices being promoted in LFSP.

Presently there are demonstrations in 24 out of 54 AMCs (44%). However not all farmers in these AMCs have adopted the demonstrated technology, and the project does not collect data on individual farmer adoption rates. There are, however, many case studies in quarterly and technical reports of how the improved farming system practices are improving agricultural production. In the case of use of improved seed varieties, the adoption rate is near 100%.

6.2.6 Production of increased range of cereal, legume, cucurbit, vegetable and fruit crops by different households

RESULTS
INCREASED RANGE OF CROPS: YES

Although production is not systemically monitored in the project, we can use seed distribution as a reasonable proxy for production of a greater variety of crops. Figure 43 below shows the number of crops and varieties distributed by the project per year.

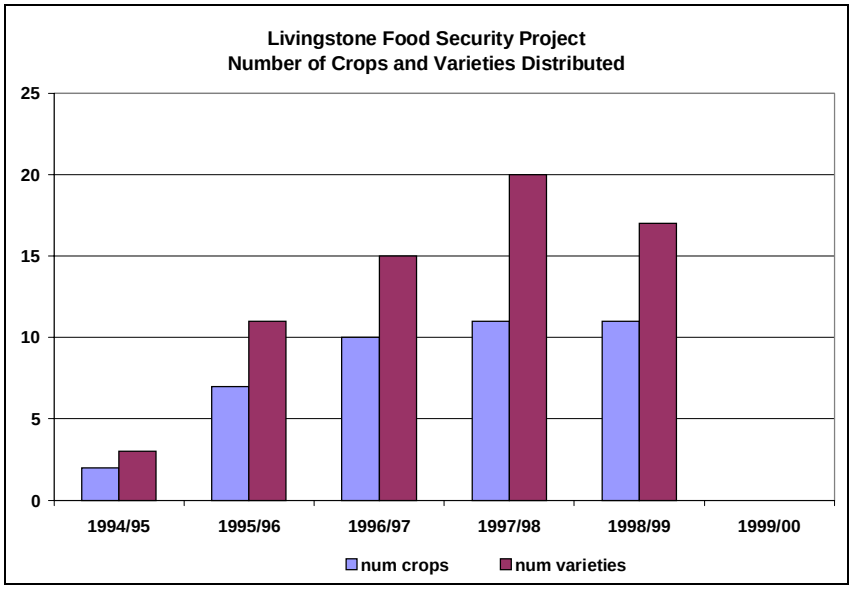


Figure 43. Number of crops and varieties distributed by LFSP.
Source: LFSP Farming Systems section.

6.2.7 Improved tillage, cropping, soil fertility management and moisture conservation practices

RESULTS
IMPROVED FARMING METHODS: YES, BUT MOSTLY IN DEMONSTRATION PHASE

As noted in 6.2.2 above, demonstrations of improved farming practices are currently being conducted in 24 AMCs. The Technology Matrix in Annex V lists the specific farming methods being tested by the project.

The evaluation team encountered farmers in Kalomo using cover crops, however because the technologies are still mostly in the demonstration phase, there is little data on adoption rates. One of the challenges facing the project is to develop strategies to scale-up the use of specific farming methods, and establish methods to monitor their adoption.

Figure 44. Shifting kraal, Delevu.
Shifting kraals are being promoted as a technology to improve soil fertility in areas with livestock with no additional labor input required by the farmer. Source: Robby Mwiinga

6.3 Improved water harvesting and natural resource management practices

6.3.1 Within 3 years, all AMCs will have undertaken water resource analyses, developed priorities and action plans and are undertaking water harvesting and supply activities

RESULTS
WATER RESOURCE ANALYSES AND PROJECT: GOOD, BUT BELOW 100% TARGET

A recent study found that 82% of the water committees were able to independently plan, develop priorities, manage and operate water structures (Hatwiinda & Whitehead, 2000). This is below the 100% target specified in the Cooperative Agreement, but still impressive. Table 4 below list details on the water projects undertaken in Kazungula since 1995, while Figure 45 shows the location of dams. Note the water projects in Kalomo which are financed by DFID or in partnership with UNICEF or World Vision are not included.

Dam	Period with water	Capacity (M3)	Number of cattle	Benefic-iaries	Utilization
1.Delevu	New dam ?	37,500	900	400	L, D
2 Siankali	12 months	25,000	700	700	L, D
3 Muzumbwe	12 months	13,000	1,000	2,000	L, D, I
4 Katapazi A	New dam ?	4,200	N/A	100	I
5 Katapazi B	New dam ?	4,400	N/A	700	I
6 Sinde weir.	12 months	6,000	1,000	800	FF, I, D, L
7 Jack Mwanapapa	8 months	7,220	64	150	FF, I, D, L
8 Siafwipa	12 months	7,500	900	600	L, I
9 Kooma mooka	8 months	6,000	800	300	L
10 Mapanda	9 months	7,500	558	719	L
11 Malimba	12 months	18,000	2,100	2,660	L, FF, I, D
12 Sibandwe	8 months	6,000	500	600	L
13 Zulu weir	11 months	6,500	300	2,500	L, D
Total		**148,820**	**8,822**	**12,229**	

Table 4. Dams constructed in Kazungula district since 1995.
Source: (LFSP, 1999a). Utilization codes: FF = fish farming; L = livestock watering reservoirs; I = irrigation and vegetable gardening; D = domestic reservoir for human consumption.

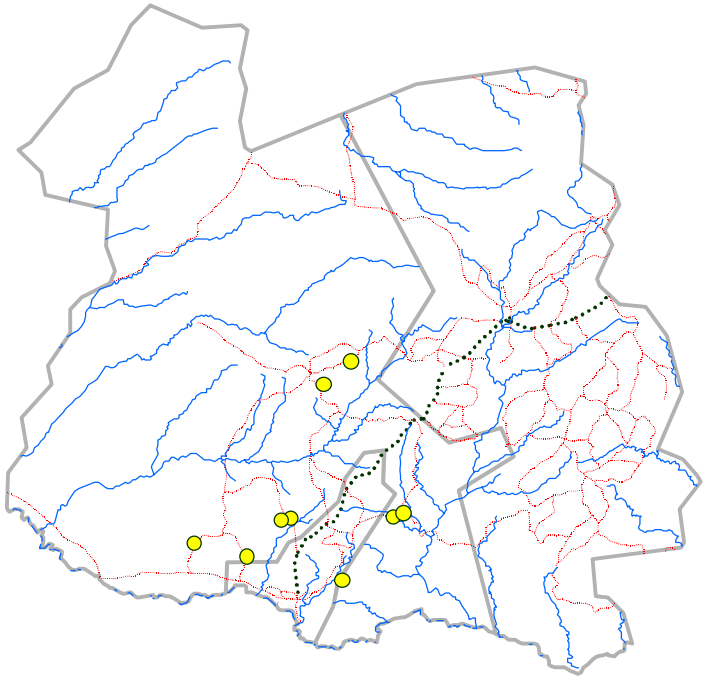


Figure 45. Location of dams built in Kazungula since 1995.

Water harvesting Structures	Structures Completed	Rehabs	New	Cattle Population	Irrigated area (Ha)	# of Beneficiaries
Boreholes	47	7	40			12,000
Dams & weirs	13	7	6	8,722	20	10,270
Wells	20	0	20		5	20
Springs	7	7	0			1,750
Artisan wells	3	3	3			300
Irrigation pumps	1	0	1		3	200
Total	**84**	**23**	**70**	**8,722**	**25**	**24,540**

Table 5. Number/type of water harvesting structures in Kazungula, 1995-1998.

Figure 46. Siabandwa dam undergoing rehabilitation with tractor and dam scoop.
Source: Robby Mwiinga.

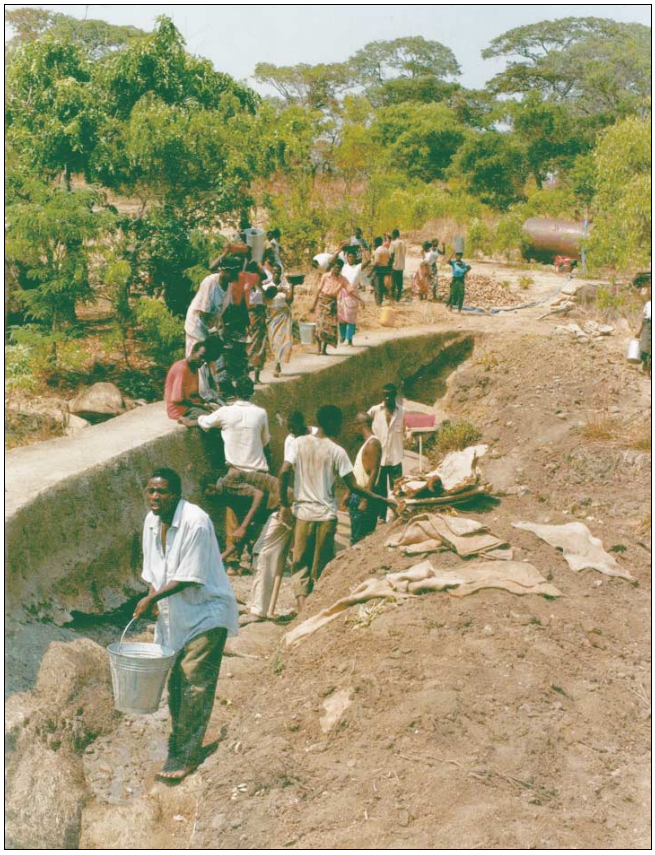


Figure 47. Weir rehabilitation in Nyawa.
About 1/4 of dam/weir projects are rehabilitations like this one.

6.3.2 All water committees are affiliated with district WASHE structure.

RESULTS
WATER COMMITTEES AFFILIATED WITH WASHE: YES

By the end of the third year of the project, all 63 Water Committees were affiliated with D-WASHE structures in both Kalomo and Kazungula Districts.

6.3.3 Establishment of dry season irrigation and market gardening schemes in 5 AMCs within 3 years

RESULTS
DRY SEASON IRRIGATION AND MARKET GARDENING: TARGET MET

Dry season irrigation schemes for vegetable and fruit production activities have been established in 7 AMCs, resulting from dam and weir construction. Dry season vegetable production activities have also been initiated in 5 as a result of well construction activities of the project. Twenty hectares are currently being irrigated from the 7 dam and weir constructions and 5 hectares are being irrigated from well constructions. Table 10 below shows that there are 7,010 AMC/VMC members who are beneficiaries of vegetable garden plots, irrigated from dams and weirs (although the average 29 m^2 per

beneficiary is a very small garden), and 20 beneficiaries of vegetable gardening plots, irrigated from wells.

New Water Source	Vegetable Production Area	Vegetable Production Beneficiaries
Dams & weirs	20 ha	7,010
Wells	5 ha	20

Table 6. Vegetable production resulting from water harvesting technologies.
Source: LFSP.

The SEAD section has also been involved in boosting dry season vegetable production through the promotion of treadle pumps. The project has given out 19 treadle pumps on a loan basis for demonstration purposes. To supply the pumps LFSP partners with International Development Enterprises, a Lusaka-based NGO which provides a cheaper source of locally manufactured pumps.

Figure 48. Woman demonstrating the treadle pump for vegetable irrigation

After the pumps have been demonstrated in an area, farmers who with to obtain one are required to purchase them directly from the supplier. To build up rapport between the farmers and the supplier of treadle pumps, LFSP serves only as a coordinator and credit provider for the demonstrations.
The supplier conducts the actual installation and training of the pumps. Although no farmers have yet purchased pumps after seeing the demonstrations, several have made inquiries.

6.3.4 Experimentation with on-farm water harvesting practices by farmers in 50% of water committee areas within 3 years.

RESULTS
EXPERIMENTATION WITH ON-FARM WATER HARVESTING: EXPERIMENTATION IS TAKING PLACE, BUT QUANTITATIVE DATA NOT AVAILALBLE

Although there are a lot of case studies on how water projects are benefiting LFSP farmers (see box below for an example), the evaluation team was not able to find a synthesis on the number of farmers experimenting with on-farm water harvesting practices.

Effects of training on dam construction and NRM on Katapazi community

Mr. Jossam Sichonti of Katapazi situated 60km north of Livingstone has constructed an embankment of about 2m high, to harvest about 1200m^3 of water from a catchment of about 3km^2. He has put up a 1½" pipe at the base of the embankment in order to drain off excess water downstream where he intends to utilize the same water for irrigating vegetables.

On the upstream part of the dam. He has ploughed 3500m^2 of land where he is going to grow leguminous crops and maize. He has put up gabions as part of contour ridging and he intends to trap most of the rich silt in order to improve his soil fertility.

The following are the benefits of his embankment which he cites:

- Improved soil fertility by deposition of silt and increase in the soil moisture content.
- Irrigating his vegetables and other useful plants like vetiver grass.
- Increasing the water table for future use (e.g., to construct shallow wells for irrigation purposes).
- To resuscitate the springs and to increase their discharge by recharging the underground water table.
- To plant vetiver grass as part of contour ridging for long term sustainability.

Lastly, he thanked CARE for teaching him on how to manage the natural resources and different methods of harvesting the water.

6.3.5 Within 3 years, 30% of AMCs have developed and are implementing broader resource management guidelines and strategies

RESULTS

BROADER RESOURCE MANAGEMENT PRACTICSES: ABOVE TARGET

A recent internal evaluation found that 80% of the AMCs are currently implementing broader NRM guidelines and strategies (Hatwiinda & Whitehead, 2000). NRM strategies include use of technologies such as vetiver grass of stabilizing banks around weirs and dams, zoning around water points for human and animal use, and other soil erosion mechanisms such as gabions and stonelines to trap silt and prevent erosions around gullies.

The high adoption of resource management practices around water projects should not be surprising, as many of the technologies are designed to reduce siltation which is widely acknowledged to be one of the factors than can reduce the length of time during which standing water remains after the rains. Erosion prevention technologies are therefore highly in demand and part and parcel of most water structure rehabilitation or construction projects.

However the project should not rest on its laurels in terms of NRM adoption, as there is still much unmet need for NRM practices. Most of the NRM practices are focused on the prevention of siltation in the immediate vicinity of water points. The water section acknowledges the need for broader watershed management practices, however this has been more difficult to sell to the water committees because the benefits are not immediately seen. The project recognizes it has more work to do in demonstrating the long-term benefits of NRM practices on water quantity and quality. To move in this direction, it needs to focus on more participatory monitoring programs using tools such as erosion pins, vegetation sampling, water quality monitoring, and field mapping.

Figure 49. A water committee visits Siabandwa dam.
Exchange visits help communities learn about dam construction, maintenance, and the role of NRM in preventing siltation. Here newly planted vetiver grass can be seen on the dam wall.
Source: Robby Mwiinga.

6.4 Increased incomes and income earning opportunities

6.4.1 Analyses undertaken of household livelihood strategies

RESULTS
LIVELIHOOD STRATEGIES ANALYZED: COMPLETE

Household livelihood strategies are central to LFSP's operational strategy, and have been the focus of several internal and external reviews. They were a major focus of the of the PRA exercises in 1995 that formed the basis of the project intervention strategy. They were also the focus of a marketing consultancy in 1997 (Milimo et al., 1997). More recently, the 1999 internal mid-term review reviewed livelihood strategies using PRA techniques such as food calendars (Ndiyoi et al., 1999).

The project continues to analyze livelihood strategies whenever new PRAs are conducted including in the recent expansion areas. The Food Production Trends Survey and Community Self-Monitoring books provide additional insights into the strategies used by rural households in terms of crop mix, coping strategies, and land use.

All of the above mentioned data collection methods generate useful information, but a complete understanding of why people do what they do (or don't do what they don't do) is not yet a battle won. There are several issues that need to be further explored, because the success of new action lines such as livestock management and NRM depend on a sound understanding of livelihood requirements and options.

6.4.2 Diversification and expansion of a range of income earning opportunities

RESULTS
DIVERSIFICATION OF INCOME EARNING OPPORTUNITIES: YES, BUT ON A LIMITED SCALE

LFSP's activities to diversify income-earning opportunities have focused on combining CBO capacity building methods, appropriate technologies, and market linkages to support the development of small group enterprises. Some beneficiaries have capitalized on skills and technologies promoted by the project to enter small scale market ventures on their own, such as vegetable gardening or handicrafts, with little or no dependence on LFSP. However operationally the income generation component of the project is focused around Interest Groups. Interest groups fall under the AMC level and are thematically oriented around an enterprise strategy or capacity building theme.

Presently there are approximately 205 Interest Groups listed with the project, with over 2,000 members (60% male, 40% female). Judging only by the titles, some of these interest groups may only exist on paper, and it will take time to determine which ones truly develop into viable group enterprises. Figure 50 below shows the breakdown of the different interest groups by focus.

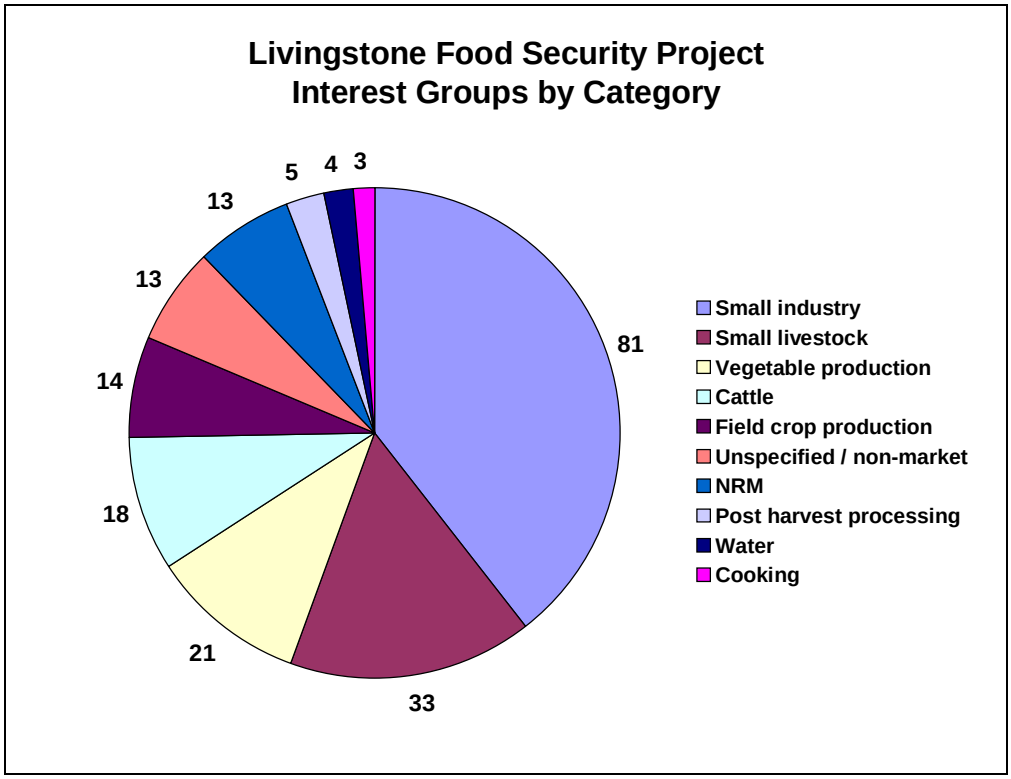


Figure 50. Interest groups by category.
Source: LFSP.

Small Industry Interest Group Topics	
▪ Baking	▪ Grocery projects
▪ Basket making	▪ Household and laundry
▪ Beer brewing	▪ Knitting
▪ Black smithing	▪ Mats & brooms
▪ Brick laying	▪ Natural pest control
▪ Brick making	▪ Piggery production
▪ Carpentry	▪ Pit latrines
▪ Carving	▪ Pit sawing
▪ Cookery	▪ Poultry production
▪ Curios	▪ Sewing
▪ Goat rearing	▪ Tailoring

The project has begun to note that most of the training topics requested for by interest groups lies outside LFSP's range of staff skills and capacity. This has caused some delay in implementation and training (LFSP, 1999a). This finding also highlights the need to focus on forging institutional partnerships to better support interest groups. For example, the Export Board of Zambia has

assisted on several occasions in training and setting up market linkages in areas such as curios production and thatching grass.

Although LFSP doesn't monitor or maintain a central database of income earning activities, there are plenty of anecdotal examples of increased rural income through IGAs (see box below).

Mandia Vegetable Gardening

In 1996 CARE provided group loans to the 10 vegetable interest groups. The loan was in the form of inputs; seed, chemicals and PVC pipes. The loan amount disbursed was K373, 615.00. Group peer pressure was to be used in recoveries. The loan was to be paid over a period of 6 months. Full loan repayment was made in 1997. A mini research indicated that over one million Kwacha was generated besides full loan repayment. 75% of the participants were able to buy school uniforms and shoes for their children. Part of the income realized was used to buy other necessities such as groceries.

Figure 51. Thatching grass ready to be sold.
Thatching grass is an example of an income generating activity supported by LFSP. Buyers include hotels in Livingstone and Zimbabwe. Source: LFSP.

6.4.3 Expansion of internal trading and marketing within 2 years of seed scheme become operational in each area.

RESULTS

EXPANSION OF INTERNAL TRADING AND MARKETING: YES, BUT LITTLE DATA TO BACK IT UP

There is strong anecdotal evidence that farmers are bartering maize and other crops among themselves and with non-participating farmers though internal trading networks. Cowpea is an example of one crop where in some areas

much of the demand for local production is internal. Seed is also exchanged and sold up to 50 km from the source (Milimo & Tripp, 1999).

Despite the seemingly common practice of internal trading and marketing, the project has not documented or attempted to quantify the scope of the trade or the networks used. This would be a difficult process to measure accurately, however the project could begin to capture the scope of internal trading by including crop sales and trading in the CSM.

6.4.4 Pilot marketing and schemes established in 5 AMCs within 1 year

RESULTS
PILOT MARKETING SCHEMES: YES (BUT NOT BY YEAR ONE)

For a discussion see 6.4.5 below.

6.4.5 Within 4 years, market linkages established between traders and AMCs, or directly with urban centers, for 80% of the AMCs

RESULTS
LINKAGES WITH URBAN MARKETS: BELOW TARGET

During the formative PRA exercises conducted in 1995, the lack of access to markets was identified as one of the barriers to improving food security and raising rural income. Farmers had trouble both buying goods such as food and inputs, and selling their produce. Hence marketing was selected as one of the focal activities of the SEAD section.

Five years later, the need for stronger marketing has only increased. The sustained demand is due to 1) increased production surplus due to improved farming practices, 2) the need to raise household income as a way of strengthening the asset base to mitigate against drought, 3) the need to build structures and linkages that will outlast the project.

LFSP has tried to support marketing through three main mechanisms, 1) outgrower schemes, 2) community training, 3) direct involvement in setting up linkages.

Outgrower schemes
The first outgrower scheme was with Bimzi for paprika. The plan looked promising in the beginning. Two AMCs, Katapazi and Siandazi, were selected to participate, and CARE distributed 48 x 500g of paprika seed on a loan basis. However from there things began to fall apart. Bimzi was supposed to provide extension training and fungicide, but didn't. Farmers didn't understand the water requirements of the plants and relied only on natural rainfall instead of irrigating. Some never transplanted the seedlings. Of the expected 20 tonnes of paprika only 0.5 was produced. Bimzi refused to send a truck for such a small amount, and wanted to CARE to pick up the cost of transport. They also stated they would only buy the highest grade. Farmers started side-selling to

Cheetah Zambia. In short, it was a disaster. However all was not lost with the paprika outgrower scheme, as it was tested on a small scale and valuable lessons were learned (see box below).

Lessons Learned from the Paprika Outgrower Scheme

- Ensure that the agribusiness, the CBOs, and the project have a very clear understanding of each other's responsibilities.
- Ensure that farmers are capable of growing the crop. In the case of paprika, only farmers who have the ability to irrigate should be allowed to participate.
- A crop which has never been grown before in the area is not the best choice for an outgrower scheme.
- Start small, and cut your losses early if it doesn't work.
- Credit makes everything more complicated.
- Frequent extension contact is needed to ensure that farmers are complying with the terms of the agreement.

Based on the lessons learned from the first outgrower attempt, LFSP organized two other outgrower programs. An outgrower scheme based on maize, a crop which is already proven and well-known to the farmers, is currently in its second year with Omnia. This scheme has no credit component, so all inputs have to be purchased with cash. Omnia rents sheds from the Food Reserve Agency (FRA) in the areas of the scheme, so transport is less of an issue. In addition to the Omnia outgrower scheme, there are also new outgrower schemes with Castor Company for castor, and Amanita for sunflower and sorghum. Figure 52 shows the locations of the outgrower schemes.

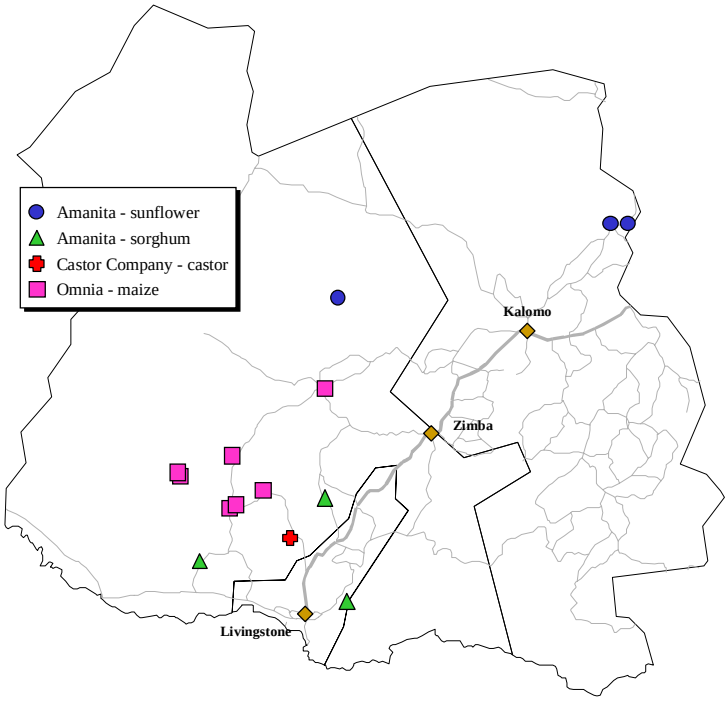


Figure 52. Locations of outgrower schemes

Community Training
Although training in marketing was initiated fairly late, it has shown some promising results. Market training was conducted for about 40 farmers in Nyawa and Mweemba in March 1999. As a result, farmers became more oriented to market conditions in Zambia, and Omnia started selling inputs and buying maize from LFSP farmers to the tune of K75,000,000 in 1999. In April 1999, another marketing training was conducted in Makunka for about 35 farmers. This also resulted in Omnia renting a shed from the FRA to begin selling inputs and buying maize from farmers.

The project has also facilitated marketing along the 'vegetable belt' in the escarpment area, Kasiya, Jack, and Mandandi. LFSP staff helped vegetable growers there set up a market information system, a summary of vegetable varieties, volumes, and availability dates which was distributed to traders in Livingstone. This resulted in a number of orders from traders as far away as Botswana and Namibia.

A topical appraisal in forest product marketing was carried out in Chief Sekute's area in 1999. This revealed that a significant amount of income was being generated from forest products in the form of timber and reed mats. Results from this appraisal were incorporated into a proposal on Joint Forestry Management.

Direct involvement in setting up linkages
The project is in the process of playing a direct negotiating role in setting up market linkages with other private sector bodies, including Finta (milk), the Export Board of Zambia (curios, vegetables), Sun International (thatching grass), and National Milling (sorghum). These linkages were first identified in 1998 (LFSP, 1998b), however have taken a long time to develop.

Summary
LFSP has made some promising inroads into establishing external market linkages through outgrower schemes, training, market information systems, and direct facilitation. This has resulted in new market linkages for vegetables, maize, castor, sunflower, sorghum, curios, grass, and miscellaneous forest products.

However the benefits of the marketing efforts have reached only a fraction of the AMCs, and although the data is not well organized, one can safely conclude that they have fallen short of the target of reaching 80% of AMCs. The achievements are generally isolated, small scale, and labor intensive. A reasonable question to ask is why has the marketing efforts progressed so slowly?

There are several challenges that have faced LFSP's efforts to establish market linkages, and will probably continue to do so. First, agricultural production

levels are improving but still relatively low[1] relative to other areas that compete in the market economy. Second, many of the LFSP farmers are far away from the road network, making communications and transactions logistically challenging and expensive. Third, LFSP has had difficulty finding a qualified staff person to head the SEAD section, and the position is currently vacant. Fourth, unlike the farming systems section, the farmer-to-farmer network has not been effectively used to spread marketing skills. And finally, developing marketing linkages where none exist simply takes a lot of work and time.

It may also be that much of the achievements in marketing simply haven't been captured by the project. Monitoring and documentation of the SEAD section is probably the weakest in the project. There are a lot of case studies and examples of individual AMCs, but the information is not well organized and the SEAD section has not developed a standardized reporting format for impact monitoring. Unlike the seed scheme or water section, there is no master database of all beneficiaries of marketing activities. This is partly due to the vacancy of the SEAD coordinator position, and partly due to the difficulty of capturing information on income generation and informal trade. One way that trading can be better monitored is to record it in the CSM.

However there are already some lessons to be learned about the strategies that LFSP has so far used to strengthen market linkages. One of the objectives of a marketing program should be to maximize cost-effectiveness, in other words setting up the greatest number of market linkages for the least amount of cost. In terms of cost-effectiveness, some of the strategies used by LFSP have been more cost efficient than others. Outgrower schemes are fairly time-intensive to set up, however they have the potential of reaching a fair number of farmers and once established they can grow on their own. The outgrower scheme with Omnia which focuses on maize production, has the potential of growing to reach a greater number of farmers. Maize production is well known among farmers, so the main limiting factors with this scheme are the capacity and interest of Omnia, the availability of sheds to rent, and production volume.

On the other hand, a strategy based on organizing workshops and using project staff to contact traders directly to market forest products, curios, or thatching grass may result in new market linkages on a limited scale, but may not be a strategy that will likely have broad impact or be easily replicated elsewhere. This approach of direct support of small-scale marketing may be the best that can be done in the difficult environment, but there are some other strategies that seem to have yielded broader results for less investment. The development of market information systems has worked particularly well for vegetable growers in the escarpment zone. If the method can be simplified and made less dependent on LFSP staff, then this could be a technology that could be used on a wider basis. This is a marketing technology which is also easily transferable to other commodities such as forest products.

[1] The one exception is vegetable production in the escarpment, which benefits both from adequate water and also close proximity to Livingstone.

Other strategies that may help broaden the reach of LFSP's marketing efforts include forming partnerships with institutions such as MAFF extension, whereby MAFF officers can be trained to teach marketing strategies and spread marketing information. There may be other institutions with a presence in the project area that could help serve as a conduit for marketing efforts. Something comparable to the farmer-to-farmer system, which has worked so well for the farming systems unit, may also help increase the impact of the marketing program.

Ultimately, the bad roads, poor soils, and marginal rainfall are going to limit the effectiveness of any approach to build market linkages, however the project should concentrate on strategies that will have the broadest impact, can be replicated in other areas, and sustained past the project completion date.

6.4.6 Saving schemes established with 4 AMCs in 2 years and 10 AMCs in 4 years (approximately 1,000 then 3,000 member HHs)

6.4.7 Savings and credit schemes established within 2 AMCs in 2 years (approx. 500 HHs) and 5 AMCs in 4 years (approx. 500 then 1,500 member HHs)

6.4.8 Management and monitoring systems established for savings and credit schemes

6.4.9 All members of schemes trained and understand scheme systems

6.4.10 Management of schemes undertaken by elected committees

RESULTS
SAVINGS AND CREDIT SCHEME: DIDN'T WORK

During the 1995 PRA exercises, it was learnt that people save in the form of livestock, (cattle and other small livestock), grain, and in the form of plain cash. It was further learnt that people find it difficult to open bank accounts because of the high minimum balances, monthly fees, and distance to banks.

Subsequently, the project developed a pilot savings and loan scheme model and incorporated it into the design of LSFP. The rationale behind increasing household savings included:

- In times of hunger one can withdraw his savings to buy food.
- When savings accumulate, it becomes easier to buy bigger assets such as production assets like ploughs and work oxen.
- Savings provides a sense of security
- Borrowing from friends, relatives, lending institutions and other becomes easier if one has savings as collateral.

Based on the PRA results, LFSP recognized that the highest potential to generate income was in the escarpment, where vegetable gardening is practiced. Consequently, the savings scheme was piloted in two AMCs in the escarpment zone, Mandia and Katapazi.

Currently, the savings scheme is running in five VMCs (Lizazi, Katapazi, Libonda, Makamisa, and Jack) in the escarpment area of Chief Sekute and Chief Mukuni. All the VMCs are depositing their savings with Barclays Bank through the CARE account, and CARE absorbs the bank fees. This account earns interest at the rate of 11.5% per annum, which is less than the 20-30% annual inflation. It's estimated that 99% of community savings banked so far have been generated from vegetable sales.

Training of savings group members was conducted by the project, however a viable managing and monitoring system was not established for savings groups. This was because of the short duration of the activity and also because the money saved was in the CARE account in Livingstone, not in the account of the savings groups themselves.

By 1998, savings had completely stagnated. To date a total of only $460 has been banked with the scheme. Reasons for the low rate of savings are summarized in the box below.

Reasons why the savings and loan scheme didn't take off

- The loan scheme was modeled on a scheme from the PULSE program, which is based in an urban area where income is higher and more regular
- Income in rural areas is seasonal, making regular savings difficult
- Income in most LFSP areas is marginal to begin with, and often needed to buy food for the hungry season
- The bank interest is lower than the inflation rate, so farmers lose value on their money rather than gain
- Savings was linked to loans, so the incentive to deposit money was not to save for a rainy day but to leverage project loans
- Loans were delayed or never materialized, so people became discouraged

Even if some of the above problems hadn't occurred, there were flaws in the design of the savings scheme. The only real incentive to save was the hope of getting a loan. A few people got loans, however many didn't and lost their interest in the scheme. The management of the accounts was also run by CARE. Thus farmers did not get involved in managing their accounts, so it would not have been very sustainable even if the bank charges and high inflation didn't reduce the value of the savings.

LFSP states they will soon drop the savings scheme entirely. They have written to the bank to give the exact interest rates so they know how much to

return to the farmers. It was a good try and lessons were learned, but the loan scheme did not work very well.

6.5 Reduced vulnerability to drought and improved household food security

6.5.1 Within 5 years, 80% of households which are members of seed groups are exhibiting improved food and livelihood security and reduced vulnerability to drought.

RESULTS
IMPROVED FOOD SECURITY: QUALITATIVELY: DEFINITELY YES
QUANTITATIVELY: PROBABLY YES

The ultimate goal of LFSP is to improve household food security and reduce vulnerability to drought. These are both complex variable to measure and can best be assessed by looking for agreement in a variety of indicators.

The internal mid-term review, which conducted rapid rural appraisals in ten AMC centers over a two-week period in June 1999, revisited many of the same issues as the original PRAs held in 1995. They noted a significant increase in the amount of locally produced food in the diet of the LFSP communities, from 5% in 1995 to 41%. On the other hand, relief food, which was a major coping strategy in the first half of the decade, contributed only 5% to household food budgets in 1998 (see Figure 53). The appraisals also found that 34% of the households are now maize secure over a period of 9 months, compared to only 5% having food for less than six months in 1995 (Ndiyoi et al., 1999).

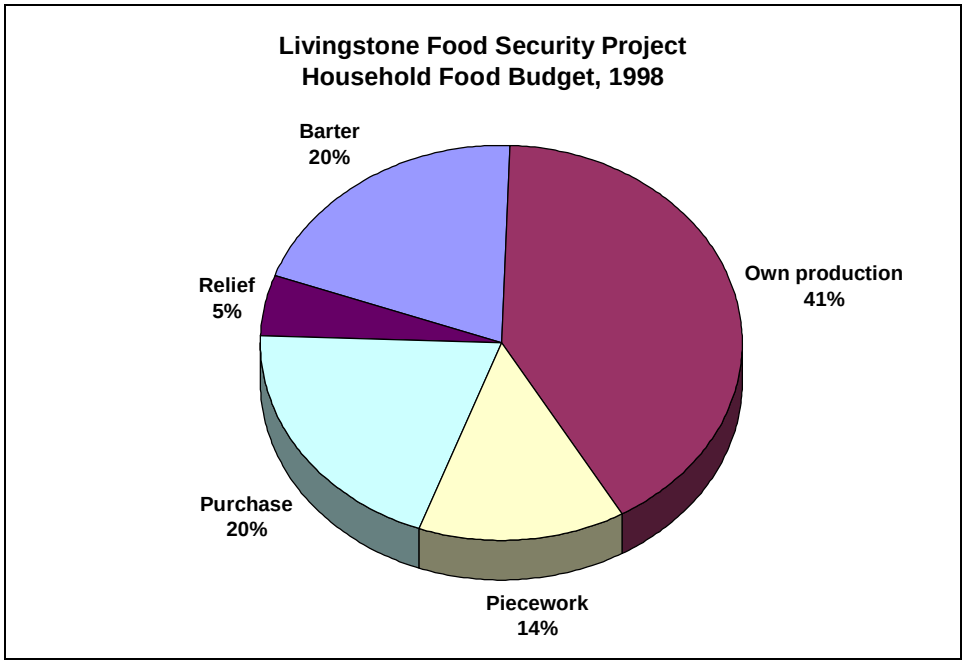


Figure 53. Household food sources, 1998.
Source: (Ndiyoi et al., 1999).

The CSM database provides other measures of project impact on food security. Figure 54 shows slight increases in the post-harvest period with food for maize for the escarpment[2], kalahari, and plateau. Although somewhat preliminary due to the small sample sizes (see Figure 34 on page 38), when the project Monitoring and Evaluation team enters more data into the CSM database this measure of impact on food security will become more definitive. Studies by the project have also detected a slight increase in overall food availability (see Figure 54).

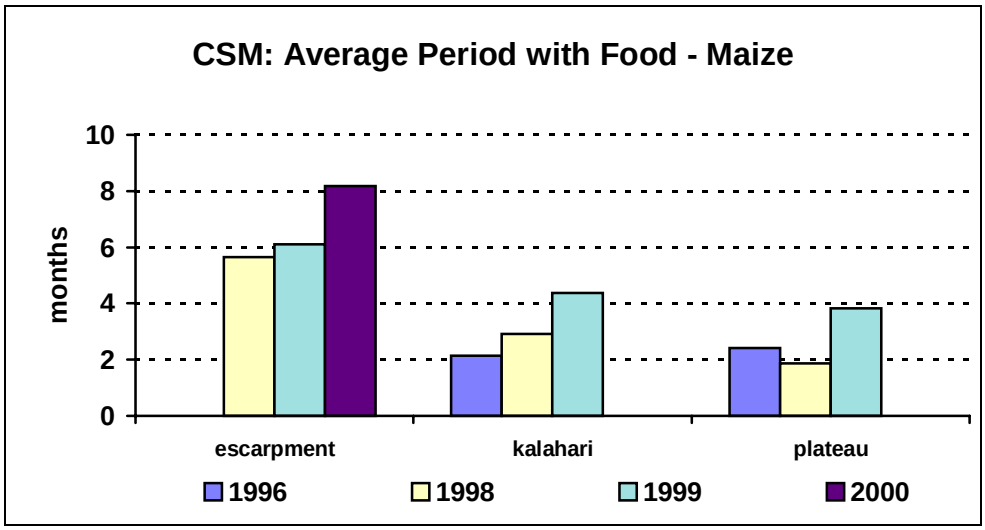


Figure 54. Average period with food for maize.
Source: CSM database.

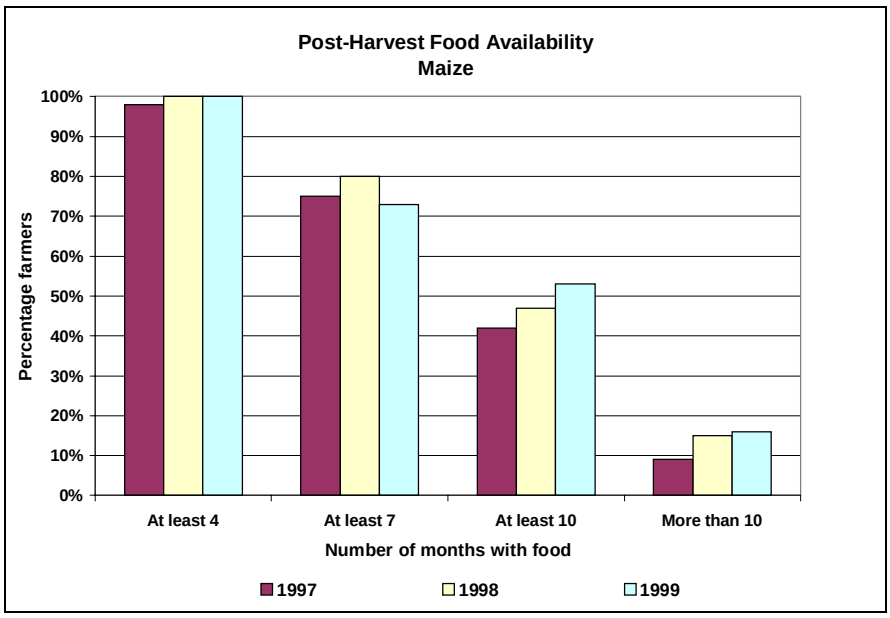


Figure 55. Post-harvest period with food, maize.
Source: LFSP, Quarterly Report # 14, April 2000.

[2] the 1997 data for the escarpment is based on only 3 households and should be disregarded

One of the measures of reduced vulnerability to drought is an increased asset base. Households can use assets to increase their means of production or sell assets to buy food in times of shortage. The CSM ledgers record household assets. As can be seen in Figure 56, there is no strong trend either up or down in the average total value of household assets for any of the agroecological zones. This result might be a product of the relatively small sample sizes for the earlier years, variance in the types of assets recorded in the CSM, impacts on the asset base including corridor disease, or simply no strong impact. Figure 57 presents the same analysis but with only non-cattle production assets. This restriction should eliminate the effects of inconsistent recording procedures, because all CSMs record at least the minimum production assets, and also eliminate any effects of corridor disease. However once again there is no strong trend visible in the asset base. Finally, Figure 58 tracks the average value of all household assets for the same set of households who have multiple years worth of data. Again there is no compelling trend evident for only two years of data. After the M&E section enters more CSM records into the database, these charts can be reproduced and the impact of the project on the asset base reevaluated for the final evaluation.

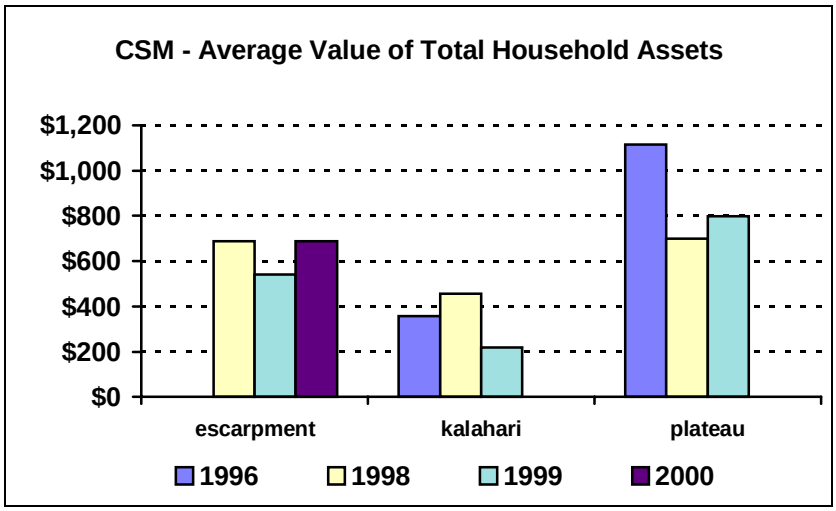


Figure 56. Average value of all household assets.
Source: CSM database.

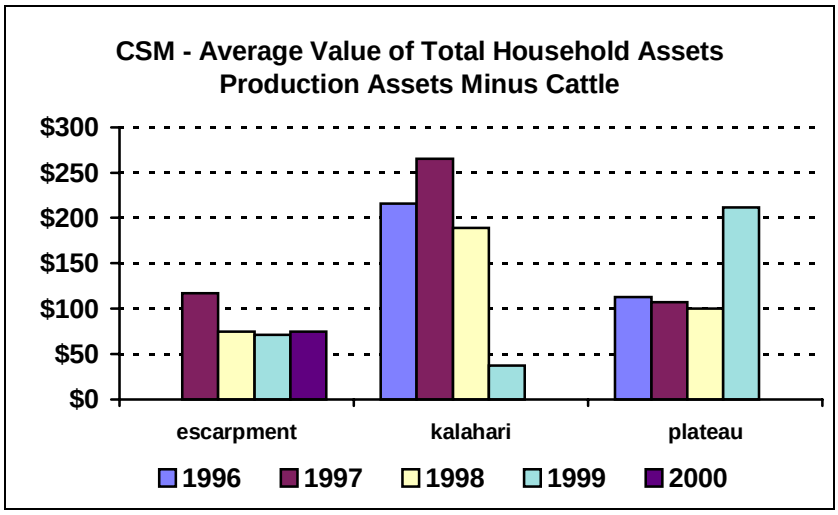


Figure 57. Average value of all production assets minus cattle.
Source: CSM database.

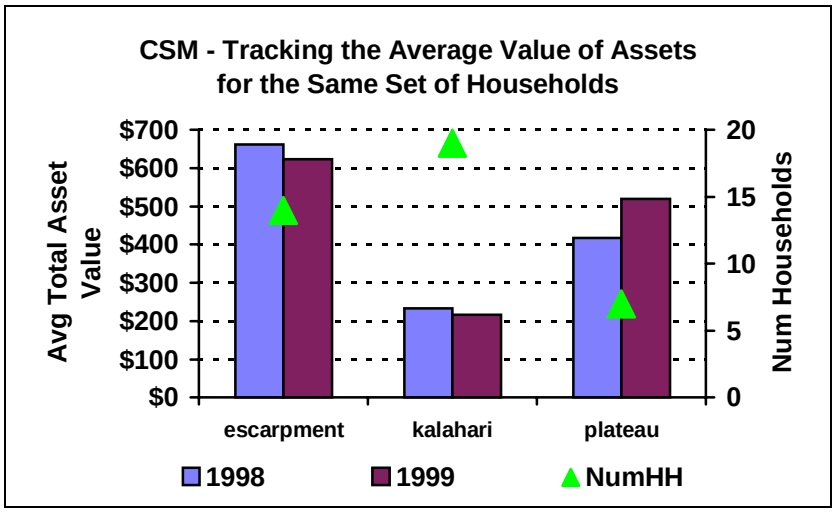


Figure 58. Average total value of assets for the same set of households.
Source: CSM database.

With the exception of the CSM and Food Production Trends Survey, the project does not collect real data on production yields, which would be useful for measuring the impact of the new seed varieties and farming methods. Other data which is either lacking or disorganized include figures on income generation and the impact of water projects on production and food stocks. However qualitatively there appears to be consensus among project staff that where IGAs, water projects, and demonstrations of improved farming practices are underway, production and household food stocks are improving.

7.0 GENDER

The LFSP recognizes both in design and practice the important role women play in food production, poverty alleviation, and rural development. One of the strengths of participatory development methods is a stronger integration of the interests and needs of women.

Efforts to address the needs of women include a gender workshop held in January 1998 to identify possible areas of collaboration and partnership with a number of institutions and enhance LFSP gender intervention strategies at the institution and community level (LFSP, 1998c). Other gender sensitivity workshops have been held for CBOs, and the project has made efforts to encourage more women to take leadership roles in AMCs. The project also does an excellent job at monitoring the participation of women in the project. Virtually every dataset on participation, training, production, etc. is disaggregated by gender.

Although there are no performance indicators in the cooperative agreement that are gender specific, the project has developed its own indicators on gender. A recent review found that 89% of women in VMCs participate in project activities including the seed scheme (see Figure 59), which is substantially higher than the internal target of 40% (Hatwiinda & Whitehead, 2000). Furthermore, 37% of leadership positions in CBOs are held by women, which is greater than the target of 30% (see Figure 60). The same study found that 86% of women participate in programming activities for water harvesting and utilization projects, greater than the target of 40%.

Although the number of women in leadership positions and general membership has numerically increased, there remain barriers to the full participation of women in CBOs. Previous studies, (e.g., Milimo et al., 1997), found that the traditional culture in Tonga society continues to regard women as subordinate to men, and this is reflected in their lower participation and attendance at meetings. Girl education, which has been shown to empower women, is not very strong in the project area and literacy remains a problem for women engaged in small group businesses. Increasing the income and food security of women is helping, but it will certainly take a long time for the social status of women to improve significantly.

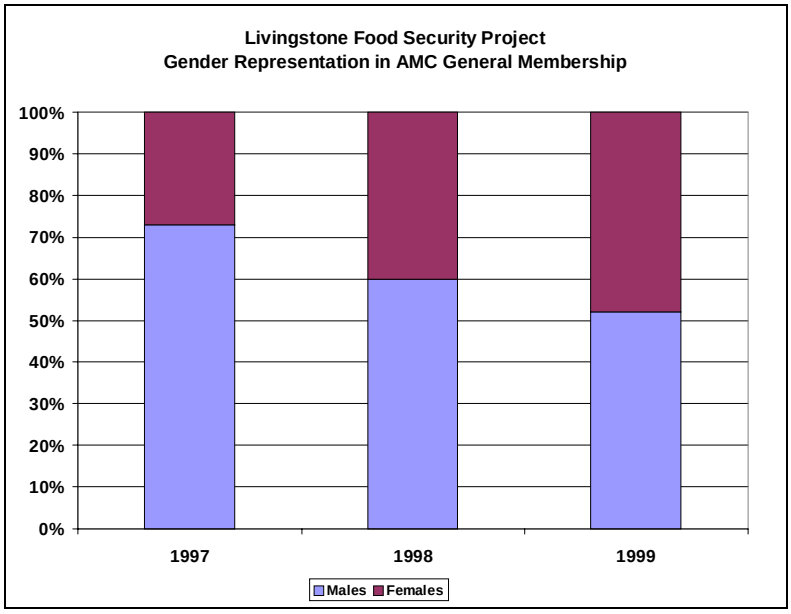


Figure 59. Gender representation in CBO general membership.
Source: (Hatwiinda & Whitehead, 2000).

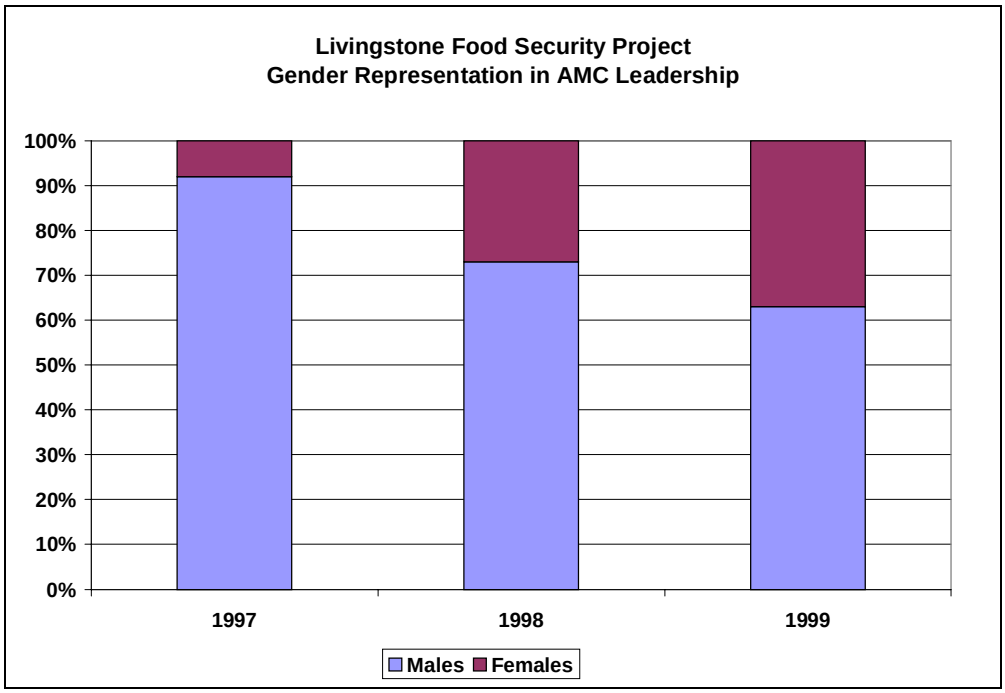


Figure 60 - Gender representation in CBO leadership.
Source: (Hatwiinda & Whitehead, 2000).

Women are integrated into all activity areas in LFSP, however they form the primary audience for several specific crops and income generating activities. Women are traditionally responsible for the provision of relish, however are also gaining access to men's crops. As can be seen in Figure 61 below, women plant the majority of groundnuts, sorghum, bambara nuts, and millet. Cowpeas, which is traditionally known as a women's crop, is increasing demanded by men due to an unfolding market both locally and in town. The promotion of these crops by LFSP, through the introduction of improved seed varieties, is one of the methods used by the project to empower women because it raises their income. The only crop where women are significantly under-represented is maize.

In terms of income generating activities, women are the primary participants in sorghum beer making, which has been the focus of pilot training in business skills. Women also constitute the majority of vegetable producers, which has been perhaps the most successful example of improved marketing.

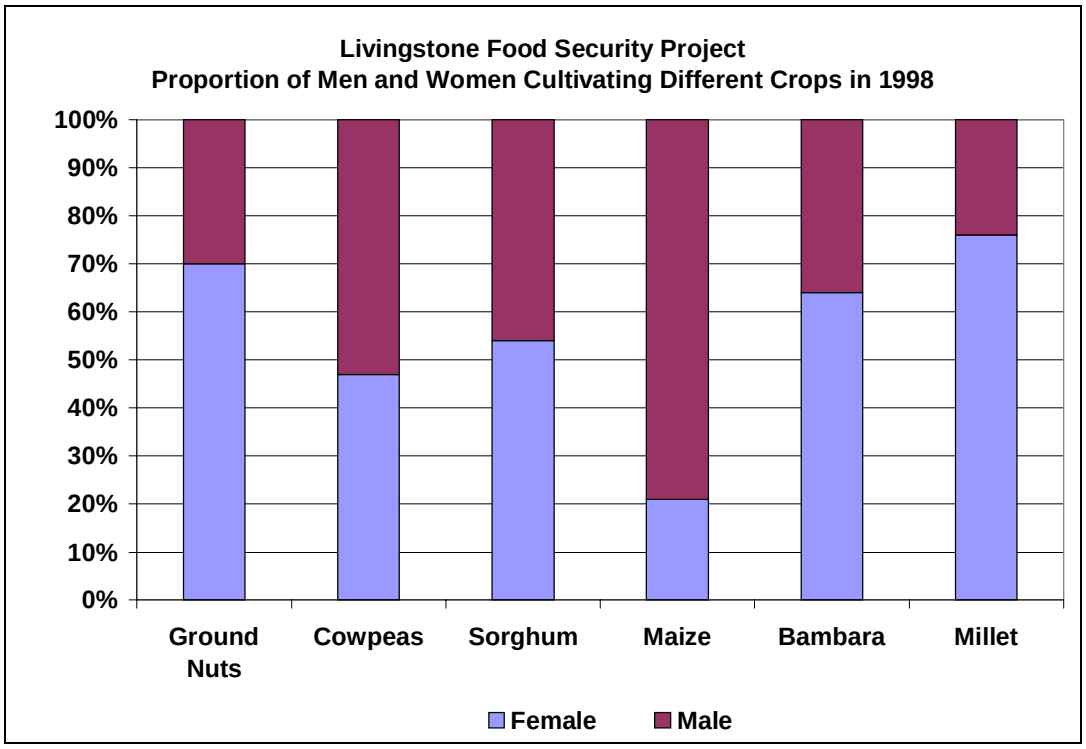


Figure 61. Proportion of Men and Women Cultivating Different Crops in 1998.
Source: (LFSP, 1999a).

LFSP can continue to serve the special needs of women by monitoring their participation in project activities and providing services to support women's enterprises. Women in particular are in need of business skills, particularly as they get more involved in important market-based enterprises such as vegetable production.

LFSP should also remember the needs of women when planning its future programming, including developing partnerships with local service providing institutions. The high growth rate of the district (est. 5% per annum) and heavily skewed age structure of beneficiary households (see Figure 27 on page 29) suggest a strong need for family planning services for women. Basic literacy is likewise outside the mandate of LFSP, but definitely a need of rural women who receive less formal education than men.

8.0 INSTITUTIONAL RELATIONSHIPS

LFSP has sought to develop multiple partnerships with government departments, other NGOs, and private sector institutions that have a vested interest or mandate related to food production or the welfare of rural people. The relationships with some of its main institutional partners are described below.

8.1 Ministry of Agriculture, Food and Fisheries (MAFF)

LFSP considers MAFF to be one of its major collaborative partners in large part because of their common focus on agriculture. Results of the partnership can be seen in a number of collaborative activities in which MAFF staff have participated at provincial, district and community (camp) levels. The collaboration has involved the departments of Field Services, Research and Specialist Services, and the Seed Control and Certification Institute (SCCI).

MAFF staff at district level participated in the initial PRAs, which helped shape the design of the project activities. In 1997 a partnership workshop involving MAFF was held and was aimed at defining roles and responsibilities of each partner. Drafting of an MOU was initiated around that time, but was never followed up.

Other examples of collaboration with MAFF include the participation of MAFF officers as resource persons in training. This has been the case especially in the areas of livestock health management, food processing, and to a certain extent crop production. LFSP has on several occasions sought advice from MAFF staff and used them to monitor crop performance in the field. Other collaborative activities include the testing of disease resistance vegetable varieties for adaptability and marketability. This activity was conducted in collaboration with the vegetable research program of the Soils and Crops Research Branch (SCRB).

CARE has provided training in participatory approaches to MAFF staff at district and provincial levels. This resulted in the adoption of some of the aspects of the LFSP participatory extension methods. For example an enthusiastic MAFF officer in Gwembe district began forming VMCs after being exposed to CARE's extension approach. (See section 10.1 on page 84 for a comparison of the LFSP and MAFF extension strategies.)

LFSP and MAFF at district level worked together on the modalities of graduating ten AMCs in 1998. This process involved the phased withdrawal of LFSP staff, and the increased involvement of MAFF camp officers in five of the ten AMCs. To facilitate a smooth transfer, the DACO shifted stronger officers into the graduated areas, while CARE provided intensive training on participatory approaches to extension. The graduation process seems to have worked well in a few AMCs, including Mandia, Msokoswtani, and Mukuni, however has stagnated in others.

Other collaborative activities have been the participation of MAFF staff in the project's technical review meetings. MAFF has also been involved in constructing dams through the Rural Investment Fund (RIF).

MAFF and LFSP have enjoyed good relationships at the national level due to conducive policy frameworks. However there have been constraints in fruitful partnering at the district level. One of the major problems that constrains MAFF staff collaborating in LFSP programs is the inadequate or lack of logistics, especially transport. The project is does not know how to handle this issue. Another major problem, common to all government institutions, are poor salary levels resulting in low motivation. Another source of conflict has been the GRZ condition of service which requires payment of lunch allowance for staff in the field. CARE policy doesn't allow lunch allowance and does not even pay sitting allowance. See Section 6.1.3 on page 33 for additional discussion of the problems between MAFF and LFSP.

Despite the difficulties, the partnership with MAFF has yielded some positive results, particularly in terms of an increased appreciation by MAFF for the CBO extension approaches promoted by LFSP.

8.2 Other Government Institutions and Agencies

Other important partners among government institutions include the Forest Department, Social Welfare Department, National Heritage Commission and the District Council.

The Forest Department has participated in special PRAs to prepare for the NRM Action Research program in Katapazi and Delevu. This included the donation of fruit tree seedlings for an awareness and education event (see Figure 62). Forestry staff have also served as resource persons for training on watershed management.

CARE has in turn assisted the Forest department with training materials to in participatory management approaches. These materials and collaboration on specific activities can help form a bridge between communities and forestry, a relationship which has been historically chilly due to the Forestry Department's operational focus on policing.

Figure 62. Chief Sekute plants a guava seedling donated by the Forestry Department
Source: Robby Mwiinga, LFSP

The LFSP water section collaborates with a number of government partners through participation on the District Water Sanitation and Health Education Committee (D-WASHE). Institutions represented on this committee include MAFF, CARE, the District Council, Ministry of Health, Ministry of Community Development and Social Services and Forestry Department.

8.3 Traditional Leaders

Traditional leaders play an important role in the rural areas of Zambia. They are vested with powers for land allocation, and have historically played a central role in the management of natural resources including forests and wildlife.

LFSP has also embarked on sensitization campaign of the chiefs and headmen on the role of CBOs and their relationships with the traditional institutions. This was meant to prevent misunderstandings which have arisen in the past.

LFSP has for the most part been able to avoid the serious problems with autocratic traditional authorities that have plagued other NRM projects like ADMADE. However there have been some problem areas. In one AMC, LFSP requested that a new election be held because the chairman, how was aligned with the chief, had misused some cement. The community was informed of this issue but the influential chairman was reelected.

However according to project staff, problems with traditional rulers monopolizing CBOs are the exception and not the rule. The built-in leadership functions and democratic nature of LFSP CBOs help to place the power of traditional authorities in balance. Written constitutions, which have been adopted by 62% of AMCs, help to clarify the roles of all members of CBOs. LFSP is making an effort to work more closely with traditional rulers, particularly as the project expands into forest management and NRM practices which are traditional responsibilities of the chief.

8.4 Private Sector

CARE/LFSP has established linkages with several private sector partners and has carried out a number of collaborative activities. These include:

- a Paprika field day with Zambia Association for Higher Value Crops (ZAHVAC)
- an outgrower scheme with Omnia based on maize production
- an outgrower scheme with Castor company for castor beans
- an outgrower scheme with Aminita for sunflower
- a partnership with IDE for demonstrations of treadle pumps
- linkages between vegetable production interest groups and urban vegetable traders through the Export Board of Zambia
- purchases by Oxfam and CLUSA of improved seed varieties

8.5 Other NGOs

Other non-governmental organizations have been involved particularly in providing services to the water section of LFSP. These include:

- JICA involved in sinking boreholes
- AFRICARE involved in sinking boreholes, with funding provided through UNICEF and

Maintenance of boreholes and other water points is done through the V-WASHE, through which LFSP provides training to selected individuals who become pump minders and borehole caretakers.

8.6 SWOT Analysis of the Major Partnerships

8.6.1 MAFF

Strengths	▪ Conducive framework at national level ▪ Similar technical focus ▪ Need each other
Weaknesses	▪ MAFF not involved in formation of CBOs ▪ No MOU ▪ Based on good will and personalities ▪ MAFF officers not completely oriented to participatory methods ▪ MAFF staff hampered by low incentive structures and transport allowances
Opportunities	▪ MAFF has a long-term presence in the area, can help sustain LFSP achievements after the project completion date ▪ MAFF has embraced participatory approaches to extension
Threats	▪ LFSP could end without an adequate transition phase ▪ personnel could change, thereby changing the dynamics of the relationship

8.6.2 Forestry

Strengths	▪ Compatible mandates ▪ Complimentary resources ▪ Compelling need for stronger cooperation acknowledged by both sides
Weaknesses	▪ Forestry extension officers based in Livingstone and don't get to travel to AMCs as much ▪ Same constraints as MAFF in terms of salary incentives and transport
Opportunities	▪ Recent NRM proposal for Joint Forestry Management

Threats	▪ Expectations for the Joint Forestry proposal are high. Confidence in the program might be damaged if the Joint Forestry proposal isn't enacted

Figure 63. To strengthen its institutional relationships, LFSP has recently conducted a series of two partnership workshops, with a third one scheduled for June 2000.

9.0 POLICY ISSUES

CARE/LFSP has been implemented against the background of far-reaching policy reforms affecting virtually every public and private sector institution in Zambia. These policy reforms have affected the agricultural, macro-economic, marketing, and environment and natural resources sectors. The two policy arenas that have the greatest relevance to LFSP are the agriculture and forestry sectors.

9.1 Agriculture Policy Context

The agriculture policies in Zambia are based on a Policy Framework to the year 2000. This framework was adopted by MAFF to formulate the Agriculture Sector Investment Programme (ASIP) whose implementation started in 1996. This Policy framework provides clear goals and strategies aimed at creating an environment for increased private sector participation in agriculture. ASIP aims at facilitating and supporting the development of sustainable and competitive agricultural sector to ensure food security at national and household levels and to maximize the sectors contribution to the national gross domestic product (GDP).

Government has adopted five basic objectives to transform the agriculture sector from a highly controlled and regulated industry to one which is market oriented. These objectives are:

- Ensure national and regional food security through dependable annual production of adequate supplies of food staffs
- Generate income and employment
- Ensure that the existing resource base is maintained and improved upon.
- Contribute to sustainable industrial development.
- Significantly expand the sectors contribution to the national balance of payments.

Strategies developed for achieving the above objectives include the following:

- market liberalization
- crop diversification
- provision of services to small-holders in outlying areas
- development of the livestock sector
- improving opportunities for outlying areas
- making better use of available land
- emphasising sustainable farming systems
- improving the economic status of women
- making better use of available water
- helping farmers cope with natural disasters

9.2 Forestry Policy Context

The current forest policy, adopted in 1998, aims at increasing the country's forest cover and simultaneously meet the growing local needs for fuel wood, fodder,

timber and other forest products (MENR, 1999). It encourages joint forest management systems with the active involvement of local communities in the protection, management and utilization of forest resources.

Key strategies developed to meet the forest management goals include the following:

- ensuring sustainable forest management
- developing capacity of all stakeholders in sustainable forest resource management and utilization.
- promoting equitable participation by women, men and children in forestry development and adopt an integrated approach through intra and inter-sectoral co-ordination in forestry sector development.

9.3 Impact of Government Policy on LFSP

Current government policies have led to the liberalization of crop marketing, removal of price controls on agricultural produce and inputs and the restructuring of public expenditure on agriculture by removing subsidies. These policies have given rise to crop diversification as farmers have had to adjust their production to crops which have a comparative advantage in their respective areas. This has since led to the expansion of traditional crops like sorghum, millet, cassava, sweet potato etc. being grown in outlying areas (MAFF, 1999).

It is clear that the above government policies support and encourage partnerships among different stakeholders including the participation of NGOs, private sector and communities in development initiatives. To this effect therefore current government policy provides a conducive environment in which LFSP can operate.

The market liberalization and removal of subsidies have impacted positively on project implementation. The absence of input subsidies has, for instance, made it easier to implement the loan schemes, in particular for seed provision. Liberalization has also allowed the project to implement marketing strategies at the local level (e.g., linking CBOs to trading agencies for input supply and buying of farm products.)

Although there are no significant policy restraints on the project, there has been some negative impact of MAFF policy on the project caused by the different approaches to extension. LFSP found MAFF approach not effective and therefore opted for a more community-based participatory approach. This difference in approach has to some extent limited participation by MAFF staff at district and camp levels in the activities of the project. This situation is not conducive for the sustainability of interventions put in place under the project and runs contrary to the strategic objective of both institutions to increasing private sector participation in agricultural development.

The provisions of the current Forest Act presents an opportunity to CARE/LFSP to embark on initiatives aimed at assisting communities to get involved in forest

management and in sharing of benefits accruing from both commercial and non commercial exploitation. LFSP is supporting the forest policy through its activities in Chief Sekute's area, which has included sensitization of the people on the provisions and implications of the new forest policy and promoting collaboration among different stakeholders. These activities have culminated in the development of a project proposal on participatory forestry management in Chief Sekute's area. Through this proposal LFSP hopes to assist in developing mechanisms to implement the policy.

9.4 Impact of LFSP on Policy

LFSP's overall strategy to improve food security is not to target every vulnerable community in Zambia or even Southern Province, but to demonstrate new approaches and new technologies in the hopes of making development policies more effective and influencing the design of other investments. Accordingly, its impact on policy is one of the more important but under appreciated components of its operations. The project does not explicitly have goals for impacting policy, nor any performance indicators on influencing development policy through the dissemination of lessons learned.

Government views NGO participation in rural development as being important and useful in helping to generate and adapt technologies that are well suited to the conditions of the communities concerned. LFSP's overall focus on the underlying causes of vulnerability and food insecurity is therefore very much supportive of government policies of ensuring household food security and assisting farmers affected by natural disasters. The specific strategic objectives developed under LFSP (see section 4.0) are also very supportive of government policies.

One of the project's strategies that seems to be having, or may have, a major influence on government policy is that of building capacity of community institutions. Linked to this focus is the extension approach that LFSP has adopted. MAFF for instance seems to appreciate the advantages of community based participatory extension methods as opposed to the standard "training and visit" system which it has been using (see also 10.1 on page 84). There is no doubt that the success of the CBO approach in the delivery of extension service in the LFSP areas is encouraging MAFF to modify its own extension system. Indeed the MAFF Department of Field Services has recently developed a framework for a pilot test of the participatory extension approach in 27 districts (MAFF, 2000) with support from the World Bank, another die-hard advocate of the T&V system which has only recently begun to see the light.

The current government policy on the provision of input loans and other development support has also recently shifted from a focus on individuals to a focus on CBOs. This can be seen in the MAFF infrastructure development support programs under the Rural Investment Fund (RIF), and more recently the provision of loans for livestock disease control program in Southern Province (Presidential Fund). The Pilot Investment Fund is another micro-loan program being

administered by the Environmental Support Program in the MENR which administers to CBOs.

Although LFSP can't take the complete credit for the broader shift in government to focus rural development interventions on small groups, the experiences of LFSP have made an important contribution to the body of knowledge and strategies for groups.

One of the strategic advantages of implementing development interventions through a large international NGO like CARE are the corporate capabilities it brings for influencing policy at the donor and international levels. CARE presented the LFSP story at a 1997 Donor Consultation meeting in Rome, attended by most major donors including the influential World Bank. CARE was also invited to present LFSP at a follow up meeting in Ghana organized by the FAO in 1998. They couldn't attend in person due to a last-minute logistical screw up, but the paper was presented on their behalf. CARE staff also prepared a technical paper for the ODI Agricultural Research and Extension Network (AGREN) network paper series, which was published in 1997. CARE USA presented a paper entitled "Participation within Participatory Technology Development and Dissemination: Zambian Case Study" at the ODA/NRI Workshop on Participatory Technology Development, Kenya, April 1997 (Drinkwater, 1997). The LFSP story has also been presented at various fora of CARE International.

At the national level, LFSP has reached out a wide array of stakeholders to share lessons learned and influence development policy. While the evaluation team was visiting Livingstone, a 30-minute video of LFSP aired on the Zambia National Broadcasting Corporation (ZNBC) network. This professionally produced video provided an overview of the project's achievements and strategies. A glossy booklet providing an overview of the project has also been recently published and distributed to a wide range of stakeholders. LFSP has also hosted a long list of visitors (see Table 7) and is commonly represented in national level meetings in the agriculture and development sectors.

Year	Institution	Focus of visit
1998	WFP, USAID, REDSO/ESA	preparation for food relief
	Deputy Ministry MAFF	follow up on food relief
	USAID Southern African Office	overview
	SADC Seeds for Diversity project	overview
	CARE Canada	food security strategies
	CULP (CARE Zambia)	overview
	CIDA Vice President	overview
	CARE USA	overview
	British High Commission	overview
	Intermediate Technology Group, Chivi Food Security Project	NRM
	National Heritage and Conservation	NRM

Year	Institution	Focus of visit
	Commission	
	Overseas Development Institute	seed information systems
	USAID Regional Office - Nairobi	overview
1999	WFP	follow up on food relief
	CARE Malawi	overview
	PELUM Association	M&E
	Omnia	partnering
	Amanita	partnering
	Oxfam	partnering
	Export Board of Zambia	market linkages
	Action Aid Malawi - Smallholder Seed Development Extension Project	CBOs
	CARE Canada	overview
1999	World Bank	MAFF evaluation
	IFAD/World Bank	overview
	DACO - Choma	overview
	SADC Ministers	overview
	Canadian High Commissioner	overview
	GTZ	seed multiplication
2000	US Ambassador to Zambia	overview
	ZATAC	dairy production
	Provincial Planning Unit	overview
	Rotary Club, Livingstone	activities in new AMCs
	ADMADE	partnering
	Luapula Livelihood	overview
	SARNET	tubers
	Zamseed	seed growers
	Zamseed/MAFF/World Vision	CBOs, seed multiplication

Table 7. Partial list of visitors to LFSP, 1998-2000.
Source: LFSP visitors book.

At a more local level, LFSP has played a role in shaping the development strategies of partner institutions. MAFF has taken notice of the pros and cons of LFSP's intervention strategies, and adopted the extension through CBOs approach in some of its camps. LFSP is also represented on the District Development Coordinating Committee (DDCC), and recently tried to strengthen its relationship with other local institutions by sponsoring a series of partnership workshops. Some CBO leaders in the LFSP areas have also been elected to the District council because of their high profile in the community, an unexpected mechanism that will surely accelerate the replication of LFSP's lessons learned within the district.

10.0 OTHER ISSUES

10.1 Extension

LFSP uses a CBO structure to deliver extension services for various development interventions including improved farming practices, water harvesting and sanitation, and natural resources management. These CBO structures have been formed with full participation and consent of the people themselves. The CBO model consists of a three strata structure (see Figure 11 on page 13). The smallest unit is the Cell group, which consists of 4-7 households focused around a common interest such as seed loans. The next level is the Village Management Committee (VMC). Each cell group is represented on a VMC. An average of ten VMCs federate to form the Area Management Committee (AMC) at the apex of the CBO structure. Initially the cell groups were formed for the purpose of facilitating the provision of seed loans.

Participation

LFSP's extension system is based on training needs determined primarily by the beneficiaries, taking into account their own development priorities. Another important characteristic of the LFSP extension approach is an emphasis on participatory methods and farmer-to-farmer linkages. Under this approach, most of the extension work is expected to be done by the rural people themselves, with the assistance of local facilitators who are selected by their fellow community members and trained by the project. Extension services are further enhanced through farmer-to-farmer learning within cell groups.

LFSP Extension Officers

LFSP has about 12 extension officers for the various project sections. They are the front-line staff linking the project and rural communities. One of the main roles of extension officers is to facilitate community organization and capacity building. Extension officers also play a major role in providing the initial training to the community facilitators. Although all extension officers have a technical specialization and are able to backstop the communities on technical issues, they are also expected to have a broad outlook in line with the project's holistic livelihood approach to development. LFSP extension officers, unlike MAFF camp extension officers, do not reside within the communities they serve, but are based at the project offices either in Livingstone or Kalomo. The frequency of contact with the community is therefore relatively low.

Community Facilitators

Facilitators are an integral part of the CBO extension system under LFSP. The facilitators are selected by their peers within communities at the VMC or AMC levels and form an important link between the people in the communities and the LFSP extension officers. In general, facilitators are energetic and knowledgeable young people who play a big role in capacity building for community participation in providing extension services to their own communities. There is at least one facilitator in each AMC. Facilitators are not paid, although in a few instances they have been nominally compensated by the VMCs they serve.

Farmer-to-farmer learning is facilitated through field days, which are organized by the communities with the help of the project. The project encourages farmer exchange visits between AMCs in order to promote farmer to farmer learning through on-farm demonstrations.

Technology Demonstrations
The LFSP extension system includes the use of demonstrations on selected farms. The purpose of these demonstrations is twofold, one being to test the technology for adaptability to the specific conditions of the project, area while the other is to show the desirable attributes of the new technology and hence the benefits it can bring to the people.

On-farm demonstrations of improved technologies have been shown to be an effective way of promoting wider adoption of such technologies. There are a number of technologies related to sustainable farming practices, such as the use of green manure and agroforestry tree species for soil improvement, that have only been tested on a small scale through demonstrations in the project area (see Annex V). It will be necessary to expand the demonstration program to additional area if chances for their wider adoption by farmers are to be increased.

The strengths and weaknesses of the LFSP extension approach are summarized in Table 8 below.

Strengths	Weaknesses
1. Low running costs 2. Demand driven as the approach is based on training needs identified by the people 3. Builds local capacity of the communities to participate in training among themselves 4. Encourages learning by farmers from each other 5. Groups are self-sustaining as they are based on identified interests 6. Enables reaching more people more quickly and with limited resources, and therefore tends to be more cost-effective	1. Inadequate supervision of implemented activities as a result of reduced contact between project staff and the people in the communities 2. High start-up costs, mainly arising from PRA exercises and CBO training 3. CBOs not based on existing structures and may therefore lead to conflicts with existing institutions which could affect effectiveness and sustainability 4. LFSP extension staff may not have all the technical know-how requested by beneficiaries

Table 8. Strengths and weaknesses of the LFSP CBO approach for extension

MAFF Extension Approach
The official approach to agriculture extension in Zambia has been the Training and Visit (T&V) system. This system was introduced through the World Bank supported Zambia Agricultural Research and Extension Project (ZAREP). Under the T&V system the camp is divided into four zones with two farmer groups formed in each zone. There are therefore eight farmer groups that a camp officer

has to work with. This was a move away from the contact farmer concept to group teaching. The T&V system is characterized by extension officers following a strict and rigid program of visitation with the farmer groups The camp officer visits each farmer group once fortnightly and trains them using technical messages provided by the district subject matter specialist or section head. The messages are supposed to be based on questions raised by farmers from the problems that they experience. The system therefore has a feedback mechanism, which allows for some measure of farmer participation in the training process. The T&V system also includes monthly training of camp extension officers as they receive technical messages from subject matter specialists. This also provides an opportunity to the camp officers to be updated on new technologies.

However experience with the T&V system has shown that it is expensive to implement, is 'top down,' and stifles self-initiative among field staff and farmers. The system also promotes the belief that extension officers are the teachers while farmers are mere recipients of knowledge and skills, thus making the approach more technology focused rather than people focused.

There has been a general realization that the T&V extension system, like other extension systems tried in the past, has had little positive impact in terms of adoption of the technologies by the farmers. This has further led to the realization that there is need to seek more incorporating systems that promote increased farmer participation at every stage of decision making process. The result of this realization has been a proliferation of approaches that sought to modify the T&V system or to adopt more participatory approaches that would employ interactive dialogue and involve rural people and institutions in development planning and implementation. A variety of participatory approaches to extension have been adopted or tried in many parts of the country in an effort to accelerate adoption of improved technologies. Individual donors, under specific projects have driven many of these initiatives.

MAFF currently seems to be moving in the direction of promoting more participatory approaches to extension, however there is no official acknowledgement on whether the T&V system is giving way to Participatory Extension Approaches. However the MAFF Department of Field Services has recently developed a framework for the implementation of Participatory Extension Approach (PEA) in 27 pilot districts with support from the World Bank (MAFF, 2000).

Cost Effectiveness

The LFSP extension approach is expected to be more cost-effective compared to the T&V extension system. The evaluation team is, however, not in a position to compare the actual costs of delivering extension service between the two systems due to lack of information. However an attempt could be made to compare the effectiveness of the two systems in terms of number of farmers reached by one extension officer.

LFSP estimates that by working through CBOs one extension worker can work with approximately 1000 farmers (LFSP, 1999a). In comparison, an average a MAFF camp officer under the T&V system only works with 300-500 farmers. Furthermore, the T&V system has been found to be expensive to implement due to a regular and rigid visitation schedule, which may not always be needed, and relies on the availability of transport for the camp officer. Although the camp officer lives within the communities, lack of logistical support and low compensation levels can affect the effectiveness of the T&V approach, as some officers must spend a lot of time doing farming to support their own families.

10.2 Seed Scheme

Loss of local seed stocks after repeated years of drought and low production was one of the main factors identified in the formative PRA exercises in 1995. Hence the seed multiplication scheme was a natural choice for the first and central intervention under LFSP.

10.2.1 Seed Selection

The first step taken in the implementation of the seed scheme was the introduction of drought tolerant and early maturing varieties of a number of crops, including maize, sorghum, cowpea, groundnuts and pearl millet. See Annex VI for a complete list of the improved seed varieties introduced and their specific characteristics. LFSP deliberately concentrated on open-pollinated varieties and avoided hybrids in its seed multiplication scheme. The wide range of introduced seed varieties had the effect of diversifying crop mix, one of the strategies used to achieve sustainable farming in the project area.

10.2.2 Impact on Food Production and Availability

The main agronomic attributes of the various improved crop varieties introduced in the project under LFSP are early maturity and high yielding compared to the local varieties. The maturity range for all crop varieties that are included in the seed scheme is 90-110 days from sowing to harvest. The estimated yield potentials of the improved crop varieties introduced into the project are 4.0 tonnes/hectare for maize, 2.0 t/ha for sorghum, and 2.0 t/ha for cowpea. However the average yields among LFSP farmers in the project area during the 1995-99 period were still relatively low, at 1.04 t/ha for maize, 0.6 t/ha for sorghum and 0.25 t/ha for cowpea.

There has been an increase in the period during which households have food in the project area since the seed scheme under LFSP began. For instance, 34% of the households in the project area were by 1999 maize secure over a period of 9 months compared to only 5% having food for less than 6 months before 1995 (LFSP, 2000). It has also been reported that most of the food available to households for consumption is derived from own production (Ndiyoi et al., 1999). It can be assumed that the extended periods of food availability at the household level have resulted in large part from the increased crop yields.

The early maturing crop varieties of maize and cowpea, which may be ready for harvest around January, are reported to have become an important source of food during the hunger months of January through to March (LFSP, 1999e). It is expected that much of the produce from the early maturing varieties of maize, sorghum and cowpea is consumed during the hunger period leaving little to put in the granaries. This allows the harvest period to focus on plots planted with local varieties and hybrids, to be stored and consumed during the rest of the year. There are indications that more area is being planted to these improved early maturing varieties of maize, and are in some cases, even providing the bulk of the harvest, thereby becoming the main source of food for most part of the year.

10.2.3 Seed Quality Problems

Declining seed quality has been identified by LFSP staff as a problem that could be contributing to a decline in the yields of certain crops (LFSP, 1999e). An analysis of the CSM data by the evaluation team also detected this trend. One of causes of poor seed quality is that farmers have a tendency to pay back seed loans with low quality seed. This could be caused by delays in collecting seed from farmers, or deliberate efforts to repaying with inferior quality seed. The same assessment of the seed multiplication scheme noted that higher quality seed was used in farmer to farmer bartering and exchanges.

Figure 64. Seed repayment requires some quality control measures

Poor seed germination has also been observed from seed kept in seed banks within VMCs and AMCs. This could be associated with storage problems resulting in insect pest damage (weevils for maize and sorghum and brucchid for cowpea) and inappropriate seed moisture and temperature conditions. Other associated problems could be varietal degeneration, especially in open

pollinated crops such as maize, as seed is recycled from one generation to the other.

As CBOs became more independent in managing the multiplication and distribution of seed, the project anticipated more problems related to seed quality. To reduce such problems, the project sought the assistance of the Seed Control and Certification Institute to conduct inspections of the seed crops once a year, mainly at the time of harvest, and get involved in providing training to farmers in aspects of seed production, handling and storage.

LFSP may have to try new approaches to address the issues of long term seed quality. One option is to select a few farmers to produce seed under more tightly controlled conditions for several VMCs or AMCs. These farmers will require to be linked to the official seed certification institutions to ensure that the necessary seed quality factors are taken into account. The other important linkage for the seed multiplication arrangements at the community level is the source of foundation seed. This may either be breeders under public research institutions or private seed companies.

10.2.4 Sustainability of the seed scheme

Indications from LFSP reports and the internal assessment of the seed scheme are that the supply seed for different crop varieties has not been able to meet the demand for seed in the project area (LFSP, 1999e). If anything, the demand for seed is on the increase even in areas where the seed scheme has been operational for a number of years. One would expect more demand for legume crops which also improve soil fertility, especially those with higher economic value such as groundnuts.

The initial objective for the introduction of early maturing drought tolerant crop varieties in the project area was to mitigate drought and alleviate hunger among the affected communities. There is little doubt that the crop varieties introduced and which are included in the seed multiplication scheme have been appreciated by the farmers, evident by their wide spread adoption. The broad demand for seed will play an important role towards the sustainability of the seed scheme even after LFSP comes to an end.

The other factor which will help ensure the sustainability of the seed multiplication scheme is the realization of economic benefits from increased yields from improved seed. Increased yields will enable people have surplus produce, which they can sell to raise money if market linkages or informal trading networks are in place (Kalonge & Pongolani, 1997). However there may be little incentive for increasing production and realizing the potential economic benefit if marketing of surplus is not improved. Currently there are limited outlets for agricultural products in the project area. The consequence of not developing markets and market linkages may be reduction in the area of cultivation for the drought tolerant, early maturing and high yielding varieties.

This may have a negative impact on crop diversification efforts and eventually on the sustainability of the seed scheme.

Sustainability of the seed multiplication scheme in the project area may benefit from varying it from its present form. It could be desirable to allow it to evolve from being based on loans and community seed banks to individual seed enterprises. The project could therefore pay deliberate attention to developing capacity of selected farmers with potential to become seed producers and dealers within the communities. Other efforts that may be considered in order to sustain the seed scheme is expanding markets beyond the project areas where surplus seed stocks may be sold.

10.2.5 Community Seed Banks

The seed bank concept was developed as an integral part of the LFSP seed scheme and its purpose has been appreciated by most of the farmers in the project area. The community seed banks, which are located at VMCs and AMCs, are used for the storage of seed received both from LFSP and the farmers through loan repayments. Seed distribution to farmers for planting is also distributed from the same seed banks. One of the major benefits of community based seed banks is that it facilitates early distribution of seed to farmers and guarantees seed availability at planting time. Prior to LFSP and the introduction of seed banks, seed stored in homes by individual households used to be vulnerable to be consumed as food during hunger periods.

Figure 65. Local seed banks ensure that seed is available for planting

The role of community seed banks is also being extended to store seed from selected seed growers within the community.

10.2.6 Diffusion of seed

Milimo and Tripp (1999) studied seed use outside LFSP areas, and found that there is a significant amount of diffusion of seed and information from LFSP farmers to other areas. Within 10 km of LFSP villages, 45% of sampled farmers got their sorghum seed from LFSP villages. At distances greater than 20 km, 21% got their seed from LFSP farmers. While the magnitude of this trade is difficult to estimate, its effects should be seen on the food availability of nearby areas (which is currently not being monitored). These additional farmers can be considered to be indirect beneficiaries of LFSP.

Distance from LFSP village	Number of sampled farmers	LFSP village as source of seed	LFSP village as source of information	First saw variety in LFSP village
Less than 10 km	53	45%	42%	62%
More than 20 km	34	21%	21%	29%

Table 9. LFSP villages as sources of sorghum seed and information.
Source: Milimo (1999).

Although the project has not been able to capture the multiplier effects of secondary seed trade very precisely, one way the informal trade of seed can be better monitored is by including seed sale and trade in the CSM ledgers. This additional column would also help the project detect trends in selling strategies (e.g., how long farmers wait before selling), and the impact of increased production on rural household. The additional column in the CSM would not be too onerous to collect, and indeed some VMC secretaries have already added columns for seed sale and trade to the CSM on their own initiative (Lyons, 1998a).

10.3 Monitoring and Research Issues

10.3.1 Need for Production Data

In the evaluation team's search for production data relating to: (1) dissemination of drought tolerant varieties; (2) soil conservation technologies evaluated in demonstration plots in farmers' fields; and (3) for vegetable crops, no quantitative project data regarding production and area cultivated, was discovered at the LFSP office in Livingstone. Without quantitative production data, it is difficult to evaluate the technologies. Some area farmers may be able to visit the demonstration plots (vegetable gardens, etc) but certainly further away farmers could benefit from such quantitative data. The project also requires production data including the reporting of results to audiences far and near to the project area. The project has made plans to conduct crop-cuts on a pilot basis, which is a good move towards getting better information.

10.3.2 Use of estimators

The project has done a remarkable job of studying the different units used by farmers for their own calculations of production data, including traditional area measurements such as 'folo' as the area a team of oxen can plow in a good morning's work. The 'folo' is roughly equivalent to 0.2 hectares. See (Milimo et al., 1997) for a list of the local units for weights, sizes, etc.

The project makes extensive and routine use of estimators when measuring reporting project impact or production trends. Table 10 and Table 11 below list the main estimates used.

Crop	Seed applied (kg/ha)	Seed per beneficiary	Area per beneficiary	Crop yield (kg/ha)	Production per beneficiary (kg)
Maize	20	10	0.50	2,300	1,150
Sorghum	8	4	0.50	1,400	700
Pearl millet	8	2	0.25	1,000	250
Groundnut	80	10	0.13	1,200	150
Cowpea	15	2	0.13	1,500	200
Bambara nut	80	10	0.13	1,200	150
Velvet bean	50	10	0.20	3,000	600

Table 10. Estimations used by LFSP for area planted and production

Use of estimators is often necessary when actual figures are either unknowable or unfeasible to obtain. However a few cautions are to be noted about using approximations for analyses:

- The approximation itself should be based on real data, with outliers and suspicious data thrown out.
- Estimators based on real data always have an associated confidence interval, in other words a range of probable values instead of just a single number. Consequently any calculations based on that indicator should also be based on ranges.
- Estimators are often specific to a given year or region. For example, according to the CSM database, maize yield for improved varieties was indeed 2,300 kg/ha in 1996, but it came down to almost half in the following two years.
- Errors in estimators tend to get magnified the more they are propagated through equations.
- Performance measures based on estimators should be clearly noted as such.
- Whenever possible raw data used for analyses should be saved so that it can be reviewed later.

Number of beneficiaries per VMC: Estimates versus actual
As much as possible, LFSP tries to get an up to date count of the number of members of seed groups to calculate the number of beneficiaries. However it is often necessary to use estimates when real data is not available (see Table 11).

Variable	Estimation
Number of households per VMC	15
Number of beneficiaries per household	3
Number of beneficiaries per VMC	45
Number of inhabitants per household	6

Table 11. Estimations used by LFSP for beneficiaries

To illustrate the dangers of using averages as estimates, Table 12 and Figure 66 below show actual data for the number of beneficiaries per VMC presented as a table and histogram.

Center	VMCs	Beneficiaries	Beneficiaries per VMC
7A	2	204	102.0
Bbilili	14	660	47.1
Busanga	2	134	67.0
Chabalanda	2	72	36.0
Dundumwezi	5	496	99.2
Katapazi	18	636	35.3
Libala	7	120	17.1
Makunka	37	1,583	42.8
Mandandi	18	528	29.3
Mandia	13	504	38.8
Milangu	5	726	145.2
Mukuni	8	1,456	182.0
Musokotwane	10	348	34.8
Muzumbwe	5	144	28.8
Mweemba	10	820	82.0
Sekute	30	700	23.3
Shindu	7	216	30.9
Siakasipa	6	646	107.7
Siamasimbi	8	222	27.8
Siandasya	7	264	37.7
Sihumbwa	15	754	50.3
Sinde	13	598	46.0

Table 12. Number of beneficiaries per VMC.
Source: (LFSP, 1998a)

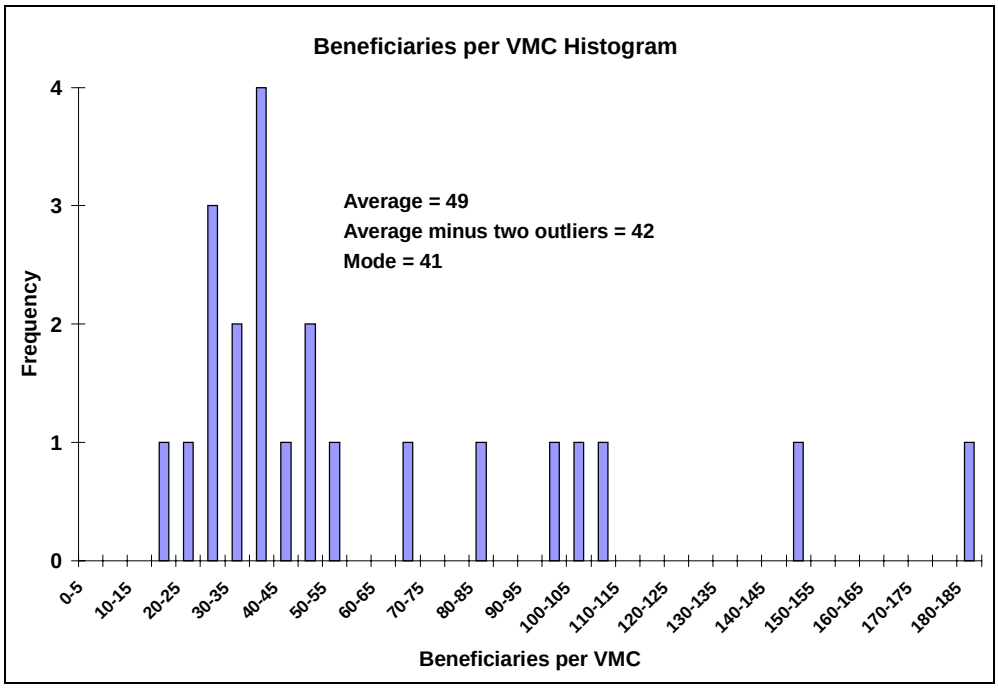


Figure 66. Beneficiaries per VMC histogram
Source: (LFSP, 1998a)

As can be seen in the histogram, the number of beneficiaries per VMC does not follow predictable distribution like a bell-curve. Furthermore, there are a couple of outliers that throw the average way off. Thus depending on how accurate you want to be, the average value of 49 beneficiaries per VMC would be a good estimate for a few of the VMCs, but very far off for many others. When the average is used as an estimate for the number of beneficiaries for several VMCs, the potential for significant error increases, and without the use of confidence intervals there's no way to tell how accurate the performance indicator is. Often the median is a better measure of the central tendency of a dataset, because it is less sensitive to outliers.

Table 13 below gives another example of the trouble of using estimates. Production yields vary enormously between years and agroecological zones. The use of a single estimator for production yield is simply not very reliable.

Agro-Zone	Food Production Trends Survey Yields (kg/ha) 1995/6	1996/7	LFSP yield estimate (kg/ha)	Avg. difference real minus estimate	Average % real of estimate
Maize					
Escarpment	1,849	1,082	2,300	-834	64
Kalahari	1,071	825	2,300	-1,352	41
Plateau	1,831	900	2,300	-934	59
Sorghum					
Escarpment	839	95	1,400	-933	33
Kalahari	926	219	1,400	-827	41
Plateau	1,082	674	1,400	-522	63

Agro-Zone	Food Production Trends Survey Yields (kg/ha) 1995/6	1996/7	LFSP yield estimate (kg/ha)	Avg. difference real minus estimate	Average % real of estimate
Pearl millet					
Escarpment	372	235	1,000	-697	30
Kalahari	1,091	716	1,000	-97	90
Plateau	564	556	1,000	-440	56
Groundnut					
Escarpment	121	249	1,200	-1,015	15
Kalahari	877	892	1,200	-316	74
Plateau	564	677	1,200	-579	52
Cowpea					
Escarpment	471	693	1,500	-918	39
Kalahari	225	162	1,500	-1,306	13
Plateau	23	124	1,500	-1,426	5

Table 13. Real and estimate production data.
Source: Food Production Trends Database.

Summary and Recommendations
Sometimes the use of estimates is required because no real data exists. However LFSP often has real data available which could be used to produce a more accurate picture of project impact. The use of simple statistics such as 95% confidence intervals would help readers interpret the validity of performance measures. At a minimum, making greater use of histograms to show the distribution of data can help LFSP staff and readers interpret data and look for outliers. Histograms such as the one in Figure 66 above can easily be created in Excel using the Analysis ToolPak add-in.

10.3.3 Use of case studies

All sections of LFSP involved in research make extensive use of the case study method to assess how interventions are performing. A few notes concerning this research approach are worth mentioning:

- The case study is an excellent research method to study process. However it is much less suited for assessing impact.
- Case studies can supplement systematic monitoring and evaluation methods, but can't replace them.
- The findings of case studies can be made more valid by using random selection in the sampling of objects to observe.
- Comparative case studies (e.g., weak and strong AMCs) provide multiple examples of a process at work, thereby increasing the validity of patterns and cause-effect relationships detected.
- The use of case study in research does not mean that you can run away from collecting quantitative data. A good case study will use quantitative information to verify qualitative statements and support conclusions drawn.

10.3.4 Sampling

Sampling is a standard practice in research because it often isn't possible (or necessary) to measure each and every household, VMC, field, etc. The general objective in sampling is to get a subset of the population which provides a balanced representation of the total population. That means that the subset must be selected in such a way that it is a fair reflection of the population. Random selection is often the preferred method because it ensures that whatever variation exists it will at least average out in a predictable way.

How large should our sample be? is a common question asked by research teams. Although you can use statistical procedures to tell whether a sample size was adequate *after* the data has been collected, there are no hard and fast rules about the perfect sampling size. There are however a few guidelines:

- Before you can know the appropriate sample size, you have to define your desired confidence limits. For example if you say that you want the food availability estimates to be 95% accurate plus or minus one month, and you know the variance of sample data, then you can estimate the number of required samples.
- The confidence one can have in findings of a study is related sample size through well-known statistical formulas. However when statistical methods (e.g., confidence interval) are not used in analysis (as in the case of LFSP), then you can only make a qualitative assessment of the validity of results. In this case common sense and good judgement plays as much as a role as sample size.
- As a ball park figure, 30 is the minimum number of randomly selected observations that should be made for social science research[3]. One fifth of all objects, which is the sampling rate used by LFSP for some of its studies, is also a good rule of thumb to use. However larger sample sizes will provide more precise estimates.
- When there is a lot of variability in the objects being studied (e.g., household production), then its better to have a larger sample size. When there is less variation (e.g., household coping strategies), then the sample size can be smaller.
- When objects are selected in such a way as to ensure that they represent a balanced selection (e.g., through stratification based on agroecological zone), then the sample size can be a bit smaller.
- If objects are selected in a non-random way (e.g., opportunistically or based on convenience), then sample size should be higher (although there will still be bias).
- When you want to track change over time, to look for the effect of a treatment, it is important that the *same* objects be measured.

Sampling under actual field conditions is always a challenge. LFSP uses sampling in many studies, and has a better sampling program than many projects because they have a good sampling frame (e.g., a list of all AMCs,

[3] in order to know that two standard deviations from the mean represents a 95% confidence interval

VMCs) and have identified important variables for stratification (e.g., agroecological zone). LFSP has also used random selection of VMCs in various studies.

The sampling process should always be well documented in research reports. Bias in sampling is inevitable in most real-world situations, and should not be viewed as a flaw. However potential bias in the sample should always be acknowledged and addressed in the methodology section of reports.

Sampling and Measurement Problems in the Food Production Trends Survey
The Food Production Trends was based on a sample of 220 households randomly selected (every 5th household of every 5th VMC) in 1996. This was a promising baseline assessment that was to be updated once a year to track impact of the project interventions on food production, crop mix, and food availability. However there have been a couple of sampling and measurement practices which jeopardize the validity of the Food Production Trends dataset.

Production data for the 1995/96 and 1996/97 planting seasons were both collected in 1996/97. The problem with collecting two years worth of production data at once is that it relies on recall of the previous year. Although LFSP farmers might have photographic memories of the past planting seasons, many studies have shown the in general recall data is not very trustworthy, particularly if its more than a couple of months old.

A second questionable practice came when the same households were visited the following two years. If the participating farmer was not at home, or had moved or died, the enumerator went to the next door neighbor and collected their data. This practice might not be so significant for analyses of variables that don't differ significantly among neighbors (e.g., family size, language spoken), however it greatly reduced the validity of any trend analysis of variables which are likely to vary even between neighbors, such as area under cultivation or production per crop. And tracking change is the most interesting use for the dataset. Currently there are 138 households (over 1/2 the sample) in the database which have changed between 1998 and 2000. Furthermore, there isn't a column to indicate which households have substituted values.

However all is not lost. If the M&E Unit can find the original 220 households that were visited in 1996/97 (or as many as possible), disregard the 95/96 data as not trustworthy because it was based on memory, and ask the same set of questions for the 1999/2000 season, then there would still be a good before/after picture of the impact of LFSP. The intervening years might be missing for many of the households, but at least changes in food availability and production strategies over the four-year period would be valid. This would be a helpful analysis for the final project evaluation.

The M&E Unit is also soon to be confronted with another sampling issue, as it begins to enter and analyze records from the CSM. Here again the general principles apply: when tracking changes over time, when at all possible the

same households should be measured. Some of the interactive graphs built in to the CSM database are designed to only include data from households that have complete records for all of the years desired (e.g., see Figure 58 on page 70). Thus when selecting which CSM records should be entered into the database, the M&E Unit should use two guiding criteria for prioritization:

1. CSM books that have multiple years of data for the same households
2. CSM books that represent all three agroecological zones

When analyzing results from the CSM database, the M&E team should also be on the lookout for small sample sizes and outliers. For example, the average value of all household assets for the escarpment zone for 1997 was several times higher than any of the other zones. Upon closer inspection, it was found that there were two households for that year which had large herds of cattle, and this was throwing the average off because the sample size was only about 20. Fortunately MS Access queries can be designed to eliminate these types of outliers for more valid results.

10.3.5 Information Technology

One of LFSP's principle strategies for improving food security is the development and demonstration of improved technologies, including soil conservation and fertility, new crop varieties, water harvesting structures, small scale industries, post-harvest processing, and NRM. After identifying promising develops these technologies through demonstrations and pilot programs.

The effectiveness and environmental and labor requirements of new technologies are identified through monitoring of the demonstrations. Both beneficiaries and project staff need to see and understand the results. LFSP's need for information on trials also extends beyond the project, for example its institutional partners. Consequently there is a widespread need for systematically collected and properly analyzed data on trials.

LFSP current capacity in IT is not up to the task of such an important and large scale undertaking. Although all program staff are computer literate and use word processing and spreadsheet software in their daily activities, the project does not have the capacity to set up the types of multi-layered monitoring databases required to adequately process the amount of data that should be coming in from technology trials. The lack of real production data, under-utilization of the CSM and Food Production Trends surveys, lack of hard data on adoption rates, and over reliance on isolated case studies are just a few examples of where limited IT capacity has constrained the ability of the project to synthesize results and communicate lessons learned effectively.

If not strengthened, the inadequate capacity to manage quantitative datasets may affect the ability of LFSP to build lasting relationships with partner organizations, particularly those with a technical focus such as MAFF. The evaluation team recommends that LFSP increases its IT capacity, either by

developing internal resources or forming a tech service contract with an appropriate firm.

10.3.6 Documentation and Dissemination

LSFP has been prolifically documented, largely by its own highly capable staff. However a 1998 report concluded that LFSP's action research documentation was its "best kept secret" (Lyons, 1998b). Turner (2000) also identifies a need for organizing and improving dissemination of research summaries and other project documents. LFSP acknowledges these sentiments and has responded by recently creating a position for a documentalist. The documentalist has a multifaceted job description which is part librarian, part public relations, part journalist, and part editor.

One mechanism not currently being capitalized upon is electronic dissemination of documents. Virtually all staff are keyboard literate, and use Word Processing and spreadsheets in preparation of their reports. Hence it would be a fairly simple matter to compile these electronic files in a common location, for eventual distribution on a project CD ROM (which can contain 100's of reports and be reproduced for less than $2 per CD) or web site. Although the LSFP may not have a web site presently, or even a compelling need to distribute documents electronically, the odds are very high that the project or CARE/Zambia will one day wish to make its many excellent quarterly reports, PRA exercises, proposals, training summaries, etc., available to external partners for minimum reproduction cost. LFSP can prepare for this eventuality by beginning to stockpile documents today.

The quality of research documentation coming out of LFSP is fairly high, however there is still room for improvement in certain areas. Research methodology, including sampling schemes and measurement methods, is often described only briefly or omitted completely. Sometimes the calculations used to prepare a graph are not obvious and not documented (e.g., the definition for a direct and indirect beneficiaries). Maps showing locations of project activities would help orient readers to the research, and are now within the capacity of the project to produce. Although most datasets presented in reports are analyzed with fairly simple statistics, such as averages or graphs, some data could be analyzed with slightly more rigorous techniques, allowing a confidence interval to generated. The M&E unit already uses an excellent statistics package, SPSS, to analyze data, so doing more robust analyses is well within the capabilities of the project.

10.4 Scaling up Technology

The two most important strategies being used by LFSP to improve food security are 1) building the capacity of CBOs, and 2) developing improved technologies. The project is well on the way to achieving the first goal of building the capacity of CBOs. The project has invested heavily in CBO training, and ten AMCs have already been graduated. Although additional work is needed, there are many

indications that the AMCs supported by the project will continue to evolve into viable activity-oriented group enterprises.

The project has also made many accomplishments in developing improved technologies in water harvesting and agriculture. However it has yet to implement a strategy to achieve the next important hurdle: scaling up the adoption technologies to achieve meaningful impact. To date, almost all of the water harvesting, NRM, and soil fertility technologies have been limited to demonstrations on a fairly small scale. This was a very reasonable approach as many of the technologies had been demonstrated elsewhere but never been tested in the project area. However now the project has a substantial body of technical knowledge drawn from case studies, and is in a position to start replicating these experiences in other areas.

The need for a scaling up strategy can not be overstated. There is a tremendous need throughout the project area and in adjacent districts for improved methods for smallholder farmers to improve food production and better manage natural resources including water. The project's accomplishments in demonstrating many of these technologies is laudable, but demonstrations in themselves have had marginal impact on the overall food security situation. If the only output of the many technology trials was a Lessons Learned document which did not translate into wider replication and adoption, it would not be a good return on USAID's $3.6 million investment in LFSP.

The project has made a good start in devising a strategy to replicate the lessons learned from technology trials, particularly for NRM. It has documented the major technologies tested, and identified the climatic, economic, social, topographic, educational, and maintenance requirements of each of the NRM technologies (Mwiinga, 2000). They have also identified factors which contribute to the adoption of NRM methods by small scale farmers (see box below). They are also in the process of publishing a resource handbook for many of the techniques used in community capacity building, soil fertility, and income generation.

Factors Contributing to the Adoption of NRM Technologies

- Benefits can be easily seen or demonstrated, (e.g., increased water, crop yields, income)
- Investment costs with the reach of farmers
- Availability of local materials or expertise
- High levels of awareness and knowledge on the benefits and management of the technology
- Other farmers have experience with the technology

Source: (LFSP, 1999b)

Although the technical side of technology adoption is becoming increasingly clearer through action research activities, particularly for NRM, more work is needed in documenting the technical aspects of income generation activities, post-harvest management, livestock management, and to some extent water harvesting structures. Additional work is also needed in all sections in developing delivery

mechanisms and an institutional network for the expanded application of new technologies.

LFSP does not have the resources to expand the scope of its services much further than its current geography, nor should it. Donor funded projects rarely have the longevity or resource base to be responsible for the direct provision of services on a long-term or widespread basis. The better strategy for scaling up technology demonstrations is through partnerships with more permanent institutions, namely government agencies and the private sector.

While LFSP acknowledges the importance of forming partnerships with government agencies and private sector to achieve sustainability, these are also the two lines of action where its has encountered the least amount of success. Working with institutions and the private sector can be at least as tedious and slow as working with rural communities, if not more so, and in some cases the obstacles seem just as entrenched as the changing weather patters. Working with institutions and private sector markets also requires different skill packages and intervention strategies, which may not be very well represented in the project's staff mix and overall orientation.

The evaluation team recommends that LFSP use the remaining period of USAID financing to give proper attention to developing a long-term strategy for developing delivery mechanisms for replicating technology trials through partnerships with government and private sector institutions. Investments such as the hiring of a marketing director, reorienting the focus of the SEAD section to strengthening market linkages, and supporting sensitization programs in participatory extension methods for MAFF staff are excellent initiatives in this orientation. However these budding efforts still seem dwarfed by the dominant focus on community capacity building and new technology development, and caution must be advised that the inevitable phase out of the project not be forgotten.

10.5 Life After LFSP

LFSP is approaching the last year of its current financing agreement with USAID, and entering a period of intensified discussion as to what will become of the project's achievements and capabilities. The overall objectives for LFSP for the remaining funding period and extending past the project completion date include:

1. maintain the achievements already made in improved food security and increased rural income
2. expand the number of beneficiaries in the existing service area
3. replicate the LFSP strategy and lessons learned in new areas

This section tries to explore some of the main issues involved in the post-LFSP transition phase, and present some possible scenarios for the project's legacy in Kazungula, Livingstone, and Kalomo districts. Unfortunately there is no crystal ball that will provide a definitive answer on which direction will yield the best

results, but at least the major stakeholders can begin to use analyses like this one to increase the level of dialog on post-LFSP strategies.

Project Services

A discussion on post-LFSP needs to begin with a summary of the main roles and services of the project, as these are the particular goods and services whose future is under question. These are summarized in the table below:

Major Services Provided by LFSP

Support for CBO formation

- PRA exercises
- training in CBO structure and leadership roles
- training in monitoring
- assistance with problem-solving
- CBO assessment

Support for improved farming systems

- identification and sourcing of improved seed varieties
- supplies of new seed
- monitoring of seed multiplication activities
- agricultural extension services
- materials and training for demonstrations of improved farming practices
- on-site inspections and monitoring of trials

Support for water and sanitation projects

- topical appraisals
- technical advise, training, and materials for the construction and maintenance of water harvesting structures
- watershed management advice and planning
- sourcing of spare parts

Support for income generation activities

- training in business management
- training in specific IGA skills (e.g., beer brewing, dry season vegetable production, food processing)
- training, materials and credit for technology demonstrations (e.g., treadle pumps)
- marketing assistance for business-oriented enterprises
- communication and coordination of outgrower schemes

Although already very diverse, this list does not include some of the new services recently taken on or proposed by the project, for example livestock health services, forestry management, or conservation farming.

It seems unlikely that there is any organization in the project area, government or private, that could fill the shoes of LFSP and provide such a diverse array of services. On the other hand, some of these services may very well become redundant or obsolete. For example, the identification of improved seed varieties

for the three agroecological zones has already been done, and many AMCs have already achieved a level of self-sufficiency in management of the seed multiplication scheme, including procuring new batches of seed. Similarly, training on CBO structures and certain IGA skills also does not need to be constantly repeated, except when expanding to new areas. Other services currently provided by the project may be replaced by the CBOs themselves, provided they can empowered to draw-down required services from public or private sector institutions. For example sourcing spare parts for a borehole or treadle pump is something CBOs could learn to manage.

However some of the services provided by LFSP will continue to be in demand, particularly for newer groups but also for ongoing groups. For example there will mostly be a continued need for coordination with agriprocessors for outgrower schemes. There will also most likely be a strong demand for the foreseeable future for training in improved farming practices, as most of these technologies are still in the demonstration phase. Most AMCs will also need financial and technical assistance to reap the benefits of improved water harvesting structures.

Role of MAFF in Post-LFSP

At first glance MAFF would appear to be the institution best positioned to fill many of the roles currently undertaken by the project. Although MAFF doesn't have a mandate or resources for supporting the entire portfolio of services provided by LFSP, for example income generation activities, proponents for a hand-off to MAFF note that MAFF is the only institution with a large field staff in the LFSP area and other rural areas. They also note that MAFF has a strong agricultural focus, and provides solid technical training to its extension officers. MAFF also possesses longevity and a legal mandate to serve the needs of rural farmers.

On the other hand, others have questioned the capacity of MAFF to serve the needs of rural communities at a level comparable to LFSP. This school of thought notes that the traditional training and institutional culture of MAFF at the district level does not encourage working through CBOs, despite the conducive national and policy environment. They also note that even if training could adequately reorient MAFF officers to embrace participatory approaches, constraints of transport, salary incentives, and extension resources will always hamper the effectiveness of MAFF's field operations. These constraints are deeply embedded in the institution and are beyond the scope of donor funded projects to address. This school of thought concludes by noting that LFSP does not have a particularly good track record working with MAFF to date (see section 6.1.3 on page 33), and that the history of other projects in Zambia and similar countries handing over to government extension programs does not inspire confidence.

Private Sector

Like MAFF, private sector institutions may be able to fill some of the roles of LSFP, but certainly not all. To begin, it is widely felt that it is in the economic interests of agriprocessors in Zambia to develop stronger relationships with small scale farmers, because Zambia does not have the volume of commercial farms to

meet demand. So there is an incentive for private sector agriprocessors to support mutually beneficial relationships with LFSP farmers. Larger agriprocessors have field staff which can provide extension services to smallholder farmers. However the cost of such services is eventually passed to the farmer, so it isn't cost effective until a certain economy of scale is reached. Although private sectors institutions benefit from the lower transaction costs associated with dealing with CBOs, the private sector is not in a strong position to form new CBOs, or provide required foundation training in areas such as CBO leadership roles, intervention prioritizing, and record keeping.

Other Government Departments
Other government departments which provide services that impact food security include the Veterinary Department (under MAFF), Forestry, and Social Services/Community Development. These departments have similar constraints as MAFF (e.g., transport resources, staff incentives), but they also don't have the field presence that the MAFF extension program has. They do have however specific technical skills and resources, and are potentially valuable support partners for CBOs in the long term.

Other NGOs
Although LFSP is probably the largest NGO operating in Kazungula and Kalomo Districts, there are other NGOs working in these districts. Two of the main ones include World Vision and UNICEF, which focus on water, sanitation, and health. In addition to the NGOs, there are some active charity organizations based at churches. These groups for the most part don't use the broad-based livelihoods approach that LFSP promotes, however they have expertise and resources in specific activity areas.

Institutional Gaps
If LFSP were to pull out tomorrow, one would expect to see some of the communities demonstrating self-sufficiency in some of the project activities, such as the seed scheme. Other project services, such as facilitating planning for watershed management, might not be within the grasp of current CBOs, but could attained by those CBOs who have been empowered to draw down resources from appropriate institutions.

However there are some programmatic areas where LFSP is really the only adequate service provider in the area. Perhaps most important of these is CBO capacity building. Building the capacity of CBOs sets the context for all other activities and interventions. The CBOs are the focus of extension services, marketing, and credit programs. They are central to LFSP strategy of improving food security, and have their own spin-off benefits. Although most of the current CBOs seem well on their way to becoming a least partially self-sustaining, it is difficult to see how new CBOs could be formed or supported without LFSP under the current institutional capacities. Marketing, which is becoming increasingly important as farmers learn to increase production above subsistence levels, is another area where there is no strong capacity outside of LFSP. Even within LFSP, marketing currently seems to be on a piecemeal case-by-case basis. This

type of marketing may be fine for small enterprises, such as dry season vegetable gardens, however larger business initiatives like an outgrower scheme require a stronger institutional marketing capacity.

Post LFSP-II Scenarios

The following scenarios try to illustrate some of the options available for continuing and expanding the impact of LFSP past the project completion date. These scenarios are highly simplified and represent different ends of the spectrum. They are not mutually exclusive and are presented primarily to stimulate thought and dialog between stakeholders.

Scenario 1: LFSP pulls out completely, with no concerted effort to replace or sustain achievements.

Description: In this scenario, LFSP basically picks up and leaves the project area at the end of the current funding period, without any kind of effort to hand over activities to other institutions. If this were to happen, the long-term impact of the project's achievements would largely depend on the sustainability of the existing structures. The seed multiplication scheme and use of low-rainfall crop varieties would probably continue, particularly in the areas where it is already established, however there may be long-term concerns of seed quality and supply. The impact of the water projects would hopefully continue, assuming the beneficiaries could continue maintenance. However it would be difficult for communities to construct or rehabilitate new structures without any kind of external assistance. Small-scale income generation activities would probably continue, for example linkages between specific vegetable production interest groups and urban traders. However the larger-scale IGAs which require more coordination, such as the Omnia outgrower scheme, may be at risk. Activities which are strongly project driven or supported, such as the monitoring program, would probably be gradually neglected and eventually cease.

Strengths: Puts the sustainability of CBO approach to the test.

Weaknesses: Continuation of some LFSP accomplishments would be jeopardized. Replication and expansion of project achievements would be slow and uncoordinated at best.

Scenario 2: LFSP pulls out completely, handing over each of the four action lines to an appropriate government department.

Description: In this scenario at the opposite end of the spectrum, LFSP still completely pulls out all its resources, but passes responsibility for the different activities to appropriate government departments. This might take place after a certain transition phase (for example one year after the current funding period ends) during which capacity building activities such as training take place, and perhaps project equipment such a vehicles are transferred.

This is the "classic" post-donor scenario, where government is passed the torch with the mandate to sustain and expand project achievements. MAFF would probably take the lead role in the provision of services related to farming systems. MAFF would probably also play a large role in CBO

capacity building, as they are the only government department with a large extension presence in the field. The Water and Sanitation, Forestry, and the Veterinary departments would step into their respective roles supporting water projects, NRM, and livestock health. Support for small economic activities would probably be divided among multiple departments depending on the focus of the IGA.

The relationship between CBOs and government departments would hopefully be more customer-driven than past extension programs. Many of the existing CBO-managed activities (such as the seed scheme) and linkages between CBOs and the private sector would hopefully continue, but not be supported except through the government departments.

Strengths: Government departments can be attractive handing-over partners as they have a long term presence in the district and mandates to achieve comparable goals. This approach can also have multiplier effects as government departments offer mechanisms to expand the use of lessons learned to other areas of Zambia.

Weaknesses: This history of the traditional handing-over approach to government departments is not encouraging. The challenges are many. Government departments have a tendency to not work well together, due to a variety of bureaucratic, political, budgetary, and personal factors. The result can be an uncoordinated and inadequate approach to service delivery, which loses the synergistic benefits of a coordinated approach including higher cost-effectiveness of implementation. Government departments also have some significant operational constraints, including the civil service pay scale which is not highly motivating, and limited resources for transport and implementation of project activities. In some cases, government departments can be highly politicized, making service provision inequitable and inconsistent. So even in the best-case scenario, where the various department heads completely understand and embrace the lessons learned from LFSP, these constraints could very well limit the effectiveness of government to sustain and expand LFSP achievements in food security.

This is not to suggest that government has no role to play in sustaining the achievements of LFSP. Indeed the government departments have many highly valuable assets, including highly-trained technical staff, and a long-term legal mandate to serve rural communities. However shifting the responsibility to carry forward the achievements of LFSP onto government exclusively does not seem terribly attractive.

Scenario 3: LFSP gets another five years of funding from USAID or another donor, maintaining its current scope, autonomy, and overall strategy.

Description: This scenario essentially represents a continuation of the operational status quo, with perhaps some minor reorientation of project activities to address already identified issues of joint forestry management, livestock health, and watershed management. Although partnership building might be a stronger focus than it has been in LSFP-II, the project would basically retain is present staffing, autonomy, and geographic focus.

Strengths: Continuation and intensification of LFSP's impact would continue under this scenario. It would also allow for more refinement and dissemination of lessons learned in important technology areas. The additional time could also be used to plan and pilot test a transition strategy.

Weaknesses: Preserving the existing status quo would postpone, but not eliminate, the need to address the difficult issues of sustainability. Taking additional time to plan and prepare for a transition stage would probably be helpful in planning an exit strategy, but learning will be minimal until the transition actually takes place. The project may also be inflicted by the 'business as usual' syndrome, where innovation and creativity are stifled from a perception that the course is already well mapped out. An extended period of funding would also reduce project incentives to focus on the difficult work on forging institutional partnerships with government and the private sector, and retain its focus on communities which are in many ways easier to deal with and yield more visible results.

Scenario 4: LFSP becomes a training institution

Description: Under this scenario, LFSP continues to receive some kind of donor support but slims down and focuses on what it does best: training. The target for this training could be AMCs, however a more strategic audience would be implementation partners. Topics would focus on areas where LFSP has developed some expertise, namely CBO formation and capacity building, participatory extension methods, water projects, and NRM technologies. To be cost-effective, the target audience would have to be drawn from a wider area, such as all of Southern province or even all of Zambia.

Strengths: Focusing on training would capitalize on LFSP's strengths and experiences. It would also provide a much needed service to Southern Province and Zambia as a whole.

Weaknesses: Training is an important component of capacity building, but by itself can not improve food security. To be effective, training requires follow-up support, on-site supervision and monitoring, and in some cases equipment like seed or construction materials. This principle applies to both communities and institutional audiences. Training addresses some of the problems of partner institutions, such as overall orientation and technical skills, however it doesn't impact other limitations such as pay incentives or resources for implementing activities.

It is also difficult to demonstrate impact from training, a constraint that might make this option less attractive to today's investors. Training institutes tend to have high overhead costs because of the expense to build/maintain facilities. There is also the potential of some duplication of effort with other training centers in Zambia.

Scenario 5: LFSP evolves into a semi-permanent institution, either as a separate NGO or a government-donor-CBO managed trust.

Description: In this scenario, LFSP evolves into a more-or-less permanent presence in Southern Province, by either becoming its own NGO or a trust managed by multiple stakeholders. As a separate NGO, LFSP would maintain

its current level of operational autonomy, but would need to attract its own funding. It could continue to focus on a holistic approach to improving food security, or may need to specialize in training or specific technologies.

As a trust, LFSP would be guided by a board of directors which are drawn from its main stakeholders: CARE, MAFF, local government, the CBOs, traditional authorities, etc. Its funding base could potentially be derived from a combination of donor investments, government contributions, fees for specific services such as training, levies from outgrower schemes, or membership fees from CBOs. The size and direction of its activities would be determined by its board of governors and resource base, but would probably focus on the capacities developed by LFSP: CBO formation and capacity building, improved farming systems, water harvesting, and income generation.

Strengths: A semi-permanent, semi-autonomous food security trust in Southern Province would address many of the issues concerning sustainability of project impact. Participation from a wider range of stakeholders could potentially improve dissemination of lessons learned and strengthen institutional commitment to the participatory approaches which are at the core of LFSP. Coordinating multiple services through a single institution would maintain the holistic livelihood approach to food security that LFSP has promoted, improve cost-effectiveness of service delivery, and maximize synergistic effects. This type of structure would also have greater longevity than a purely donor-funded intervention. There is also some indication that government has recognized the value of a trust. MAFF is currently a partner in at least two trusts, the Cotton Development Trust and the Golden Valley Agricultural Research Trust (see box below). The Government's Livestock Development Plan also floats the idea that livestock services can be delivered through semi-autonomous trusts.

Weaknesses: Although there is some precedent of trusts in the agriculture sector in Zambia, experiences with this type of partnership for servicing smallholder farmers are minimal. Numerous challenges line the road ahead. First and foremost is cost. LSFP has been able to achieve results by maintaining a staff of approximately 50 in two districts, with an annual operating budget of approximately $800,000. Achieving even half this scale in a trust would be challenging without donor subsidization. A trust may also be challenged to stay focused. Food security is a broad area and a large array of interventions can be implemented in the name of food security. A diverse Board of Directors representing multiple institutions is definitely an asset in many ways, but could also be a liability when it comes to defining program direction.

An Multi-Stakeholder Ag-Sector Trust Model To Look At The Golden Valley Agricultural Research Trust (GART)

GART was established in 1994 and became operational in September 1995. It is directed by a Board of Trustees representing the Zambia National Farmers Union, MAFF, University of Zambia, ICRISAT, and a financial institution. The Trustees provide policy direction while a Management Board carries out the annual work program. The Management Board is backed up by four technical and advisory committees drawn from a broad range of stakeholders.

The main activities of GART are contract research, service research, and commercial cropping and ranching. It is funded through its contract research and commercial cropping operations, with additional support from the member institutions and World Bank (through MAFF). They publish an annual report called the Year Book which summarizes the activities of the Trust and presents research results.

GART has proven effective in partnering private and public sector institutions, using agricultural research as a common focus. The representation of ZNFU on the board of directors and the financial dependency on contract research ensures that GART's services remain demand-driven. Although the focus on research for commercial agriculture and broad financial base are a far cry from a trust that would be centered around smallholder farmers, GART presents an interesting partnership model that combines the strategic interests and needs of multiple stakeholders to provide a much needed service in the agriculture sector.

Scenario 6: CARE opens a new food security program in a neighboring district[4].

Description: In this scenario, LFSP applies the same basic approach it has used in Livingstone/Kazungula/Kalomo districts to another area.

Strengths: This option would allow CARE to apply the lessons learned from LFSP in a new context. This type of experimentation is an extremely valuable exercise, because it allows projects to differentiate which approaches are context-specific and which have broader application. Expansion to new areas would also provide an important service to the people of Zambia, as the approaches developed by LFSP are designed to work in marginal areas where food security is a major concern. There are a number of such marginal areas in Southern Province as well as other parts of Zambia including Western and Central Province.

Weaknesses: The sustainability issues and need for an exit strategy for the LFSP areas would still need to be dealt with, and CARE would have to examine its capacity to implement a second food security project in Zambia. The project has made a strong investment in staff development, and would need to find a way to reallocate these resources to support a new area. Donors may also be hesitant to fund a new food security project without first seeing the long-term sustainability of the parent project.

Conclusion

As LFSP enters its final year of USAID financing, it needs to begin serious dialogue internally and externally to plan its next move. The discussion and

[4] This option doesn't really offer much to the dialog on the post-LFSP transition, because it doesn't present an option for an exit strategy in the existing project area. However it is presented here because it has been raised by a number of project and CARE staff.

scenarios presented here only scratch the surface of the thought process that needs to go into the preparation of new proposal. Each scenario presented here could easily be flushed out into 30 page proposal or more, outlining a rationale and operational framework. Some of the scenarios above are clearly not very attractive and only presented for discussion purposes. Perhaps the best approach will represent a combination of several of the above scenarios or other creative solutions.

The evaluation team does not feel it is in a position to recommend one of the above strategies above the others, however it does recommend a general approach which is summarized below.

Evaluation Team's Recommendations:
Five-Step Process for Preparing for Life After LFSP-II

1. CARE/Zambia should reexamine and rearticulate its strategic and manageable interests in food security.
2. LFSP should articulate the comparative advantages of its livelihood approach, both as a whole and for each of the four action lines.
3. CARE/LFSP should articulate their goals for post LFSP-II.
4. CARE/LFSP should initiate private discussions with potential institutional partners on post-LFSP, to be followed by a broader workshop once a tentative framework is developed.†
5. CARE/LFSP should conduct or contract the necessary feasibility studies, particularly if there is a proposal to expand to new areas or evolve into a semi-autonomous NGO or trust.

† this could be incorporated into the agenda of the ongoing series of partnership workshops

11.0 LESSONS LEARNED

The following lessons have been learnt in the process of implementing LFSP. These lessons could be used for improving project planning and effectiveness in future.

11.1 LFSP Lessons Learned

CBO Structures and Capacity Building

1. CBOs can learn how to use PRA methods in their own work within their communities. Some AMCs and VMCs have for instance done PRA work with neighboring villages to help them launch seed programs.

2. The peer pressure of the cell group is valuable in enhancing the performance of members and contributes to achieving targets set by the communities themselves. This has been demonstrated in loan schemes and construction work.

3. Although cell groups and the whole CBC structure appear to be sustainable mechanisms that have not faded away as the novelty of the LFSP wore off, group durability is not necessarily the best criterion for measuring the success of the LFSP extension approach. Groups should only last for as long as people find them useful. Evolution of groups is inevitable and usually healthy.

4. PRA processes may create expectations among rural communities that may be outside the purview of the project. Care must therefore be taken to be realistic about how soon action will be taken as it leads to resentments when nothing happens.

5. Once people are familiar and comfortable with the experience of working in a CBO, they can organize themselves to work together in various development initiatives.

6. LFSP experience shows that flexibility about local institutional structure is empowering for local people and promotes their active collaboration with the project.

7. It is important to include traditional authorities (Chiefs and Headmen) in early contacts and briefings in order to avoid clashes between them and the CBO structure developed under the project in order to facilitate collaboration.

8. Mediation and conflict resolution mechanisms are required in CBO structures. Under LFSP there are cases in which VMCs and AMCs have used headmen and chiefs for this purpose.

9. Some CBO leaders in the LFSP areas have successfully ran for local political offices (District council) because of their high profile in the community.

10. LFSP's experience shows that poor rural people will respond positively and competently to a clearly formulated development opportunity that meets a plain and widely shared development need.

Farming Systems

11. A community based seed multiplication scheme of early maturing and drought-resistant crops is an effective way to alleviate food insecurity in drought prone areas.

12. Local seed banks help ensure that seed is available when needed, and that it won't be eaten before planting in times of hunger.

13. Successful interventions in increased production must be supplemented with training on post-harvest technologies for food storage and processing. Increased production also results in a demand for improved crop marketing.

14. It is possible to increase land productivity considerably using soil improvement crops such as velvet beans and sunhemp.

15. Factors that could limit adoption of green manuring techniques include lack of enough land to allow for fallow, labor constraints, lack of equipment to incorporate the green manure into the soil and the fact that farmers find it hard to grow a non-food crop.

Gender

16. LFSP has learnt that reducing gender inequities in rural Zambian society is a delicate, long-term challenge. Achieving more equitable numerical gender balance in areas such as CBO leadership positions does not necessarily lead to any immediate fundamental shift in gender relations, although it may be the first step in meeting the longer-term challenge.

17. One method of empowering women is to raise their income by promoting crops traditionally grown by women.

Sustainability & Expansion

18. Although CBO dependency on the project is still a concern, there is evidence that AMCs can operate autonomously, taking their own initiatives and linking themselves to government and other NGO agencies. There are, however, still many issues on which CBOs still expect help from LFSP.

19. Program expansion into new areas should be based on interest expressed by household and the communities, and not on rigid pre-determined processes.

20. Increasing food production is a major step which bridges relief and development, both within the community, as well as for the NGO involved. Once basic food needs are met, a wide array of other social needs will be voiced which may over-stretch the capabilities of the project.

Monitoring and Evaluation

21. CSM ledgers are an effective mechanism to collect and manage household level data on demography, household assets, and production. However teaching people how to use information for their own planning purposes has proven to be a challenge.

22. CSM works best as tool for collecting factual information for purposes such as identifying households in greatest need of food relief, or checking which crops are most popular or successful. Broader identification of trends and issues has mainly emerged from less structured discussions within CBOs and between them and the project.

Extension

23. Start-up costs for CBO extension are comparatively high, however running costs of the extension approach are comparatively low. Overall extension through CBOs is more cost-effective than T&V.

24. By providing extension services through CBOs and taking advantage of community facilitators, one extension officer is able to work with approximately 1,000 farmers.

25. Extension services can be provided by NGOs equally as well as by government extension programs.

26. It is possible for an NGO extension program to help influence the approach used by a government extension program, through documentation, training and examples.

27. Experiential learning and farmer-to-farmer extension approaches are effective in spreading conservation farming ideas.

28. Local facilitators have shown themselves to be quite capable of providing extension services in their communities. Use of "local" technologies, such as live fencing using a local tree species, is much more intuitive for facilitators to share with other farmers. Introduction of technologies which are not well known, such as green manure crops, requires more training before facilitators can effectively disseminate the technology.

Partnerships

29. Forming a durable partnership requires making an investment in working with the other institution from the very beginning.

30. When there is no durable, structured agreement between two institutions such as LFSP and MAFF, then the relationship is going to be inconsistent, opportunistic, and largely defined for better or worse by personalities involved.

Private Sector Linkages

31. Marketing strategies enable rural households to get better prices when they sell by increasing volume, reducing uncertainty, and decreasing transaction costs. By developing proper linkages with established traders, community members get a better bargain for the produce.

32. When demonstrating new technologies that require private sector services (e.g., parts, training) to establish/maintain, it is better to get the private sector partners involved from the very start, (e.g., let them do the training and installation) so that working relationships are built with the CBOs.

Water Harvesting

33. Water for household use has been achieved for some areas but distances are still large for some households.

34. There seems to be low utilization for some of the water resources, for example in fish farming and gardening. Because of uncertainty about rainfall, communities tend to limit the utilization of water basically for household consumption and livestock.

NRM

35. Initial establishment of NRM activities is time consuming. However, if benefits can be made tangible, appropriate technologies stand a better chance of being rapidly disseminated. For this reason it helps to target areas where benefits will be seen quickly such as infertile fields and silted dams.

36. Participatory monitoring programs help demonstrate the long-term benefits of NRM.

Income Generation

37. The chronic risk of drought in Southern Province highlights the need for strengthening the asset base of households as a coping mechanism against food shortages. Strengthening the asset base requires increased revenue.

38. Savings, credit and marketing, among rural communities are very difficult interventions in which to make progress. They require intensive and extended professional support in order for commercially viable results to be achieved. Savings programs are not an effective strategy in an economic environment where bank interest is lower than inflation.

11.2 Expanding Lessons Learned

Although there is no magic recipe for expanding or replicating the lessons learned from a project, there is a general process that replication follows (see Figure 67). It begins by documenting the lessons learned and disseminating the results. This can be achieved by several strategies including traditional reports, presentations at conferences and meetings, web sites and email lists, newsletters, the electronic and print mass media, outreach, professional associations, etc.

Once lessons learned are disseminated, the next step is for the leadership of other institutions to take notice and incorporate the lessons into their own institutional memory. This step is sometimes forgotten by projects, who sometimes believe that traditional reporting formats will be so compelling that other institutions will start knocking down doors to find out more about the effective strategies. Projects that have a genuine commitment to maximizing the yield of their investments in testing new approaches will explore strategies such as a user-friendly newsletter to make sure that their lessons are presented compellingly and repeatedly to key audiences.

After another institution becomes interested in the lesson, they will review it in greater depth, test, and adapt the approach or technology to the their own goals and context. In the case of projects the new tool/method can be incorporated into project activities. Government departments can integrate lessons learned into their operational frameworks and policy, while donors can integrate lessons into future cooperative agreements and the design of portfolios.

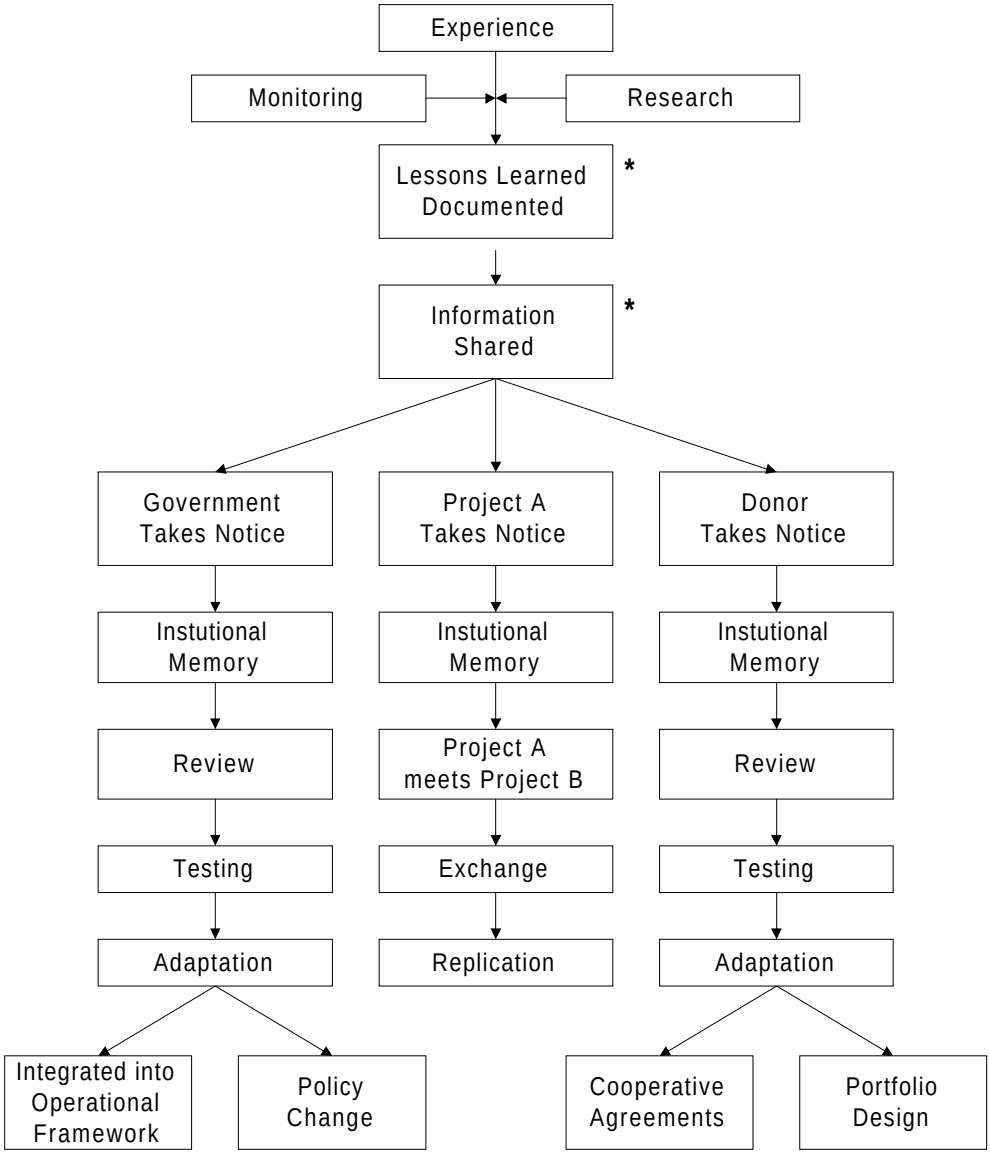


Figure 67. A framework for expanding lessons learned.

A donor or project can only do so much to encourage the replication of their lessons learned, but they are in a position to impact certain stages of the process, primarily in documentation and dissemination. To maximize the likelihood that the appropriate people will take notice, lessons should be shared compellingly and repeatedly using a variety of media.

Figure 68. LFSP planning workshop
Inviting external stakeholders to planning workshops is one way to disseminate lessons learned which can lead to replication

12.0 ADDITIONAL RESEARCH NEEDS

Like most research studies, this evaluation identified additional research topics that would help to elucidate the impact that LFSP has had on food security and rural income. These topics were either not explicit in the scope of work or were beyond the time available during the evaluation period. They are presented here to help guide future research planning and to give some ideas which may help the project prepare for its final evaluation.

12.1 Return on the donor investment

From the donor perspective, a more interesting question than how much USAID financing was spent, is how much return was delivered for each dollar invested into LFSP. Such an exercise for LFSP would be complex to say the least, as the project delivers a multiple of services, many of which can not be easily translated into monetary terms. CBO capacity, improved health, business skills, etc. have economic value in the sense that they contribute to increased agricultural production, however they also have intrinsic value which is not easily quantified. But at least on a section by section basis, the project may be able to develop a methodology and sampling scheme to estimate the return on the investment dollar.

12.2 Project impact on household asset base

Although this evaluation made some progress in measuring the impact of LFSP on the asset base of participating households by using information from the CSM, there wasn't enough data examined to make a definitive conclusion. The project has also conducted some studies on household assets, such as the increase in livestock, but there is need for a more systematically conducted analysis. Another unknown question is the differential impact of the project's interventions of the different wealth categories. In other words, do the poor make more or less progress than the rich? This line of inquiry would be very pertinent for the final evaluation.

12.3 Institutional capacity of partner institutions

Although the scope of work for this evaluation called for an assessment of the capacity of partner institutions, time did not allow for an adequate analysis to be made. This question will be highly relevant for planning LFSP Phase III, whatever shape it may take (see 10.5 on page 101). Questions such as staffing levels and training, transportation and communication resources, planning capabilities, strategic orientation, etc. will help shape the dialogue leading to LFSP's next step.

12.4 Accuracy of Community Self-Monitoring Data

Although the agricultural technologies get most of the attention in LFSP, the use of the Community Self-Monitoring system is one of the most innovative implementation tools developed by the project. This type of method is also highly transferable to other development arenas. However the validity and accuracy of the data in the CSM has not been examined in great detail. Both LFSP and the

field of development in general would greatly benefit from a study on the accuracy of this approach. Questions include:

- How complete is the data in the CSMs?
- How accurate is the data in the CSMs? What are the biases?
- When is the CSM data collected and recorded? How long does it take?
- How much of the CSM data is based on farmer recall, and for how far back?
- How much production data is missed due to crops being eaten before harvest?
- How accurate are the measures of area and mass in the CSM?
- How consistent are the measures of area and mass in the CSM?
- What are the incentives for maintaining the CSM?
- What is the minimum amount of external support and supervision required to keep the CSM going?

With more detailed data on the CSM such as the questions above, the project would be able to make a stronger assessment on the validity of the data. They could start to put confidence intervals around averages (e.g., "an average of 0.2 ±0.04 ha of MMV400 was planted in year X"), which would greatly strengthen the interpretation of results, and provide a very useful tool for the final project evaluation.

12.5 Impact of LFSP on Food Relief

The underlying attraction for LFSP as an investment option is the argument that it is cheaper to address the underlying causes of food security than it is to provide food relief. Although Southern Province has not experienced the severe droughts that it did during the first half of the 1990s, there has been some food relief in the province since the project started. If the project is achieving its expected goals, we would expect to see less food relief needed in the project area than in non-participating areas, and also less food relief needed than in comparable droughts before the project began. There is also preliminary evidence that when food relief is required in the project area, it is distributed much more efficiently and effectively when CBO structures are in place. Such a study would not be terribly difficult to conduct, and may present very compelling evidence for other donors involved in food relief to adopt approaches exemplified by LFSP.

12.6 Impact of Technologies on Production

Although LFSP recently completed a production trends study, there are still some questions on the impact of technologies that need to be addressed in more detail. The question of changes in seed quality and the impact of seed quality on production has been examined on a small scale, however a robust analysis which includes other factors such as rainfall and farming practice is still needed. Likewise the impact of soil conservation and soil fertility technologies on production has been studied on a small scale, but more examples would be

helpful. Finally the adoption rate of the improved farming practices, both for participating and non-participating factors, is not well documented.

The project has begun to take steps to collect more data on production, including crop-cuts planned for 2000, which will provide an excellent data source for a more robust analysis of production. The Food Production Trends Survey can also provide relevant data to show changes in production over a four year period. This type of study would also help the project quantify its overall impact on food security in Southern Province, something it would be challenged to produce today.

13.0 RECOMMENDATIONS

Overall the evaluation team was impressed with the performance results of LFSP. It is a well-conceived and managed project, and has an innovative experimental focus not found in many development projects. It may still be a bit too 'top-down' in its approach to providing services to communities, and faces serious challenges in developing mechanisms to achieve long term sustainability, but overall the evaluation team feels this project has been a good investment for USAID/Zambia and is worthy of continued support.

13.1 Recommendations USAID's Future Investment Options

The matrix on the following page summarizes the advantages and disadvantages of USAID's choices for future investment in LFSP. The evaluation team recommends the following elements of the matrix:

1. LFSP should not expand its geographic scope into neighboring districts at this time because it does not have the required administrative or technical resources

2. LFSP should expand its target population in the existing areas by targeting new AMCs, in order to capitalize on the benefits of scale without significant additional overhead on project resources

3. LFSP should be encouraged to expand its scope of technologies in the areas already identified by the project, namely livestock health, and NRM.

4. USAID should continue to support LFSP and encourage the project's efforts to develop an exit strategy which maximizes the likelihood that the project's achievements will be sustained

Table 14. Advantages and Disadvantages of USAID's Investment Options in LFSP

Investment Option	Advantages	Disadvantages
Extension	• continue making progress towards SO1 • provide sufficient time to fully develop all components of the LFSP strategy and determine if the model works • provide additional time for new technologies and intervention strategies to be developed and be studied • see the benefits of long-term interventions such as NRM technologies • better opportunity for replicating best parts of the model • phase out can be gradual and deliberate instead of rushed and improvised • opportunity for maximizing contributing support from other NGOs and donors • USAID can build upon past investments rather than invest in developing a new project	• additional funding needed • reduced incentive for project to begin phasing out process
Expansion:		
Expansion into new districts	• increase progress towards SO1 • opportunity to capitalize on existing knowledge gained by the project • opportunity to further test the social and ecological conditions/ assumptions upon which the LFSP model is based • multiplier effects from new experiences/ exposure of model • opportunity to test new strategies of establishing CBOs & project/community relationships	• parts of model not yet fine tuned and not yet ready for replication • project doesn't currently have management and administrative capacity to serve new areas • expansion may detract resources from services in existing areas • additional time and money required
Introducing program into new communities in existing districts	• basic project infrastructure is already in place - increase impact with minimal additional resources • benefits of scale:	• additional funding needed • project staff may become overtaxed • components of program that don't work

Investment Option	Advantages	Disadvantages
	• a larger critical mass might accelerate adoption of new technologies • marketing advantages • inter-community synergism • new possibilities for institutional partnership • reduces unit cost for services delivery • opportunity to test new methods of establishing CBOs and defining a CBO-project relationship based on lessons learned • improve achievement of project goals - greater impact per capita in the three districts	well might not be ready to implement on a larger scale
Expand scope of technologies and strategies (e.g., livestock health, NRM, CF, donkeys, information dissemination)	• preliminary evidence suggests good potential for new strategies • able to study synergistic effects of multiple interventions • more experimentation will result in a stronger intervention model • increased opportunity for developing partnerships - multiplier effect	• requires additional time and funding • new strategies may not work • new strategies may not contribute much to project goals or SO1 • if new intervention strategies are not demand driven then adoption may be low • more direct services may increase donor dependency syndrome • possible loss of focus on core project activities
Cutting short	• SO1 funding can be made available for other programs • opportunity to study the consequences of donor pull out	• communities not ready to function on their own • lose institutional structure and human knowledge to plan and implement future food security interventions • if project activities fail to be sustainable, there is a likelihood that increased food relief will be needed • loss of contribution towards SO1 goals

Investment Option	Advantages	Disadvantages
		• monitoring likely to cease, lost learning opportunity to see if model works • lost opportunity to finish developing and testing the LFSP intervention strategies • loss of donor credibility by the beneficiaries and institutional partners, reinforcing the perception donors have limited short-term interests

13.2 Programmatic Recommendations

In addition the general recommendations listed above, the evaluation team makes the following programmatic suggestions:

1. Develop activity-oriented MOUs with local government institutions and NGOs.

2. Develop an institutional strategy for expanding the delivery of demonstrated technologies through linkages with private sector and government institutions.

3. Revisit the performance indicators, particularly those of the SEAD section, in light of the recent reorientation of the operational framework (e.g., stronger emphasis on marketing, livestock health, partnering, AMC graduation, etc.)

4. Strengthen monitoring of SEAD activities. Data is there but is not organized. This should be a focus of the new SEAD coordinator when the position is filled. A basic set of variables (e.g., number of beneficiaries, gross and net income) should be standardized across all interest groups so generating impact data will not be difficult. Consider the CLUSA RGBP Profit & Loss statements as a possible model.

5. Begin compiling electronic copies of all documents for eventual distribution on CD ROM or the web, as a cost-effective dissemination mechanism which can supplement the distribution of hard copies.

6. Strengthen the methodology section of project reporting, including a description of the sampling methods and possible biases.

7. Strengthen monitoring of technology trials, including a greater number of demonstrations and generation of real production data for improved farming systems and NRM technologies.

8. Make better use of CSM data for impact monitoring at the project level. Strengthen training of CSM introducing more accurate and standardized measurements for area planted, types of assets recorded, and production units. Add variables on the trade or sale of crops.

9. Strengthen the collaboration with other technology focused agriculture research programs, including CFU and ICRAF.

10. Strengthen the information technology resources of the project, in particular the Monitoring and Evaluation section, either by building internal capacity or by establishing a long-term tech support contract with an appropriate firm.

11. Increase the amount of collaboration between MAFF and LFSP extension officers before handing off graduated CBOs to MAFF. Allow sufficient time

for extension officers to work side by side to become oriented and comfortable with participatory methods of extension and facilitation.

12. Work closer with local traditional authorities, especially in the areas of NRM and joint forestry management. Be mindful of the experiences of other projects such as ADMADE in regards to strategies for working with traditional rulers.

ANNEX I - PEOPLE CONTACTED

USAID/Zambia
P.O. Box 32481, Lusaka
Tel: 260-1-254303
Fax: 260-1-254532

David Soroko	Agricultural Development Officer
Morse Nanchengwa	Agriculture and Natural Resources Program Officer
Chris M. Muyunda	Small Enterprise Development and Agri-Business Program Officer
Helen K. Gunther	Agriculture and Natural Resources Development Officer, USAID/Madagascar

CARE International in Zambia
P.O. Box 36238, Lusaka
Tel: 260-01-265901
Email: care-zambia@zm.care.org

Mark VanderVort	Assistant Country Director
Godfrey A. Mitti	Head-Agriculture and Natural Resources
Colin Guanu	Director of Finance
Regis Gwaba	Monitoring and Evaluation Unit

Golden Valley Agricultural Research Trust
P.O. Box 50834, Lusaka
Tel: 260-1-611150, 611018, 611163
Fax: 260-1-611232

Stephen Muliokela	Director
Douglas Moono	Senior Agronomist
Sosten Lungu	Assistant Agronomist

Others - Lusaka

A. K. Banda	Acting Permanent Secretary, MAFF
Robert Chimambo	Ministry of Water Affairs
Chansa Mushinge	FEWS Representative in Zambia
Paul Muzunda	AFRICARE/Zambia
Dr. Lungu	UNZA, Soil Science Department
Alex Mwanakasale	Agricultural programs, World Bank
Charles Chileya	National Programmes Coordinator, FAO

Livingstone Food Security Project
P.O. Box 60256; Livingstone
Tel: 260-03-323244, 323730, 324259
Fax: 260-03-320687
Email: clivings@zamnet.zm

Sylvester Kalonge	Project Manager
Robby Mwiinga	Assistant Project Manager
Samson Mbale	Technical Coordinator
Jasper Hatwiinda	Monitoring and Evaluation Coordinator
Catherine Pongolani	Farming Systems Coordinator
Florence Chawelwa	Administrative Coordinator
Helen Khunga	Extension Officer
Sara Mwale	Extension Officer
Musonda Kapena	Extension Officer
Highland Hamududu	Training Officer
Alice Whitehead	PAEC Assistant
Fungaloko Patson	SEAD Officer
Felix Lombe	Technical Coordinator
Nathaniel Mkuzo	Water Technician
Fred Sichone	Senior Accountant
Christopher Kakunta	Documentalist
Evans Mwengwe	Livestock Officer
Agnes Bwalya	Secretary

Beneficiaries - Livingstone

Patson Sibibi	Songwe AMC facilitator, Mupotola Village
Daniel Akoyaka	Member, Songwe AMC, Mupotola Village
Dragon Zondani	Member, Songwe AMC, Mupotola Village
Dean Mullwena	Secretary, Songwe AMC, Mupotola Village
Ben Sialutaba	Chairman, Songwe AMC, Mupotola Village
Jack Mwamba	Jack Mwanampapa AMC, facilitator
Mrs. Jack Mwamba	Member, VMC
Bobby Mukuni	Member, VMC
John Mwamba	Member, Jack Mwanampapa AMC
Mrs. John Mwamba	Member, VMC
Forestry Staff	LFSP
Mr. Ngenda	Delevu AMC Chairman, Advisor to Chief Sekute, Councilor
Sofia, Mrs. Ngenda	Delevu
Ritious Mulena	Makunka AMC facilitator, Simalolo Village
Mary Simunene	Makunka AMC Vice-Seceatary, Simalolo Village
Caesar Sami	Farmer & Sinde AMC Chairman, Mujala Village
Donald Hangombe	Sinde AMC Secretary, Mujala Village
Donald Chiiko	Member, Sinde AMC, Mujala Village
Audrey Simakuni	Member, Mujala VMC, farmer, housewife
Mathews Syachitema	Katapazi AMC facilitator, 5 villages, Katapazi Village
Oscar Musena	Katapazi AMC Chairman, Katapazi Village
Kenan Simasiku	Katapazi AMC facilitator, 4 villages, Katapazi Village
Ackim Syachitema	Shopkeeper, Katapazi Village
	Katapazi VMC Chairman, Katapazi Village
Micheal Siamujaye	School teacher, Deputy Headmaster, Katapazi School
Vincent Ngumbili	Shindu AMC Chairman, Shindu Village
Kenneth Likokoto	Member, Shindu AMC, Shindu Vilalge

Charles Rikokoto	Member, Shindu 2 VMC
Samson Rikokoto	Member, Shindu 2 VMC
Morgan Sikumba	LFSP/Kalomo Office Helper
Linda Moonga	LFSP/Kalomo Office Helper
Argent Hamutiki	LFSP/Kalomo Driver
Mr. Sitali	LFSP/Kalomo Tractor driver
Wilson Kafwanka	LFSP/Kalomo Mechanic
Moses Wachila	Mweemba AMC facilitator
Mr. Thompson Wachila	Headman, Mweemba Village
Benny Simwambwa	Kasukwe AMC Chairman
Renard Twaambo	Member, Kasukwe AMC
Jacob Mudenda	Kasukwe AMC
Akim Muzunga	Member, Kasukwe AMC, farmer, Chikombi Village
Kerry Mungala	Member, Chikombi VMC
Fanny Mooya	Farmer, Chikombi Village
Clever Muleya	Farmer, Chikombi Village
Miyoba Hanyuka	Farmer, Chikombi Village
Josta Kaliilo	Daughter to Akim Muzunga and Kerry Mungala
Mr. Monga	Kasukwe Ward Councilor

Others - Southern Province

Mr. D.H. Hakayobe	Permanent Secretary Southern Province
Mr. Banda	Kazungula/Livingstone District Planning Officer
Christine Chisembele	Kazungula District Veterinary Officer
Mwape Walumba	Southern Province Social Welfare Department
Katupa Chongo	Kazungula District Agricultural Coordinator
Joy Sinyangwe	Crops Specialist, Kazungula District
Ms Malambo	Kalomo District Agricultural Coordinator
M.P. Siyamasamu	Social Welfare, Southern Province
K. Ngalande	Kazungula District Community Development Officer
Freddie Kamulosa	Acting Forestry Officer, Kaloma District
Lumumba Mwanangonze	MEDO/MAFF, Kalomo District
Misheck D. Zulu	Roads Department, Kalomo District
L. Chileshe	Senior Administration Officer, Kalomo District Council
Mukombo Cheelo	A/WDO, Kaloma District
Cruesha Muleya	DCDO, Community Development, Kalomo District
Mubita Musiwa	Kalomo District
Martin Sampa	Southern Province, Development Planning Officer
Willem Colenbrander	Director, Busiku Consultants, Southern Province, Livingstone
Silvasy Shibulo	MAFF District Crop Husbandry Officer, Livingstone

ANNEX II - LITERATURE CONSULTED

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ANNEX III - ENVISIONING THE FUTURE

The following fictional story tries to capture one vision of how LFSP AMCs may exist ten years from now - after the project is gone. The use of hypothetical narratives such as this one can be a useful tool to help crystallize and articulate various perceptions of the ultimate goals of a project, a best-case scenario resulting from achievement of all project goals. Once a destination is visualized, a path in the right direction can be charted from the present location in the journey.

Livingstone, May 2010. James Miyanda feels a little nervous as he sits in the reception area of the District Education Office, waiting to see the District Education Officer for Kazangula. He is still relatively new as an AMC Chairman, having been elected just a year ago. Before that he was Secretary of the AMC and Chairman of his VMC, where he was responsible for record keeping for the community seed scheme. Although he feels very comfortable working with the people in his community on activities such as the seed bank, maintenance of the weir, and the new outgrower scheme, he has never worked with anyone from the District Education office and only has a grade 12 education himself. He wonders if he'll be respected here but so far everyone has been very helpful.

He has come to Livingstone, along with the facilitator for his AMC, to inquire about a new service which he has heard about. They have heard that the education department has a program whereby they can send an additional teacher to rural areas for girl education. The issue of education for girls has been coming up in meetings at the AMC for the past six months, and there is interest in bringing another teacher to the primary school if possible. At the last AMC meeting, the secretary presented a summary of household demography, using data from the Community Self-Monitoring books. The CSM books revealed what many people already suspected - that almost half of the population in the AMC are under the age of 15, and that many of the girls are not in school. However the CSM books also showed something that people hadn't really realized, that households that are headed by a young female are often in the lowest wealth ranking, and tend not to increase their asset base.

After discussing this problem during several meetings, the AMC decided that they should look into ways to get more girls into school, look for opportunities for income generation, and perhaps see if they can get a family planning officer to come to the area to talk to them. When they heard from the local MAFF officer that some donor organization was funding teachers for girl education, it seemed like a good opportunity. The AMC has already agreed verbally that they can use some of the money from the sale of surplus seed to build a house for an additional teacher, and the Chief has given his support also and will help mobilize labour.

Mr. Miyanda has another appointment today also, to meet a local commercial farmer about getting a new supply of maize seed for the following season. About every three or four years, they try to organize to get some new seed, particularly for maize where the preferred varieties are MMV400 and Pool 16. The last time they bought new maize seed was three years ago, and the yields seem to have gone down since then, although the methods they are using to improve soil fertility, such as green manure

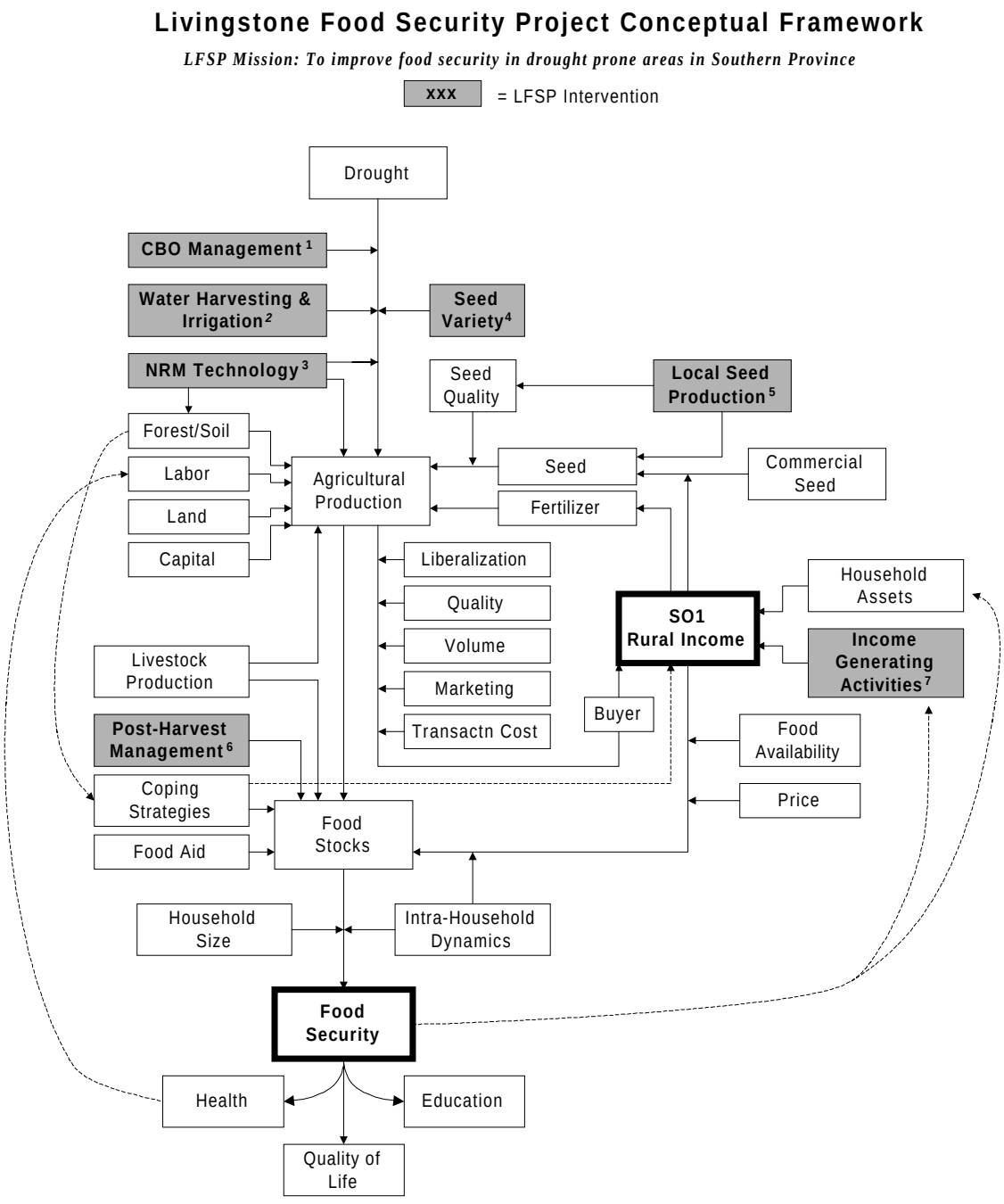
and inter-cropping, have helped a lot. They used to get new seed from CARE, however now that the project stopped they have to buy it on the market. About 10 of the AMCs in his part of the district have an agreement with this commercial seed farmer to buy seed from him only, for a price which is cheaper than in the shops.

Money is going to be a little tight this year because the rains were not so good. So the AMC is going to have to reduce the amount of new seed they can order from what they originally wanted. However about half the farmers in the area had good sorghum harvests this year, and they already have a buyer through the outgrower scheme. So in a few weeks there should be some cash available which they can use to buy the new maize seed. To cut down on transportation costs he wants to ask if they can use the same trucks that are coming to pick up the crops to deliver some of the new maize seed. Farmers that can't afford to buy the new stock of seed can still get seed from the AMC seed bank on a loan basis.

Before he goes back to the village tomorrow morning, Mr. Miyanda also wants to pay a visit to the District Agriculture Office. He wants to ask when they're going to replace the extension officer for their area who left two months ago. The old officer was quite active and worked closely with the AMC, but now he's afraid if they wait too long to replace him, then people in the community will forget what they learned or lose interest in extension. A couple of farmers in the AMC have also heard about a kind of cover crop that improves soil fertility as well as conserves moisture, and has asked if someone can come talk to them about this and maybe help set up a couple of farm trials.

Finally, the District Education Officer calls Mr. Miyanda into the office. As they shake hands, Mr. Miyanda thinks how strange this meeting would have been just 10 years ago. For a simple farmer to come meet the senior education officer of the district was practically unheard of. However nowadays community organizations like his are doing more things and getting more respect. Although he still feels a bit nervous, he knows that he isn't just there by himself, he has the support of his entire community, who over the last 15 years have learned to do what it takes to improve their livelihoods and achieve food security.

ANNEX IV - LSFP CONCEPTUAL FRAMEWORK



LFSP Interventions

1 CBO mangement and capacity building empowers farmers to plan their own development and reduce vulnerability to drought
2 Water harvesting structures constructed and rehabilitated
3 Conservation farming methods taught
4 Improved drought-resistant seed varieties introduced
5 Local seed banks established
6 Post-harvest management includes promotion of improved storage, food preservation, and processing
7 Small income generating activities developed based on agricultural produce and coping strategies

ANNEX V - TECHNOLOGY MATRIX

Purpose

The development of improved technologies (where the term "technology" is used in a broad sense of the word including things like organizational structures, training strategies, institutional linkages) is an important component of the LFSP. The objective of this list is to summarize the main technologies that are being studied, tested, or in used by the project.

The purpose of this exercise is to help the project communicate its technological focus to other institutions, which may lead to dialog or replication on specific technical aspects. It may also highlight areas where additional technical assistance is needed.

Columns in the matrix

Technology	The new or improved method, technique or strategy being used in the project or seriously considered
Stage of Development	How far the development of the technology has progressed (e.g., under consideration, testing, demonstrations, application)
Extent of Adoption	*very limited* - adopted by approximately 1-20% of beneficiaries *limited* - adopted by 21-49% of beneficiaries *medium spread* - adopted by 50-80% of beneficiaries *wide spread*- adopted by 81-100% of beneficiaries
Remarks	Whether the technology has succeeded, under what conditions (e.g., which agroecological zones), if it failed why it failed, etc.

Technology	Stage of Development	Extent of Adoption	Results/Remarks
1. Soil fertility improvement			
Sunhemp	testing	limited, kalahari & plateau	Demonstrations conducted over two seasons have shown good results but this was on limited scale. Possible constraints to wider farmer adoption could arise from lack of implements to enable the incorporation of the plants into the soil and to some extent seed availability as well as attitudes towards growing a crop which does not seem to yield any direct benefit i.e non food. Impressive results are reported to have come from the plateau zone on degraded soils.
Velvet bean	testing	limited, kalahari & plateau	Demonstrations have given encouraging results but seed seems to be a problem to facilitate wider demonstrations To encourage adoption training be given is highlighting the multiple use of velevet beans such as soil moisture conservation and weed control
Tephrosia vogelli[a]	testing	very limited, kalahari & plateau	Seed was distributed during 1999/2000 season but farmers who got the seed could not plant due to unusual rainfall pattern. It is expected that planting of the same will be done in the next season. The adaptability of this plant species is therefore yet to be ascertained.
Sesbania sesban[b]	testing	very limited, kalahari & plateau	Farmers from LFSP went to Chipata to learn from fellow farmers on the plant management and benefits to crop production. Four testing centres have been set up covering the plateau and kalahari zones where other farmers are trained by fellow farmers on how to raise the plants. More time will be required to take the plants in the field and demonstrate the benefits of improved fallow using Sesbania sesban on crop yields. So far there seems to be no problems in terms of plant establishment and growth.
Gliricidia sepium	testing	very limited, kalahari & plateau	A good candidate for testing in the Escarpment Zone in a more permanent cropping system, because land is a greater constraint there than in either of the other two zones.
Felhidebia albida	promotion	wide spread	LFSP involved in raising awareness on the importance of the species as a soil improver and the need for selective cutting when preparing crop fields. A number of farmers are aware of the merits of this species which occurs naturally.
Crop rotation	promotion	medium spread	Through training LFSP has been encouraging farmers to adopt proper crop rotation sequences which involve leguminous crops to enhance soil fertility maintenance and improvement. Benefits of this practice have been widely appreciated in the project area.
Intercropping	testing	very limited	Traditional mixed cropping practices are still common. Systematic intercropping practices are not likely to be popular.
Improved fallows	testing	very limited	
Shifting kraals	promotion	medium spread	Awareness creation aimed at building on the farmers practices and making improvement in certain aspects such as application methods to suit for instance conservation farming practices such as pot-holing. Need to continue to test ways of combining agriculture and livestock in plateau.
2. Soil and Water Conservation			
Contour ploughing	promotion	medium spread	LFSP has given training to farmers on this technique. It has been widely adopted in the escarpment and kalahari zones where it is been found appropriate for controlling gully erosion. For the benefits to be fully realised at

Technology	Stage of Development	Extent of Adoption	Results/Remarks
			individual farms cooperation from neighboring farmers is necessary. Such intervention should therefore target the community as is the case under LFSP.
Pot holing	testing	very limited	Pot-holing may not be appropriate in the Kalahari because the loose texture of the soils, but may prove effective in the Plateau Zone where soils are heavier and can retain the moisture captured by the holes. It is time consuming in the first year with the establishment of the holes but thereafter does not require large efforts of maintenance. Limitations of the technology that might be affecting its adoption in the project area may include increased labor demand and social stigma associated with using a hoe, a practice associated with low status due to lack of cattle. Should be tested in the Plateau Zone. Farmer comments will be critical to understanding how to adapt the technology to Plateau farmers conditions and constraints.
Ripping	promotion	very limited	Affordability of the implement (Magoye Ripper) may be affecting the rate of adoption. The technology is also said to be associated with increased labour for weeding arising from minimum tillage.
Stonelines	promotion	limited, escarpment	This is constructed along contour to prevent silting of gabions.
Gabions	testing	medium spread, escarpment	The technology has potential for wider adoption as it has proved to be effective for soil erosion control and prevention of siltation in dams and streams where it has been used in the project area
Vetiver grass	application	medium spread	Mainly used around water points and is a technology that has been widely appreciated and accepted. Vetiver grass has been very effective where used in demonstrations on slopes in the Escarpment Zone. It is a labor efficient technology with widespread application possibilities in all zones of the project where soil stabilization and conservation are important to farmers. LFSP has plans to introduce the technology to crop fields where it may be planted along contour ridges.
3. Water Harvesting and Sanitation			
Dams/Weirs	promotion	medium spread, plateau and escarpment	Not suited to the Kalahari agroecological zone
Boreholes		wide spread, mostly kalahari	Appreciated by communities as the most appropriate way of accessing underground water. Communities have responded positively in taking up the maintenance role.
Spring capping	testing	limited, escarpment	Limited to areas with springs. Where springs have been constructed health problems associated with water among humans are reported to have gone down
Indian Mark 2 pump	promotion	wide spread	Is not effective in pumping water from depths of more than 40metres
Bush pump Type B	under consideration		Can pump water from depths of up to 60 metres. This could be more suitable than the currently recommended Indian Mark 2 in the project area where boreholes may need to go beyond 40 metres to find water. This pump is found in Zimbabwe
Artesian well	testing	limited	
Collector wells	under		Proposed option by consultant. May be useful in kalahari zone but ruled out because it is too expensive

Technology	Stage of Development	Extent of Adoption	Results/Remarks
	consideration		
Solar pumping	under consideration		Initial cost could be high and unlikely to be afforded by the communities
Water shed Management	testing	medium spread	Appreciated by communities who are now developing by laws to implement the desired practices
Water use zones	promotion	medium spread	Water points zoned for separate human and animal areas
Pit latrines	testing	ver limited	Didn't catch on
4. Irrigation			
Farrow irrigation	promotion		Useful in conjunction with water lifting technology. Not effective in sandy soils
Treadle pump	promotion	limited	Demonstrations have been on limited scale but results have been encouraging. There are plans to demonstrations in Kalomo and Kasungula. Pumps have been given out on loan, but repayment has been challenging. After they have been demonstrated in an area, LFSP stops providing loans and farmers have to buy them directly from the manufacturers. To date no farmers have purchased treadle pumps, but several inquires have been made.
Drip Irrigation	testing	very limited	on-farm testing of the technology being planned. This technology could be more adaptable to the kalahari conditions as it provides higher water use efficiency.
5. Improved Crop Varieties (see also Annex VI)			
Maize			
MMV400	promotion	wide spread	Variety is preferred mainly on account of being early maturing and therefore provides early food during the critical period. The small kernel size and hardness are however not liked by the farmers. Local varieties are still planted.
Pool 16	promotion	wide spread	The variety seems to be more preferred over MMV400 because of having bigger kernels
Sorghum			
Kuyuma	promotion	wide spread	More adapted to the kalahari areas. Widely accepted because of earliness and being high yielding
Sima	promotion	limited	Not as wide spread because it is not well adapted. It is a longer maturing variety compared to Kuyuma and as requires a longer rainseason. Farmers however like it for its grain which is said to yield more and whiter flour.
Pearl millet			
Kaufela	promotion	limited	Not as well adapted as Lubasi. Seed distribution is limited to the kalahari areas
Lubasi	promotion	medium spread	More adapted than Kaufela
Cowpea			
Lutembwe	promotion	wide spread	Improved varieties so popular that some farmers are likely to abandon the local varieties completely. More seed of this variety is said to have been distributed compared to Bubebe
Bubebe	promotion	wide spread	As for Lutembwe the variety has been successfully adopted mainly on account of its earliness
Groundnut			

Technology	Stage of Development	Extent of Adoption	Results/Remarks
Natal common	promotion	widespread	well adapted and accepted
Folcon	promotion	limited	Seed availability is a problem. Likely to have come from Zimbabwe
Chipego	promotion	limited	adoption being affected by poor seed availability
Sweet potato			
Chingovwa	promotion	widespread	LFSP cannot meet demand for planting material
Zambezi	promotion	widespread	Planting material is brought from outside the project area
Cassava			
Bangweulu	promotion	limited	The adoption of the use of cassava as a main food by the Tonga people, who currently use it only as a snack could lead to increased adoption and production
Farming practices			
Seed multiplication	applied	widespread	See 10.2 page 87
Integrated pest management	testing	very limited	
6. Livestock Health			
Dipping schemes	under consideration		One of the activities planned for implementation under the livestock disease control program. A baseline survey was being undertaken at the time of the evaluation team's visit
Rotational grazing	under consideration		As for dipping schemes
Animal health kits	under consideration		As for dipping schemes
Donkeys for draught power	testing	limited	Donkeys have been introduced in some parts of the project area though not through LFSP
Cattle vaccination	under consideration		One of the activities planned for implementation under the livestock disease control program. A baseline survey was being undertaken at the time of the evaluation team's visit.
Community Livestock Auxiliaries	promotion	wide spread	These have been identified and given training in livestock health management during 1998/99 season
7. Natural Resources Management			
Controlled burning	under consideration		Some awareness creation through training has been undertaken. More needs to be done especially in making traditional leaders work hand in hand with CBOs.
Selective cutting of timber	under consideration		One of the activities planned under the proposed joint forest management project in chief Sekute's area. The activity will also embrace the need to enable communities adequately benefit from the commercial exploitation of these resources

Technology	Stage of Development	Extent of Adoption	Results/Remarks
Selective cutting for charcoal	under consideration	limited	One of the activities planned under the proposed joint forest management project.
Sustainable harvesting of Mopane	planned	limited	One of the activities planned under the proposed joint forest management project . Mopane poles are mainly used in the construction sector and the trees are mostly found in the kalahari areas
Sustainable harvesting of Masuku	under consideration	limited	One of the activities planned under the proposed joint forest management project. Masuku trees are mostly found on the plateau in Kalomo district
Sustainable harvesting of mawi fruits	under consideration	limited	One of the activities planned under the proposed joint forest management project. LFSP intends to increase the value of this indigenous fruit by diversifying products through processing and help identify profitable markets.
Neem	testing	medium spread	People in the project area appreciate the medicinal value of the Neem for humans and its pesticidal use in both livestock and crops. There is a big demand for seedlings
Live fencing[c]	under consideration		One of the plant species earmarked for testing is sisal. This will be mainly for fencing gardens and likely to be more appropriate around vegetable gardens especially in the escarpment area
Joint forest management	testing	limited	some activities have been initiated in chief Sekute's area. LFSP is playing the role of facilitator while the council is coordinating the initiative and involving other stakeholders
8. Income Generating Activity			
Curio marketing	testing		
vegetable production	promotion	medium	The project is assisting the communities to consolidate the marketing arrangements through training in understanding contractual obligations. Vegetable growers mainly in escarpment areas are being linked to traders through development and dissemination of the market information.
beer brewing	promotion	widespread	Project assisting women in improving the quality of beer brewed locally in order to increase profitability of this enterprise
milk chilling centers	planned		Will increase amount of milk that can be marketed to Finta. Only one or chilling centers can be established because of cost, so only areas near road will be served.
mat marketing	consideration		
9. Food Processing			
Sorghum dehulling	under consideration		The promotion will focus in the kalahari zone and aim at creating market for the produce and hence encourage production. Dehulling makes the sorghum white and improves marketability. Machines are expensive so will be based at hammer mills.
Cowpea sausage	testing	limited	Demonstrations done were successful and people in these areas are able make the product.
Yenga press	testing	limited	Demonstrations for oil extraction from the Mungongo and other nuts. It holds some promise.
Market	testing	limited	Proven effective in setting up a trading network for vegetable producers

Technology	Stage of Development	Extent of Adoption	Results/Remarks
information system			
10. Monitoring and Evaluation			
Community self-monitoring ledgers	promotion	widespread	Effective way to collect data on household level indicators. However proving difficult to ensure uniformity and consistence in data collection among the communities
Food Production Trends Survey	applied	limited	The data required is being collected by project staff. Sample size is rather small although representative. Data processing and sampling has been a constraint.
Erosion pins			Useful for participatory monitoring of erosion.
Topical appraisals	promotion	wide spread	Used as a tool for helping to develop action plans to solve specific development issues
11. CBO Capacity Building			
PRAs	promotion	wide spread	Proven technique for getting information about communities and increasing participation. Variety of data collection methods used. A series of PRAs were used to facilitate community involvement in identifying development concerns and determining solutions before implementation of interventions.
Personal empowerment training	promotion	wide spread	Business oriented training.

Notes:

a. *Tephrosia vogelli* is a leguminous tree which produces nitrogen-fixing nodules in soils where demonstrations are being conducted. The species is found wild in some parts of Zambia. In addition to use in soil improvement and as a tree crop (minimum 3 year cycle) the tree produces the chemical tephrosium, which is a powerful insecticide. Tephrosium is also extremely toxic to mammals and cold-blooded aquatic vertebrates (fish). Farmers in Southern Province (Kazungula and Kalomo, particularly), producing in an area without commercial or public infrastructure for the provision of agricultural inputs, have an extremely great need for access to insecticides, both for soil and vegetative (above ground) destructive crop insects. The tree has great potential for commercial uses in this regard. ICRAF has studied the growth habits and chemical properties of the tree. LFSP may need to conduct experimentation to provide information on the use of tephrosium and precision in processing, packaging and using the chemical for crop protection. When used for soil improvement, LFSP could generate information on any residual toxicity in the soil following tree removal, as well as its effect on soil micro-organisms.

b. *Sesbania* has been used in widespread rows in fields with Escarpment type slopes (10-60%) in order to plant annual crops in between the rows and thereby obtain field crop permanency in these areas with reduced or no fertilizer added to the annual crops. The tree rows have to

be culturally maintained with severe pruning so that the trees do not inhibit crop development. As an introduced leguminous tree species roots of young plants should be checked for nodulation. If absent or only a few nodules are found, an appropriate rhizobium may be applied to assure maximum nitrogen-fixation of the species in Southern Province soils. This tree would be good to test in the Escarpment zone.

c. *Commiphora africana* (mubwabwa) is used by farmers for live-fencing and it is found in the wild state within the project zone. Farmers know how to use it for fencing which already enhances its possibilities for adoption. It appears to be very effective control for containing livestock where needed. It is presently being used as fencing around vegetable gardens, especially in Escarpment Zone, and around boreholes in Kalahari Zone. It requires approximately one year for establishment as an effective live-fencing technology in most areas.

ANNEX VI - IMPROVED SEED VARIETIES CHARACTERISTICS AND SOURCES[5]

Crop/Variety	Characteristics	Seed Source	Breeding Program
Maize			
MMV400	110 days[6], O-P[7], short 1.4 to1.8 m stature, suitable for drought prone areas, resistant to streak virus, cob rot yield potential 2.5/ha, white grain	ZamSeed	Zambia National Research, Cereals Breeding Program
GV412	Hybrid , early maturing	Zamseed.	Same as above
Pool 16	90 days, similar to MMV400 with excellent resistance to strek virus.	Mpongwe development project (under EEC Project)	Zambia National Research, Cereals Breeding Program
Sorghum			
Kuyuma	110 days, dwarf type 1.7m, excellent resistance to drought and disease, potential yield 4-6 tons/ha, white grain	Zamseed	Zambia National Research, Cereals Breeding Program
Sima	130 days to maturity photosensitive, white grain, does better on heavier soils, 6 tonnes/Ha, resistant to disease, up to 2.3m high.	Zamseed	Zambia National Research, Cereals Breeding Program
Pearl Millet			
Kaufela	90 days, O-P, short statured, small grains, disease resistant.	Western Province Cereals Breeding Program (ZNAR)[8]	Zambia National Research
Lubasi	90 days, O-P, short statured, larger grain.	Western Province Cereals Breeding Program (ZNAR)	Zambia National Agricultural Research
Groundnut			
Natal Common	90 days, small kernel	Zimbabwe, ZamSeed	Legume Breeding Program
Chipego	110-120 days, yield 1.5 T/ha, suitable for low rainfall	Food legumes project under	Zambia National Agricultural

[5] Includes seed, seedlings and cuttings depending upon the propagation material of the particular crop.
[6] To maturity, from sowing to harvest
[7] Open-pollinated
[8] Zambia National Agricultural Research

Crop/Variety	Characteristics	Seed Source	Breeding Program
	areas, larger kernel than natal common, tolerant to leaf spot disease.	FAO.	Research, Eastern Province Legume Breeding Program
Falcon	90 days, other characteristics similar to natal common.	SEEDCO	Zimbabwe National Agricultural Research .
Cowpea			
Lutemmbwe	Average yield of 1 ton/ha, long pods with whitish cream seeds, good leaf quality, early (70 days) duration, tolerant to cowpea aphid born mosaic virus, resistant to scab.	Legume Breeding Program, ZNAR, ZamSeed	Zambia National Agricultural Research
Bubebe	Average yield of 1 ton/ha, suitable for region 1 and 2, early maturing (70days), tolerant to the major insect pests	Legume Breeding Program, ZNAR, ZamSeed	Zambia National Agricultural Research
Green gram			
RSA 1	Yield 1-2 ton/ha, drought resistant recommended for region 1, enriches soil fertility, short duration (75 to 80 days) maturity.	Food legumes, FAO project.	Source from on farm tests.
Bambara nut			
Red Buddy	90-100 days, red background. Not enough information.	Farmer in Eastern Province	Not enough information
Brown Breed	Days to maturity.	Farmer in Eastern Province	As above
Freckle	red speckles, other	Farmer in Eastern Province	As Above
Sunflower			
G100	Hybrid, Short stature, one large head per plant, high oil content	Zamseed	National Research
Record	90-100 days, soft shelled, has high oil content bigger heads than , drought tolerance.	SEEDCO, Zamseed	As above, Company of Zimbabwe,
Annual Legumes for Soil Improvement			

Crop/Variety	Characteristics	Seed Source	Breeding Program
Sunhemp[9]	90 days to 50% flowering, increase maize yields by 70% following sunhemp[10]	Magoye Family Farm, GART	Soil improvement Program
Velvet bean	Increases yield by70-80%.	Magoye Family Farm	Where did Magoye Farm obtain seed, GART.
Cassava			
Bangweulu	2 seasons to maturity, yields over 31.27 t/ha, resistant to cassava mosic virus, moderate resistance to the cassava mealy bug.	Mr. Chitundu, ZNAR, Luapula Province	Root and Tuber Breeding Program, ZNAR
Sweet potato			
Chingovwa	Most preferred and most grown in Zambia, erect type, deep lobbed leaf shape, high dry matter content, over 18 tones per ha. Poor storability.	Mr. Chitundu, ZNAR, Luapula Province.	Root and Tuber Breeding Program, ZNAR
Zambezi	Deep orange (Carrot0 flesh color associated with high carotene content useful for sight, slightly more waterly than Chingovwa.	Mr. Chitundu, ZNAR, Luapula Province.	Root and Tuber Breeding Program, ZNAR
Trees and Shrubs			
Mubwabwa (*Commiphora africana)*	Live-fencing used around the vegetable gardens, boreholes and Kraals in some areas of the project area, propagated by cuttings. 3-5months fencing establishment (?) Drought resistant. Currently there about 6 group gardens using the technology and about 5 boreholes.	Local indigenous sources	
Cedrella	Used for medicinal purposes	Exotic to the project area.	
Neem (*Azadirachta indica)*	Used for cattle dips, medicinal purposes, Pest control, shade	Magoye Family Farm	Integrated pest management.
Guava	Not available	Private and MAFF nurseries.	

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[10] Empirical evidence. Do we have any hard data on N-fixation amounts, C/N ratios, or organic matter accumulation in soils following sunhemp in the rotation? NO

Crop/Variety	Characteristics	Seed Source	Breeding Program
Pawpaw	As above	As above	
Mulberry	As above	As above	
Mango	As above	As above	
Nsombo / Water Berry (*Syzgium cordatum)*	Local fruit abundant in the project area at certain times of the year, project trying to figure out how best it can be processed.		
Sesbania sesban	Used for soil fertility improvement in LFSP on-farm demonstrations	ICRAF	Soil fertility improvement program
Tephrosia vogelii	Used in LFSP soil improvement on-farm demonstrations, can fix nitrogen, good tolerance to acid soils[11]	ICRAF	Soil fertility improvement Program, Eastern Province

[11] Tephrosia has a very high commercial potential for use as biological-based agricultural chemical for control of several crop damaging insects. Potential for effective cattle dip for tick control. Controlled laboratory and field testing required. High toxicity to goats and fish.

ANNEX VII - SCOPE OF WORK

Concurrent Evaluation of Three of USAID/Zambia Activities:

1) **Cooperative League of the USA Rural Group Business Program (CLUSA/RGBP);**
2) **CARE Livingstone Food Security Project (CARE/LFSP);**
3) **Wildlife Conservation Society's Administrative Management Design Project (WCS/ADMADE)**

STATEMENT OF WORK

Article 1. Introduction

With regard to the three projects identified in the title of this statement of work, USAID/Zambia would like to find out whether investments in profit oriented farmer group businesses (CLUSA), food security oriented village management committees (CARE), and wildlife conservation oriented village action groups (WCS) have had or are having a beneficial impact. If so, USAID/Zambia would like to identify the elements of successful investments that can be replicated to improve ongoing or future investments. Finally, if an investment were not achieving the intended results, USAID/Zambia would like to know how to reorient that investment so that it does achieve the intended results.

In support of Zambian economic liberalisation, USAID/Zambia has initiated and supported activities that stimulate rural economic growth since 1991. Under USAID/Zambia's Country Strategic Plan for the 1998 - 2002 period, Strategic Objective 1 (SO 1) is "increased rural incomes of selected groups." Approximately 6 million of Zambia's 10 million people live and work in rural areas.

SO 1 investments aim at increasing the incomes of rural families working together as farmer group businesses, village management committees or village action groups. Hopefully, rural families working as groups will result in more cost effective (and less risky) technology dissemination, training, rural finance, output marketing and wildlife management service delivery. Lower service delivery costs will contribute to more sustainable, customer responsive and profitable service delivery agencies. Finally, more sustainable and profitable service delivery will result in increased rural family opportunities to improve their productivity and incomes.

USAID/Zambia recognizes the importance of Zambia's macroeconomic and sectoral policy environment. Investments that focus on reducing service delivery costs and raising rural family productivity are likely to identify and lead to the resolution of "second generation" policy constraints. USAID/Zambia investments ground truth neo-classical economic theory based predictions about market driven resource allocation and use and hopefully generate ideas on how public and private institutions can best contribute to improved rural family welfare. USAID/Zambia regards its service provision investments as applied research.

Actual SO1 activities spring from rural family problem and opportunity identification. They are intended to encourage rural family contributions to solving their social or economic problems, enhance women's contribution to rural economic growth and encourage government food security and rural finance policies that promote private initiative.

During the April – May 2000 period three of SO1's projects will be evaluated. CLUSA/RGBP and CARE/LFSP are earmarked for mid-term evaluations while the WCS/ADMADE evaluation will be an End of Project Evaluation.

As the result of an unsolicited proposal from CLUSA, the Rural Group Business Project began in May 1996. This 5 year, $5 million activity promotes the emergence of democratically self-managed, financially viable group businesses that improve rural family incomes. Since its inception CLUSA-RGBP has modified its group business development approach. It now focuses specifically on small farmer high value crop production usually under forward contract to agro-processors. CLUSA-RGBP credit provision is almost entirely for seed and fertilizer.

Another unsolicited proposal, this time submitted by CARE International, resulted in the Livingstone Food Security Project. This 5 year $3.6 million project began in July 1996. The project promotes community institution management of drought resistant crop seed multiplication and distribution, soil conservation, water harvesting, marketing, and some income generating activities. As a result of CARE's activities rural family food stocks have increased in some of Zambia's most drought prone areas.

The third project to be evaluated, as an end of project evaluation, adds a bit of complexity to this activity. Since 1989 USAID has supported Zambia's Administrative Management Design (ADMADE) Project and the National Parks and Wildlife Service with funding made available through the Regional Natural Resources Management Project. Funds were initially managed by USAID's regional office in Harare but eventually project management was vested in USAID/Zambia with funding obligated through bilateral project agreements. Over the 10 years of project life, implementation vehicles included a grant to the World Wildlife Fund, funds made available directly to the National Parks and Wildlife Service through Project Implementation Letters, short-term technical assistance in Wildlife Conservation Revolving Fund capacity building and, finally, since October 1998, a Cooperative Agreement with the Wildlife Conservation Society of New York as the result of an unsolicited proposal. The WCS activity, entitled the ADMADE Sustainability Project, was a 15 month, $.461 million activity that ended on December 31, 1999.

The overall 10 year RNRMP/ADMADE investment sought to introduce and develop the idea of community wildlife management in Zambia, including use of village wildlife scouts and the sharing of hunting revenues with protected area communities for their use in improving their livelihoods. Community involvement in wildlife management is now a stated national policy although the Zambian government's wildlife institutions are currently in a state of significant transition. The WCS ADMADE Sustainability Cooperative Agreement was intended to document

ADMADE lessons learned and research findings hopefully to inform future USAID, other donor and GRZ investments in wildlife management.

Article 2. Overall Orientation of the Consultancy

The consultancy will comprehensively assess the three projects. USAID/Zambia would like each project evaluation to result in a separate evaluation report. However, by evaluating the three activities under one contract USAID seeks lessons learned that may be applicable to all three project objectives (rural incomes, food security, wildlife management) in order to positively influence ongoing or future activities or investments. Therefore, a fourth report encapsulating lessons learned and describing their implications across activity objectives is required.

To the greatest extent possible USAID would like the evaluations to provide quantitative evidence of investment impact on rural incomes (CLUSA), food security (CARE) or wildlife management (RNRMP/ADMADE). Quantitative evidence should be presented over time to illustrate any growth or reduction in investment impact during project implementation. Where quantitative evidence is not available or relevant, qualitative descriptions of impacts and processes will be required.

With regard to CLUSA RGBP and CARE LFSP, the consultancy should assess project impact and identify ways to improve implementation, if necessary. The consultancy should recommend whether USAID/Zambia should consider extending, expanding or cutting short the projects. Finally, the consultancy should package relevant findings so that systemic or national level impact from evaluation lessons learned might be achieved with specific reference to the Zambian context.

The RNRMP/ADMADE evaluation in many ways is a traditional end of project evaluation. However, as laid out in the recent "Final Report: Assessment of Community Based Natural Resource Management (CBNRM) in Southern Africa" (August, 1998) ADMADE represents an opportunity for comparing the Zambian community wildlife management experience with other wildlife management lessons learned under RNRMP and throughout the world. The last 15 months of RNRMP/ADMADE has resulted in substantial empirically based information on the impact of ADMADE on communities and wildlife in 9 of Zambia's 34 Game Management Areas. Finally, the CARE and CLUSA experiences may have something to say about how community capacity to manage natural resources, and the benefits accruing from natural resources management, can be increased. Again, the consultancy should package relevant findings so that systemic or national level impact from evaluation lessons learned might be achieved with specific reference to the Zambian context.

An external team, with appropriate local participation, will conduct the evaluation of the three projects. The team is required to respond, in concisely written reports, to all points and questions included in the scope of work.

Article 3. Proposals, Evaluation Criteria

USAID/Zambia would like to use the Raising Agricultural Incomes in a Sustainable Environment (RAISE) Tier 3 process in awarding this contract. Contractors are required to submit their technical proposals (i.e. without costs) to USAID/Zambia. The proposals should include a draft version of the contractor's workplan, methodology and suggested personnel for conducting the assessment. The technical proposals will be graded according to the following criteria:

Methodology: Ability to: a) identify results desired under the project and generate quantitative indicators of project impact where possible and qualitative indicators where quantitative indicators are not possible; b) identify beneficiary perceptions of project delivered services and beneficiary participation in the project; c) generate information on partner or stakeholder perceptions of the projects; d) generate lessons learned across projects in line with scope of work questions; e) present findings in a use friendly and compelling manner.

Total Points: 50 points out of 100

Personnel: Appropriate professional training at the Masters of Science level or above, experience in evaluating USAID projects in agribusiness, food security, natural resources management or community mobilization, experience writing technical documents based on the compilation of field visit findings, experience in presenting evaluation findings in a user friendly and compelling manner, experience in Africa and experience in Zambia.

Total Points: 30 points out of 100

Draft Workplan: Ability to deliver a highly competent team to arrive and work in Zambia, all at the same time, over a period of five 6-day work weeks, conduct the evaluation in a way that comprehensively answers Scope of Work questions, and deliver the required deliverables by COB, March 3, 2000.

Total Points: 20 out of 100

Following receipt of proposals, USAID will review the documents and select a suitable offeror. Technical proposals should be sent to:

David Soroko
SO1 Team Leader
USAID/Zambia
351 Independence Avenue
Lusaka, Zambia
Fax: 1- 254532
E-mail: dasoroko@usaid.gov

Cost proposals should be sent to:

Beatrice Lumande
USAID/RCSA
Plot 14818 Lebatlane RD
Gaborone West, Ext 6

Gaborone
Botswana

Fax: 267324486
E-mail: blumande@usaid.gov

End date for receiving both technical and cost proposals is March 3, 2000 at 12.00 noon.

Article 4. Scope of Work

Following is the scope of work for each project.

4.1 CLUSA RURAL GROUP BUSINESS PROGRAM MID TERM EVALUATION

4.1.1 Background

The five year, $5 million Cooperative League of the USA (CLUSA) Rural Group Business Program (RGBP) began in May 1996. The project, currently working in four districts of Zambia (Mumbwa, Chibombo, Mazabuka and Monze), was aimed at promoting the emergence of democratically self-managed, financially viable group businesses that improve rural family incomes. Using fully costed credit for rural groups, CLUSA brought to Zambia its rural group development experience gained worldwide including West Africa. The Cooperative Agreement with USAID indicated that in five years 210 rural groups with a total membership of 9,450 farmers would have been participating in the program. During the five years of project implementation, cumulative credit of $5 million would be disbursed to the groups whose membership would be 30% women. Also, at the end of five years, it was expected that 80% of the group businesses would have good managerial skills, access to in-house finance through accumulated profits, and regular and dependable access to inputs and markets.

4.1.2 Evaluation Objective

The primary CLUSA/RGBP evaluation objective is to determine whether USAID investments are achieving their desired impact, why or why not. A second objective is to generate ideas on how the impact of USAID investments in CLUSA/RGBP activities can be improved. A final objectives is to generate ideas on how CLUSA/RGBP experiences can influence ongoing or future USAID and other institution investments in increasing rural incomes, improving food security, and managing natural resources.

4.1.3 Evaluation Questions

1. What are the results identified in the cooperative agreement? Who are the beneficiaries? Have CLUSA/RGBP activities to date made progress in achieving those results? Why or why not? Present your findings with regard to annual results

and impact quantitatively and using graphs where appropriate. Has the program made significant contributions to USAID's "increased rural incomes of selected groups" Strategic Objective in line with the SO's results framework?

2. How is the project implemented? What are the most important components of project implementation? How was the project's location identified? How much project financing is expended in Zambia (actual and percentage figures)? What percentage is expended in Lusaka and what percentage is expended in rural areas where CLUSA works?

3. Is the project demand driven? Do beneficiaries find it relevant to their circumstances? How does the project identify what the beneficiaries want? Is this approach effective in identifying what the beneficiaries want?

4. What are the most important services the project delivers to rural families? How were these services identified? How are they delivered? Are they delivered cost effectively? Is their delivery effective in Zambia's rural context? Could other institutions deliver these services if CLUSA did not? Could other institutions deliver CLUSA like services if they so desired? In terms of incentives, finance, personnel resources and other variables what would other institutions need to deliver similar services? Has CLUSA worked with local institutions to foster continuation and sustainability of programs and services when the project ends?

5. Is there significant participation by women in the rural group business program? Is the program beneficial to women participants? Why? How can more women participate in and benefit from the program?

6. What are the social and economic characteristics and organization of project supported group businesses? What are their relative strengths and weaknesses with regard to business capacity, income and investment management, relations with agribusiness, knowledge and utilization of agricultural technologies, and skill levels to undertake additional welfare enhancing activities? What additional skills may be required to make rural group businesses effective and self-reliant beyond USAID assistance?

7. Is the program well organized to allow for cost effective implementation? Does it require any significant structural changes? Does the program offer opportunity for the establishment of sustainable group businesses development service delivery agencies beyond USAID assistance? Should it?

8. What partnerships with other public or private sector agencies has CLUSA/RGBP made that enhance project service delivery and impact? What partnerships might CLUSA/RGBP make that would improve service delivery and impact?

9. What has Credit Management Services contributed to CLUSA/RGBP project implementation? What are the strengths and weaknesses of CLUSA/RGBP's partnership with CMS for credit management?

10. Are there any significant policy constraints to program implementation? Is the program supportive of the stated Zambian government policy of agricultural liberalization and establishment of a private sector led economy? Has government policy influenced the program? How? Has the program influenced government policy? Why or why not?

11. What lessons learned during project implementation could lead to improved CLUSA/RGBP impact? What lessons learned should inform decisions on project time and finance extension or expansion?

12. What lessons learned during project implementation might influence ongoing or
future USAID investments in food security, rural incomes or natural resource conservation?

13. What are the advantages and disadvantages, particularly to beneficiaries and USAID, of extending, expanding or cutting short the CLUSA/RGBP Cooperative Agreement?

14. Given the responses to the above questions, how can USAID/Zambia best utilize
lessons learned from the implementation of this activity to inform government policy dialogue and future government, donor or private sector investments?

4.1.4 Performance Reports and Previous Project Assessments

As required in the Cooperative Agreement, CLUSA prepares quarterly and annual performance reports that are submitted to USAID/Zambia. Prior to the start of every new activity year, the project staff submits an annual workplan. CLUSA also have a length of project monitoring plan in place.

Two internal assessments of the rural group business program were undertaken in 1999. The first assessment focused on CLUSA/RGBP technology dissemination activities. It was undertaken in May – June and is entitled "Less Hunger, More Money, CLUSA: Making a Difference in Zambia." The second assessment was an internal CLUSA assessment and was entitled "Internal Assessment of the Zambia Rural Group Business Program (RGBP)." It was undertaken in July – August, 1999. CLUSA/RGBP, CARE/LFSP and ADMADE impact monitoring system were described in a document entitled "A Profile of Community Based Monitoring Systems of Three Rural Development Projects in Zambia" in November, 1998. In addition, the CLUSA program coordinator has made two written presentations, in Nairobi and Washington respectively, of the program. These and other related reports will be made available to the selected contractor at the start of contract implementation.

4.2 CARE LIVINGSTONE FOOD SECURITY PROGRAM MID-TERM EVALUATION

4.2.1 Background

CARE Livingstone Food Security Project (CARE/LFSP) started as the South West Drought Relief program in October 1994, and obtained USAID funding in July 1996 to address fundamental causes of food insecurity in Kalomo, Livingstone, and Kazungula districts of Southern Province. LFSP is a five year $3.6 million project. Four mutually re-enforcing objectives were established:

- Community and institution capacity building;
- Improved and sustainable farming systems;
- Water harvesting and utilization;
- Increased incomes and income-earning opportunities.

Under Community and Institution Capacity Building CARE/LFSP was to assist 18,000 farmers organized into village management committees within three years. For the development of improved and sustainable farming systems CARE/LFSP would introduce and facilitate distribution of a diverse range of drought tolerant seed to improve productivity and raise participating farmer incomes. CARE/LFSP would also assist rural families by introducing soil moisture conservation and management practices and techniques to increase soil fertilizer and water harvesting. Finally, CARE/LFSP planed on increasing the incomes and income earning opportunities of participating families through expansion of trading and marketing.

4.2.2 Evaluation Objectives

The primary CARE/LFSP evaluation objective is to determine whether USAID investments are achieving their desired impact, why or why not. A second objective is to generate ideas on how the impact of USAID investments in CARE/LFSP activities can be improved. A final objective is to generate ideas on how CARE/LFSP experiences can influence ongoing or future USAID and other institution investments in increasing rural incomes, improving food security or managing natural resources.

4.2.3 Evaluation Questions

1. What are the results identified in the Cooperative Agreement? Who are the beneficiaries? Has CARE/LFSP made progress in achieving those results? Why or why not? Present your findings on an annual and overall basis. Has the program been successful in making significant contributions to USAID/Zambia's SO 1 in line with the results framework?

2. How is the project organized and implemented? What are the most important components of project implementation? How was the project's location identified? How much cooperative agreement financing is expended in Zambia (actual and percentage figures)? What percentage is expended in Lusaka and what percentage is expended in rural areas where CARE/LFSP works?

3. Is the project demand driven? Do beneficiaries find it relevant to their circumstances? How does the project identify what the beneficiaries want? Is this approach effective in identifying what the beneficiaries want? How effectively do the beneficiaries participate in project implementation?

4. What specific services does the project deliver to rural families? How are these services identified? How are they delivered? Are these services delivered cost-effectively? Are the services relevant to rural families? Could other institutions deliver these services if CARE/LFSP did not? In terms of incentives, finance, personnel resources and other variables what would other institutions need to deliver similar services? Has CARE worked with local institutions to foster continuation and sustainability of programs and services when the project ends?

5. What partnerships with public or private sector institutions has the project created to enhance the delivery of services to rural families? What additional partnerships might enhance service delivery?

6. Is there significant participation by women in the project? Is the program beneficial to women participants? Why? How can more women participate in and benefit from the project?

7. What are the social and economic characteristics and organization of project supported village management and area management committees? What are their relative strengths and weaknesses with regard to capacity building, income and investment management, linkages with agribusiness, knowledge and utilization of agricultural technologies, and skill levels to undertake additional welfare enhancing activities? What additional skills may be required to make these institutions more effective and self -reliant especially beyond USAID assistance?

8. Are there any significant policy constraints to program implementation? Is the program supportive of stated Zambian government policy of agricultural liberalization and establishment of a private sector led economy? Has the project been influenced by government policy? Why or why not? Has the project influenced government policy? How?

9. What lessons learned during CARE/LFSP implementation could lead to improved CARE/LFSP impact? What lessons learned should inform decisions on potential extensions to the project time frame? potential increases in project financing? What are the advantages and disadvantages, particularly to beneficiaries and USAID, of extending, expanding or cutting short the CARE/LFSP Cooperative Agreement?

10. What lessons learned from the CARE/LFSP implementation could lead to improved future USAID investments in food security, rural incomes and natural resource conservation?

11. How can USAID/Zambia best utilize the lessons learned to inform Zambian food security, agricultural extension and natural resource management policy dialogue?

4.2.4 Performance Reports and Previous Project Assessment

As required in the Cooperative Agreement, CARE prepares quarterly and annual performance reports that are submitted to USAID/Zambia. Prior to the start of every new activity year, the project staff submits an annual workplan. A monitoring and evaluation plan for the entire cooperative agreement time period is in place.

"End of Phase I Report" was produced in June 1996. A "Marketing Consultancy," which came out more like a project evaluation, was completed by the Participatory Assessment Group in November, 1997. A "Seed Scheme Assessment: (1994-1998) was completed by CARE's Monitoring, Evaluation and Research Unit in November, 1998. A "Marketing Study" for CARE/LSP was carried out in December 1998. A USAID intern wrote "A Review of Monitoring in the Livingstone Food Security Project: Trip Report" in September, 1998. CLUSA/RGBP, CARE/LFSP and ADMADE impact monitoring systems were described in a document entitled "A Profile of Community Based Monitoring Systems of Three Rural Development Projects in Zambia" in November, 1998. CARE/LFSP conducted an internal mid term review titled "Work Ends, Knowledge Endures: Lessons for the Process for Extension, Expansion and Replication" in June – July 1999. The reports will be made available to the selected contractor at the start of contract implementation.

4.3 ADMADE END OF PROJECT EVALUATION, SCOPE OF WORK

4.3.1 Background

With Regional Natural Resources Management Project (RNRMP) financing ADMADE was initiated in August 1989 as a community-based wildlife conservation program in 9 of Zambia's 34 Game Management Areas (GMAs). A total of $4.8 million has been invested in the project. It ended on December 31, 1999.

The Project Paper Supplement laid out the following project purposes:

- To increase involvement of local communities and private interests in sustainable management and use of wildlife resources;
- To test the viability and replicability of community based natural resources management and use, and integrate programs into existing NPWS services; and,
- To demonstrate the effectiveness and legitimacy of community capacity building in wildlife management as a profitable and sustainable land use option in GMAs.

Over the years, the program evolved to include various community development activities as well as diversification of income opportunities. In addition to USAID regional and bilateral Missions, institutions involved in the management of the RNRMP/ADMADE program were the Ministry of Tourism (policy direction) the former Department of National Parks and Wildlife Services - NPWS (now the Zambia

Wildlife Authority (ZAWA)) and within NPWS the Wildlife Conservation Revolving Fund (WCRF). The Nayamaluma Institute provided research and training services for Community Based Resource Management.

The Project Paper Supplement identifies program outputs as follows:

- Improvement of Ministry of Tourism policies related to private sector efforts in conservation and tourism;
- Improvements to the operations of the Wildlife Conservation Revolving Fund;
- Assistance to land use planning; and,
- Training in managing wildlife resources.

Between 1989 and 1994 USAID provided NPWS with training, commodities and technical assistance in establishing the ADMADE program. Between July 1994 and December 1995 under a Cooperative Agreement, WWF Inc. provided NPWS with technical assistance in the implementation of the ADMADE program (legislative reform, participatory GMA planning and improvements to information systems). Between July 1996 and July 1998 USAID provided ADMADE financing directly to the National Parks and Wildlife Service through Project Implementation Letters. Between October 1998 and December 1999, under a Cooperative Agreement, WCS provided technical assistance to document and disseminate ADMADE lessons learned and impact.

4.3.2 Evaluation Objectives

The primary RNRMP/ADMADE evaluation objective is to determine whether USAID investments achieved their desired impact, why or why not. A second objective is to generate ideas on how the impact of USAID investments in community wildlife management might have been improved. A final objective is to generate ideas on how RMRMP/ADMADE experiences can influence ongoing or future USAID and other institution investments in natural resources conservation, increasing rural incomes or improving food security

The selected consultant will do a brief synopsis of the findings of evaluation and other documents between 1989 and 1995, and carry out an evaluation of the project's performance with reference to original project objectives and USAID's strategic objectives between 1996 and 1999. This approach is intended to make the evaluation more manageable and less reliant on interviewee recall for the years before 1996.

4.3.3 Evaluation Questions

1. What are the results identified in the project paper supplement and the WCS cooperative agreement? Who are the beneficiaries? Were program goals, objectives, outputs and beneficiaries clearly identified and understood by the implementing agencies? Have ADMADE activities achieved those results? Why or why not?

2. Summarize the major findings of the various evaluations carried over the life of the RNRMP/ADMADE project? What did the evaluations say about ADMADE's ability

to mobilize community contributions to wildlife management? What did they say about ADMADE's ability to influence national policy? about ADMADE's ability to deliver tangible economic or social benefits to rural communities? about ADMADE's ability to conserve wildlife and discourage illegal hunting? What did previous evaluations say about the role of the Nyamaluma Training and Research Center in ADMADE implementation?

3. How did the program management and institutional arrangements evolve over its life span? Did this evolution have any positive or negative impact on the achievement of RNRMP and ADMADE objectives? Focus this discussion on USAID and GRZ project management and institutional arrangements as well as institutional arrangements in the project areas.

4. Beginning the analysis in 1996, how was the project organized and implemented? Was implementation effective? Did implementation focus resources on the most important wildlife conservation and community development problems and opportunities? What was the role of the Wildlife Conservation Revolving Fund in ADMADE implementation? What was the role of the Nyamaluma Training and Research Center?

5. Describe ADMADE relationships with the Ministry of Tourism, other public institutions nationally and in the project area (relevant to project objectives), local or "traditional" institutions (such as Chiefs and village headmen), private sector operators and Game Management Area communities. Did these relationships contribute to achievement of project or cooperative agreement objectives? Why or why not? How effectively has the project collaborated with private interests in tourism (GMA communities, tour operators, professional hunters, lodge or safari camp owners)? Has ADMADE worked with local institutions to foster continuation and sustainability of programs and services after the project ends? Has this been successful in developing the capacity for local institutions to provide ADMADE services now that USAID financing has ended?

6. Describe the nature and organization of community based institutions supported by the project. How participatory are these institutions in terms of wildlife management and investment decision making? Was there significant participation by women in the program? Was the program beneficial to women? Why? How can more women participate in and benefit in community wildlife management? What are the relative strengths and weaknesses of women and men with regard to wildlife management, revenue sharing and revenue reinvestment, and linkages with tour operators and professional hunters?

7. What is the overall program impact on wildlife populations, household incomes, rural family quality of life, community capacity building, and land use planning? Please quantify and present graphically, on an aggregated and per capita basis, investments in Game Management Areas (emanating from safari hunting, donors, private investors, USAID, etc.) attributable to ADMADE and wildlife conservation.

8. What income earning opportunities have community groups pursued? What specific aspects of those activities make them attractive? What potential income earning activities were not pursued by communities? Why not?

9. What has been the progress against each of the four program objectives? What factors influenced results achievement? For which program objectives has progress been more difficult? Why? What have been the major constraints to the achievement of the program objectives and outputs? What have been the major factors contributing to achievements?

10. What government policies or orientations have facilitated or hindered the achievement of the program objectives? Has RNRMP/ADMADE influenced national natural resources management policy? Why or why not? Has this influence been important?

11. With regard to recent ADMADE food security initiatives, are there lessons GMA communities can beneficially learn from CARE and CLUSA in the areas of seed multiplication and distribution, income generation, business skills training, linkages with agribusiness? Are CARE and CLUSA like activities appropriate for natural resource conservation in GMAs? Do CARE and CLUSA offer approaches relevant to Community Resource Board needs?

12. Has the program been successful in making significant contributions to USAID/Zambia's SO 1 in line with the results framework?

13. What lessons learned from RNRMP/ADMADE implementation and evaluation are important for future USAID investments in food security, rural incomes and natural resource conservation? What lessons learned can inform future donor, GRZ and private sector investments in community wildlife management?

4.3.4 Performance Reports and Previous Project Assessments

Important and relevant reports include "The Reorganization and Restructuring of the Department of National Parks and Wildlife Services (1992), "Report on Financial Management of the Wildlife Conservation Revolving Fund" (1993), "NRMP – Zambia Component of the Southern Africa Regional Project, A Success in the Making" (1995) (which resulted in a Project Paper Supplement), "A Report to USAID and Ministry of Tourism's Department of National Parks and Wildlife Services on a Suitable Community Based Wildlife Management Mechanism" (1995), "Report of the WCRF Financial Management Capacity" (1998), "An Evaluation of the ADMADE Program: With Special Reference to the Strengthening Phase" (1998), "Final Report: Assessment of Community Based Natural Resource Management in Southern Africa (August 1998), "A Profile of Community Based Monitoring Systems of Three Rural Development Projects in Zambia" (November, 1998). Between October 1998 and December 1999, several special studies papers were produced to document the ADMADE process and results. The selected consultant will have access to these reports.

Article 5. Level of Effort, Team Composition and Timing, Logistical Support

It is anticipated that the three person consultancy will be for 5 work weeks in April – May 2000, with an additional and concurrent one person, two work week effort by an evaluation packaging/desktop publishing expert at the end of the consultancy.

USAID/Zambia will use a fixed fee performance based contract as an instrument for conducting this evaluation. Accordingly, although USAID/Zambia suggests that the team be composed of an agricultural/agribusiness, food security/community organization, natural resources/wildlife conservation specialists, with local participation for additional Zambian specific expertise, and a two work week contribution by an evaluation packaging/desktop publishing expert, it is incumbent upon the contractor to determine the number of persons as well as their expertise for USAID/Zambia's consideration. It is essential that at least one of the core team members has proven USAID project evaluation experience. With regard to Zambian experts included in the team, contractors need to take due regard of prevailing USAID local employment compensation levels.

5.1 Duty Post: The contractor shall perform all the work under this activity in Zambia.

5.2 Logistical Support: The contractor is responsible for providing in-country transportation and secretarial support while in Lusaka. The consultant will also make own field trip travel arrangements. USAID/Zambia or local partners may be consulted on logistics of sourcing field transport. **It must be noted that USAID/Zambia will not be able to provide any office space for this consultancy.**

5.3 Work Week: A 6-day workweek is authorized.

Article 6. Reporting Requirements / Deliverables

6.1 Commencement

During the first week of the team's presence in Zambia, the consultant's will meet with the SO1 team leader and his staff to answer questions, clarify tasks, obtain relevant contacts, obtain documents and establish an implementation plan

6.2 Draft Report

After twenty (20) working days of contract implementation, the team will submit a draft summary report to USAID (5 copies of each project). The draft report will summarize major findings and recommendations. Three working days after this submission, the team will make a presentation to USAID, the government of Zambia and other select partners. The presentations will briefly describe the methodology and summarize the preliminary findings, conclusions and recommendations of the evaluations. The team will take note of the oral questions and comments from meeting participants. The team will then have 7 working days to finalize the report.

6.3 Final Report

After thirty (30) working days of contract implementation, the consultant shall deliver the final report to USAID. The final report shall address all comments from the review meeting in 6.2 above. Ten (10) hard copies of the evaluation report of each program and an electronic copy in Word 97 must be submitted.

The final project evaluation reports shall be concisely written and include an Attractive Cover Page, Table of Contents, Executive Summary, List of Acronyms, the Main Report in compliance with the Scope of Work, a Statement of Conclusions and a Statement of Recommendations. The body of each of the reports must describe the relevant country context in which the project was developed and carried out, and provide the information on which conclusions and recommendations are based. The reports must present quantitative evidence of project impact whenever possible using graphs and tables. Sidebars of success stories are also requested, where appropriate. The reports must include attractive photographs of project activities either taken by evaluation team staff or obtained from USAID/Zambia. The final report must be as user friendly as possible. Depending on the findings, the reports may provide the basis for substantial future dialogue with private and public sector investors.

The three final evaluation reports will also have annexes that include current status project inputs and outputs if these are not readily indicated in the body of the report. Other required annexes to the reports are: technical and management issues raised during assessment requiring elaboration, the project evaluation scope of work, a description of the methodology used in assessment, bibliography of documents reviewed and a list of agencies contacted, individuals interviewed and other relevant information.

In addition to the three final project evaluation reports, ten (10) copies of a stand-alone report synthesizing CLUSA, CARE, and RNRMP/ADMADE lessons learned that have applicability to food security, rural income and community natural resource conservation is also required. This report will include an appropriate introduction describing the document's contents, a main body laying out lessons learned from the three project interventions that have relevance to ongoing or future food security, rural income or natural resource conservation activities, and a concluding chapter containing recommendations on how lessons learned can be disseminated to beneficially influence future investments. Again, the attractiveness and user friendly-ness of this report is key.

Article 7. Relationships and Responsibilities

The Contractor shall perform the tasks described above under the general guidance of David Soroko, SO1 Team Leader. The consultancy team will work closely with USAID activity managers involved with the individual projects.