

# Fact Sheet • ZAMBIA

## FOOD SECURITY RESEARCH PROJECT (FSRP)

► **FOOD SECURITY COOPERATIVE AGREEMENT** ◄  
between  
► **U.S. AGENCY FOR INTERNATIONAL DEVELOPMENT and MICHIGAN STATE UNIVERSITY** ◄  
► **TIME PERIOD: AUGUST 1999 - SEPTEMBER 2003**<sup>1</sup> ◄  
<http://www.aec.msu.edu/agecon/fs2/zambia/index.htm>

### 1. Cooperating Institutions

Ministry of Agriculture and Cooperatives (MACO), Economics and Market Development Department: Policy and Planning Branch and Marketing Development Branch  
Agricultural Consultative Forum (ACF)  
Central Statistical Office (CSO), Agriculture and Environment Division  
Golden Valley Agricultural Research Trust (GART)  
University of Zambia (UNZA), Institute for Social and Economic Research (INESOR)  
Food Reserve Agency (FRA)  
Agency for International Development, Zambia Mission (USAID/Zambia)  
Agency for International Development, Bureau for Economic Growth, Agriculture and Trade, Office of Agriculture and Food Security (EGAT/AFS)  
Department of Agricultural Economics, Michigan State University (MSU)

### 2. Researchers Involved

**Food Security Research Project (FSRP) In-Country Researchers:** Jan-Joost Nijhoff (In-Country Project Coordinator), Jones Govereh, Billy Mwiinga, Gelson Tembo, and Ballard Zulu

**Main Collaborators, ACF:** Anthony Mwanaumo, Bobi Nebwe, and Lewis Bangwe

**Main Collaborators, MACO<sup>2</sup>:** A.K. Banda, Julius Shawa, Hyde Haantuba, G. Mbozi, A. Mutelekesha, S. Chikwanda, M. Isimwaa, D. Sikombe, R. Hamakuba, S. Mululuma, F. Mushibwe, D. Banda, J. Mwansa, D. Mundia, G. Chomba, M. Simpamba, M. Ndhlovu, S. Mushingwani, A. Belemu, J. Mwandwe, R. Kamona, A. Chalabesa, O. Damaseke, D. Simumba, and S.B. Sokotela

**Main Collaborators, CSO:** W. Mayaka, D. Daka, C. Nyasulu, J.C. Chanda, M. Sooka, W. Chizebuka, S. Sakala, A. Phiri, S. Kabangu, E. Kasali, and F. Shandavu

**Main Collaborators, GART:** S. Muliokela

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<sup>1</sup>Note: These Fact Sheets were used to record project activities from 2002-2004. Starting in 2004, on-line reporting of activities was initiated using the FS-III Web site. Obtaining a complete picture of project activities therefore requires taking into consideration both the Fact Sheets and the on-line reporting system. See <http://www.aec.msu.edu/agecon/fs2/zambia/index.htm>

<sup>2</sup>The individuals listed here have had a specific involvement in project activities. It is expected that future project activities will require the involvement of additional professional MACO staff who are not listed here.

**Main Collaborators, UNZA/INESOR:** Gear Kajoba and Chileshe Mulenga

**Main Collaborators, FRA:** Emmanuel Ngulube, Reuben Mtolo, and Phillip Kabwe

**MSU Campus Backstop:** Thomas Jayne (Co-Director), Michael Weber (Co-Director), Cynthia Donovan, David Tschirley, James Shaffer, Eric Knepper, Asfaw Negassa, Margaret Beaver, and Antony Chapoto

### 3. Objectives of the Research and Policy Outreach Activities

The FSRP is designed to implement a collaborative partnership between key Zambian organizations working together in the Agricultural Consultative Forum (ACF), the Ministry of Agriculture, Food and Fisheries (MACO), and Michigan State University's Department of Agricultural Economics (MSU). The activities aim to improve the capacity for agricultural policy analysis in Zambia through in-service capacity building, applied research and analysis, and policy outreach. The main objectives of this partnership are:

*Capacity building* for local Zambian counterparts, including training in the design, implementation, and analysis of household-level and market-level data collection for policy analysis and priority-setting purposes. This will be accomplished mainly through in-service training of public and private sector collaborators;

*Applied research* to provide baseline information on smallholder production patterns and crop mix, input use, marketing behavior, measures of farm productivity, farm and non-farm incomes, food purchases and consumption and other basic household-level information necessary to monitor the impacts of changes in the agricultural policy environment on selected socio-economic and regional groups in Zambia; and

*Outreach activities* to liaise with ACF, MACO, and other public and private policy making groups in Zambia on strategies for promoting smallholder agricultural productivity and income growth and household food security in support of improved agricultural policy making in Zambia.

### 4. Research Approach

To carry out its research mandate, the FSRP in Zambia aims to: (a) strengthen the capacity of MACO, ACF, and other institutions or government agencies responsible for food security in Zambia to carry out applied research and policy analysis on food security; (b) strengthen the capacity of MACO to help coordinate research on national food security issues; (c) strengthen the Central Statistical Office (CSO) to carry out surveys, manage and process data, and perform basic analyses useful to policy makers; and (d) strengthen MACO's management and implementation of agricultural marketing information services.

Based on the project's semi-annual Advisory Board consultations, an agenda for research, technical support, and outreach activities is identified and approved. Members of the Advisory Board include MACO, ACF, INESOR/UNZA, CSO, USAID, and FSRP.

### 5. Outputs

#### 5.1. Written Materials

##### Working Papers

Nijhoff, J.J., B. Mwiinga, T.S. Jayne, G. Tembo, and J.D. Shaffer. 2002. Promoting Household Food Security in Southern Africa: Modification of Food Import Policy to Make Markets Work for the Poor. Paper submitted to IAAE for the 2003 conference in Durban.

Tembo, G., T.S. Jayne, J.J. Nijhoff, J. D. Shaffer, and B. Mwiinga. 2002. Maize Buying and Selling Behavior of Small Scale Farmers in Southern Africa: Implications for Marketing Support Policies. Paper submitted to IAAE for the 2003 conference in Durban.

Donovan C., M. Damaseke, J. Govereh, and D. Simumba. 2002. *Framework and Initial Analyses of Fertilizer Profitability in Maize and Cotton in Zambia*. FSRP Working Paper No. 5. Lusaka: Food Security Research Project.

Govereh, J., T.S. Jayne, J.J. Nijhoff, J.J. Shawa, H. Haantuba, A. Belemu, E. Ngulube, B. Zulu, and A.K. Banda. 2002. *Developments in Fertilizer Marketing in Zambia: Commercial Trading, Government Programs and the Private Sector*. FSRP Working Paper No. 4. Lusaka: Food Security Research Project.

Jayne, T.S., T. Yamano, M. Weber, D. Tschirley, R. Benfica, D. Neven, A. Chapoto, and B. Zulu. 2001. *Smallholder Income and Land Distribution in Africa: Implications for Poverty Reduction Strategies*. MSU International Development Paper No. 24. East Lansing: Michigan State University.

Zulu, B., J.J. Nijhoff, T.S. Jayne, and A. Negassa. 2000. *Is the Glass Half-Full or Half-Empty? An Analysis of Agricultural Production Trends in Zambia*. FSRP Working Paper No. 3. Lusaka: Food Security Research Project.

Megill, D.J. 2000. *Review of Sample Design for Zambia Post Harvest Survey (1997/98) and the Recommendations for Improving the Sampling Strategy and Estimation Procedures*. FSRP Working Paper No. 2. Lusaka: Food Security Research Project.

Govereh, J., T.S. Jayne, D. Tschirley, C. Donovan, J.J. Nijhoff, M. Weber, and B. Zulu. 2000. *Improving Smallholder and Agribusiness Opportunities in Zambia's Cotton Sector: Key Challenges and Options*. FSRP Working Paper No. 1. Lusaka: Food Security Research Project.

Jayne, T.S., M. Mukumbu, M. Chisvo, D. Tschirley, B. Zulu, M. Weber, R. Johansson, P. Santos, and D. Ceric. 1999. *Successes and Challenges of Food Market Reform: Experiences from Kenya, Mozambique, Zambia, and Zimbabwe*. MSU International Development Working Paper No. 72. East Lansing: Michigan State University.

### **Policy Briefs and Notes**

Nijhoff, J.J., T.S. Jayne, Billy Mwiinga, and James Shaffer. 2002. *Markets Need Predictable Government Actions to Function Effectively: The Case of Importing Maize in Times of Deficit*. Policy Synthesis No. 6. Lusaka: Food Security Research Project.

Mwiinga, B., J.J. Nijhoff, T.S. Jayne, G. Tembo, and J. Shaffer. 2002. *The Role of Mugaiwa in Promoting Household Food Security: Why it Matters Who Gets Access to Government Maize Imports*. Policy Synthesis No. 5. Lusaka: Food Security Research Project.

FSRP Team. 2002. Discussion Note-16 October 2002: Comments on The MACO Crop Marketing Authority Planning Document.

Haggblade, S., and S. G. Tembo. 2002. Conservation Farming in Zambia. Paper presented at the Successes in African Agriculture Workshop, Lusaka.

Smale, M., and T.S. Jayne. 2002. Maize in Eastern and Southern Africa: Seeds of Success in Retrospect. Paper presented at the Successes in African Agriculture Workshop, Lusaka.

Donovan C., M. Damaseke, J. Govereh, and D. Simumba. 2002. *Framework and Initial Analyses of Fertilizer Profitability in Maize and Cotton in Zambia*. Policy Synthesis No. 4. Lusaka: Food Security Research Project.

Govereh, J., T.S. Jayne, J.J. Nijhoff, J.J. Shawa, H. Haantuba, A. Belemu, E. Ngulube, B. Zulu, A.K. Banda, A. Mwanaumo, and L. Bangwe. 2002. *Developments in Fertilizer Marketing in Zambia: Commercial Trading, Government Programs And The Private Sector*. Policy Synthesis No. 3. Lusaka: Food Security Research Project.

Jayne, T.S., T. Yamano, M. Weber, D. Tschirley, R. Benfica, D. Neven, A. Chapoto, and B. Zulu. 2001. *Smallholder Income and Land Distribution in Africa: Implications for Poverty Reduction Strategies*. MSU Policy Synthesis No. 59. East Lansing: Michigan State University.

SADC Food Security Network, Ministerial Briefs, 23 August and 4 September 2001. FSRP made editorial contributions on regional food marketing and trade issues.

Nijhoff, J.J., and C. Bepura. 2001. Food Marketing and Trade in SADC During the 2001/02 Marketing Season - The Role of the Private Sector. Briefing Note prepared at the request of SADC-FANR and presented at the Special Meeting of Officials and Ministers of Food, Agriculture, and Natural Resources, 24-25 August, Harare, Zimbabwe.

Zulu, B., J.J. Nijhoff, T.S. Jayne, and A. Negassa. 2001. *Is the Glass Half-Full or Half-Empty? An Analysis of Agricultural Production Trends in Zambia*. Policy Synthesis No. 2. Lusaka: Food Security Research Project.

FSRP Team. 2000. Private Sector Development in Input Markets and Improvement of Access of Smallholders to Agricultural Inputs Through the Introduction of a Voucher Scheme as Proposed by The World Bank. Notes for discussion. Food Security Research Project.

Govereh, J., T.S. Jayne, D. Tschirley, C. Donovan, J.J. Nijhoff, M. Weber, and B. Zulu. 2000. *Key Challenges and Options Confronting Smallholder, Agribusiness and Government Leaders in Zambia's Cotton Sector*. Policy Synthesis No. 1. Lusaka: Food Security Research Project.

Monthly Market Updates. June, July, August 2000. Contributing to TradeInfo-Africa Monthly Updates, prepared by AMIC and FSRP.

### **Bi-Monthly Market Information Bulletins by AMIC, assisted by FSRP**

The Agricultural Market Information Centre (AMIC) at MACO, assisted by the project, prepares bi-monthly updates on food marketing in Zambia. The bulletin is disseminated to the public and private sector within Zambia.

### **Project Notes and Training Materials**

November 2002. FSRP/CSO/MACO, 2001/02 Post Harvest Survey Instrument and Interviewers Instruction Manual. Lusaka.

June 2002. Bingen, J., E. Kasuta, K. Verstralen, and G. Tembo. Availability and Use of Agricultural Services among Small-scale Farmers and the Role of Farmer Organizations in Zambia. Note for Discussion.

March 2002. FSRP/CSO/MACO. 2002 Crop Forecasting Survey Instrument and Interviewers Instruction Manual. Lusaka.

August 2001. FSRP information leaflet for distribution at the 2001 Agricultural and Commercial Show, 2-7 August, Lusaka.

June 2001. Nijhoff, J.J. Summary of HIV/AIDS Awareness Component of Supplemental Survey to 1999/2000 Post Harvest Survey, April 2001. Note for Discussion.

April 2001. Mwanaumo, A. Report on the Mission to the Regional Conference on Market Information and Trade in Bamako, Mali, 13-15 March. Lusaka.

March 2001. FSRP, Supplemental Survey to the 1999/2000 PHS, Interviewers Instruction Manual. Lusaka.

May 2000. Donovan, C. Recommendations on the Post Harvest Survey Questionnaire. East Lansing: Michigan State University.

May 2000. SPSS 10.0 for Windows Sample Session - Cross-Sectional Analysis: Short Term Training Materials Designing Policy Relevant Research and Data Processing and Analysis with SPSS 10.0 for Windows, 4<sup>th</sup> Edition. Training manual revised for training course, 11-20 May, Lusaka. East Lansing: Michigan State University.

April 2000. Preliminary Insights from Analysis of National and Provincial Crop Data. An analysis on agricultural production presented by Jayne and Nijhoff at planning meeting for an Agricultural Trends Workshop and a USAID briefing session. Lusaka.

## **5.2. Seminars, Workshops, and Other Training and Outreach Activities**

November 2002. Post Harvest Survey Questionnaire Design Workshop for 18 staff from MACO, CSO, and FSRP involved in PHS survey planning, design, and execution. Lusaka.

October 2002. Marketing Information Training Workshop for 46 MACO provincial and district staff (from Eastern, Southern, and Western Provinces) responsible for implementing AMIC activities. Kabwe.

October 2002. Dissemination workshop for Working Papers No. 3 and 4 on agricultural production trends and fertilizer marketing, attended by MACO field staff from Eastern, Southern, and Western Provinces. Kabwe.

September 2002. Policy seminar on poverty characteristics, crop marketing, and fertilizer issues, presented by the FSRP team to senior government staff from the Ministry of Agriculture and Cooperatives, Ministry of Finance and Economic Development, Ministry of Commerce and Trade, the Bank of Zambia, and other relevant ministries and organizations. Lusaka.

September 2002. Marketing Information Training Workshop for 38 MACO provincial and district staff (from Lusaka, Northern, and Luapula Provinces) responsible for implementing AMIC activities. Mansa.

August 2002. Consultative meeting with cotton sector stakeholders to discuss and plan MSU/FSRP/Wye College collaborative research on smallholder commercialization. Lusaka.

August 2002. FSRP and MACO's Marketing and Cooperatives Department jointly exhibited at the 2002 Agricultural and Commercial Show. Lusaka.

July - August 2002. Knepper and Beaver conducted training sessions on Post Harvest Survey data analysis and data cleaning using SPSS data set structure, characteristics, descriptive statistics, and data file manipulation. Training sessions attended by various MACO and CSO staff. Lusaka.

July 2002. Tembo taught module on Economics, and Social and Policy Implications of Conservation Agriculture at the International Course for Extension Staff in Conservation Agriculture: Concepts and Practices in Smallholder Farming Systems. Kabwe, Zambia.

June 2002. ACF dissemination workshop for Working Papers No. 4 and 5 on fertilizer marketing and profitability, attended by 40 participants from the agricultural sector. Lusaka.

June 2002. Farmer Organizations and Private-Public Sector Partnerships. Paper presented by Tembo on Zambian and other African countries' experiences with farmer organizations at The National Cooperatives Convention. Lusaka.

June 2002. FSRP staff participated and presented at the Successes in African Agriculture Workshop. Lusaka.

May 2002. Dissemination workshop for Working Papers No. 3 and 4 on agricultural production trends and fertilizer marketing, attended by 56 MACO field staff from Copperbelt, Northwestern, and Central provinces. Ndola, Copperbelt Province.

May 2002. Marketing Information Training Workshop for 56 MACO provincial and district staff (from Northwestern, Copperbelt and Central Provinces) responsible for implementing AMIC activities. Ndola, Copperbelt Province.

April 2002. Dissemination workshop for Working Papers No. 3 and 4 on agricultural production trends and fertilizer marketing, attended by MACO field staff. Choma, Southern Province.

March 2002. Crop Forecasting Survey Questionnaire Design Workshop for 18 staff from MACO, CSO, and FSRP involved in CFS survey planning, design, and execution. Lusaka.

March 2002. Availability and Use of Agricultural Services among Small-scale Farmers and the Role of Farmer Organizations in Zambia. Tembo presented the Zambian case study on farmer organizations at FAO-ICA Sub-Regional Workshop on Farmer Organization: Local Government Partnerships and Small Farmer Access to Agricultural Services.

March 2002. Tembo helped prepare a cross-country synthesis report to be published by FAO. Nairobi, Kenya.

February 2002. Fertilizer marketing research authors' workshop to review the draft Working Paper No. 4 and reach consensus over the recommendations. Kabwe.

December 2001. ACF seminar on the AMIC User Needs Assessment and the new AMIC Marketing Information System to selected stakeholders. Lusaka.

December 2001. Dissemination workshop for draft Working Paper No. 4 on fertilizer profitability, attended by 70 government stakeholders. Lusaka.

October 2001. Workshop attended by 9 PACOs, 9 SEMCOs and 11 DMCOs to discuss the AMIC User Needs Assessment survey results. Kabwe.

September 2001. Tembo participated in and contributed to session on soil management and conservation during World Vision International (WVI) Review and Planning Workshop. Chipata.

August 2001. Workshop attended by 18 MACO senior staff and 4 FSRP staff to discuss and reach consensus on the draft document on fertilizer marketing and policy. Lusaka.

August 2001. Consultative workshop with 20 government stakeholders on recent developments on fertilizer marketing. Lusaka.

August 2001. FSRP participation in SADC Special Meeting of Officials and Ministers of Food, Agriculture and Natural Resources on The Regional Food Situation 2001/02. Presentation of briefing note, Food Marketing and Trade in SADC During the 2001/02 Marketing Season - The Role of the Private Sector, and assistance in preparation of the Proposed Regional Strategy and subsequent Communique. Harare, Zimbabwe.

August 2001. Govere and one staff member from MACO attended IFDC training program, Development of Fertilizer Recommendations for Optimum Crop Production. Lilongwe, Malawi.

August 2001. FSRP and MACO's Marketing and Cooperatives Department jointly exhibited at the 2001 Agricultural and Commercial Show. Lusaka.

June 2001. Review meeting FSRP, Zambia Integrated Health Program, USAID/Zambia Mission to evaluate HIV/AIDS awareness component of supplemental survey to 1999/2000 Post Harvest Survey. Lusaka.

May 2001. Authors' workshop to discuss the first draft of FSRP Working Paper, *Changes in Fertilizer Marketing and Policy in Zambia 1990-2000 - Background for Policy Development*. Kabwe.

March/April 2001. 1999/2000 PHS Supplemental Survey implementation training courses in Livingstone, Mongu, Chipata, Kabwe, Kitwe, Kasama, and Mansa for enumerators and field supervisors, by FSRP staff and CSO/MACO master trainers.

March 2001. Donovan and three Zambian stakeholders from ACF, Cotton Development Trust, and Zambia National Farmers Union attended the 2001 West African Regional Outlook Conference, 13-15 March in Bamako, Mali. The conference was the third such conference and was organized in part by MSU's PASIDMA. Mwanaumo of ACF, representing the Zambian Delegation, presented a review of marketing information needs in Zambia and perspectives on market organization and development there, as well as the key factors motivating their interest in the Conference.

March 2001. Workshop to finalize design of the 1999/2000 PHS Supplemental Survey instrument, attended by 18 CSO and MACO staff in their capacity as master trainers during the survey. Lusaka.

February 2001. Workshop to develop the 1999/2000 PHS Supplemental Survey instrument, attended by 18 CSO and MACO staff in their capacity as master trainers during the survey. Lusaka.

December 2000. Dissemination workshop of FSRP Working Paper No. 3, *Is the Glass Half Full or Half Empty? An Analysis of Agricultural Production Trends in Zambia*, attended by 25 MACO staff. Lusaka.

December 2000. Agricultural market information study tour to Mozambique. FSRP sponsored 5 AMIC staff members, as well as Donovan and Mwiinga, for a study tour to Maputo, Mozambique, to work with the Mozambican Agricultural Market Information System (SIMA), in the Ministry of Agricultural and Rural Economic Development. The team met with SIMA staff, studied the basic organization of the database, including collection, data entry, verification and cleaning, as well as reviewing output and dissemination.

December 2000. Training course (basic and more advanced levels) for MACO and CSO staff, and representatives of the Zambia National Farmers Union, Programme Against Malnutrition, and the ACF Secretariat (a total of 17 participants) on the use of SPSS for household-level Post Harvest Survey data analysis. Lusaka.

December 2000. Training course for 6 AMIC staff on the general use of SPSS and times series analysis as the key SPSS application for AMIC. Lusaka.

November 2000. Two MACO officials in charge of grades and standards attended a SADC regional meeting on agricultural grades, standards, and phytosanitary issues. Windhoek, Namibia.

November 2000. Two MACO officials in charge of market information and FSRP team members Weber and Mwiinga attended a EU/RESAL meeting in Malawi on trade and market information.

October 2000. Govere and one MACO staff member participated in IFDC workshop, Economic Policy Reforms and Agricultural Input Markets: Experiences, Lessons, and Challenges. Cape Town, South Africa.

October 2000. Donovan participated in a planning session at the Golden Valley Agricultural Research Trust to develop research protocols for trials contracted by the Conservation Farming Unit of the Zambian National Farmers Union.

August 2000. FSRP and MACO's Marketing and Cooperatives Department jointly exhibited at the 2000 Agricultural and Commercial Show. Lusaka.

July-August 2000. Knepper conducted training sessions on Post Harvest Survey data analysis using SPSS for data set structure, characteristics, descriptive statistics, and data file manipulation. Training sessions attended by MACO and CSO staff. Lusaka.

July 2000. David Megill conducted training course for CSO staff on CENVAR statistical software: Estimation and Interpretation of the Standard Errors and Other Statistics from Complex Samples Using CENVAR Software. Lusaka.

July 2000. Megill conducted seminar on Post Harvest Survey data, The Post Harvest Survey Under Complex Sampling: What the Analyst Should Know, for MACO, CSO, and FSRP staff. Lusaka.

June 2000. Workshop by ACF, MACO, and FSRP on Positive Developments in Agriculture. Lusaka.

June 2000. Post Harvest Survey Questionnaire Design Workshop for staff from MACO, CSO, and FSRP involved in PHS survey planning and design. Kabwe.

May 2000. Post Harvest Survey Questionnaire Review Workshop for staff from MACO, CSO, and FSRP involved in PHS survey planning, design, and execution. Lusaka.

April 2000. Training course for MACO and CSO staff on SPSS 10.0 for Windows, Cross-Sectional Analysis, focusing on using SPSS statistical software for analyzing 1997/98 Post Harvest Survey data. Lusaka.

April 2000. Mini-seminar for USAID Zambia Mission and Washington staff on trends and developments in Zambian agriculture. Lusaka.

April 2000. Planning meeting for a workshop on Positive Developments in Agriculture, jointly organized by ACF and MACO. Lusaka.

February 2000. Cotton industry consultative meeting for selected cotton industry stakeholders to review the first draft of FSRP's working paper on Zambia's cotton sector and to discuss modalities for further consultations, discussions and outreach. Lusaka.

October 1999. Cotton industry consultative meeting workshop for government agencies, private sector agribusiness firms, farmer organizations, and other stakeholders in the cotton sub-sector. The objective was to assess current performance of the cotton industry, identify key constraints, and a range of alternative strategies for consideration. This initial meeting is considered a first step in a collaborative process designed to improve the performance of the cotton industry, including smallholder farmers. Lusaka.

### **5.3. Presentations by FSRP Staff and Affiliated Researchers**

November 2002. Nijhoff and Govereh made a presentation on food security policy issues at the Sub-Regional Parliamentary Seminar, attended by 70 Parliamentarians from Zambia, Malawi and Zimbabwe, sponsored by AWEPA (European Parliamentarians for Africa). Lusaka.

November 2002. Zulu, Mwiinga, Nijhoff, Tembo, and Govereh presented material on poverty characteristics, crop marketing, and fertilizer issues to the Permanent Secretary, Food Security, MACO. Lusaka.

October 2002. Zulu, Mwiinga, Nijhoff, Tembo, and Govereh presented material on poverty characteristics, crop marketing, and fertilizer issues to an FAO-chaired group of donors who have a common interest in rural development. Lusaka.

October 2002. Zulu and Govereh presented Working Papers No. 3 and 4 on agricultural production trends and fertilizer marketing, to 46 MACO field staff from Eastern, Southern, and Western Provinces. Kabwe, Central Province.

September 2002. Isimwaa, Mwiinga, Nijhoff, Tembo, and Govereh presented material on poverty characteristics, crop marketing, and fertilizer issues to senior government staff from the Ministry of Agriculture and Cooperatives, Ministry of Finance and Economic Development, Ministry of Commerce and Trade, the Bank of Zambia, and other relevant ministries and organizations. Lusaka.

August 2002. FSRP and MACO's Marketing and Cooperatives Department jointly exhibited at the 2002 Agricultural and Commercial Show. Lusaka.

June 2002. Govereh, Donovan, and Damaseke presented Working Papers No. 4 and 5 on fertilizer marketing and profitability at an ACF dissemination workshop, attended by 40 participants from the agricultural sector.

June 2002. Tembo, Govereh, Zulu, Mwiinga, and Nijhoff presented material on farmer organizations and fertilizer marketing to the Permanent Secretary, Food Security, MACO. Lusaka.

June 2002. Tembo presented paper on Zambian and other African countries' experiences with farmer organizations, Farmer Organizations and Private-Public Sector Partnerships at National Cooperatives Convention. Lusaka.

June 2002. Tembo presented, Conservation Farming in Zambia, based on a report he co-authored with Steve Haggblade (IFPRI). Lusaka.

June 2002. Jayne presented Maize in Eastern and Southern Africa: Seeds of Success in Retrospect, based on a report he has co-authored with Melinda Smale (IFPRI). Lusaka.

May 2002. Zulu and Govereh presented Working Papers No. 3 and 4 on agricultural production trends and fertilizer marketing to 56 MACO field staff from Copperbelt, Northwestern, and Central provinces. Ndola, Copperbelt Province.

April 2002. Zulu and Govereh presented Working Papers No. 3 and 4 on agricultural production trends and fertilizer marketing to MACO field staff. Choma, Southern Province.

March 2002. Tembo presented the Zambian case study on farmer organizations, Availability and Use of Agricultural Services among Small-scale Farmers and the Role of Farmer Organizations in Zambia at FAO-ICA Sub-Regional Workshop on Farmer Organization: Local Government Partnerships and Small Farmer Access to Agricultural Services. Nairobi, Kenya.

December 2001. Mwandwe, Mwiinga, and Donovan presented the AMIC User Needs Assessment and the new AMIC Marketing Information System to selected stakeholders. Lusaka.

December 2001. Govereh and Donovan presented draft Working Paper No. 4 on fertilizer profitability to 70 government stakeholders. Lusaka.

August 2001. Shawa presented draft FSRP Working Paper, *Changes in Fertilizer Marketing and Policy in Zambia 1990-2000 - Background for Policy Development*, at a meeting attended by senior MACO management. Lusaka.

August 2001. Nijhoff acted as resource person and co-presented briefing note Food Marketing and Trade in SADC During the 2001/02 Marketing Season - The Role of the Private Sector at Special Meeting of Officials and Ministers of Food, Agriculture and Natural Resources, SADC, Harare, Zimbabwe.

August 2001. Govereh presented draft FSRP Working Paper, *Changes in Fertilizer Marketing and Policy in Zambia 1990-2000 - Background for Policy Development*, at an IFDC training course in Lilongwe, Malawi.

July 2001. Zulu and Govereh presented FSRP Working Paper, *Is the Glass Half Full or Half Empty? An Analysis of Agricultural Production Trends in Zambia*, at a meeting attended by the donor community, hosted and organized by FAO. Lusaka.

June 2001. Nijhoff and Zulu presented Summary of HIV/AIDS Awareness Component of Supplemental Survey to 1999/2000 Post Harvest Survey April 2001 note for discussion during review meeting attended by FSRP, Zambia Integrated Health Program, and USAID/Zambia Mission to evaluate HIV/AIDS awareness component of 1999/2000 PHS supplemental survey. Lusaka.

December 2000. Zulu and Nijhoff presented final version of FSRP Working Paper, *Is the Glass Half Full or Half Draft Empty? An Analysis of Agricultural Production Trends in Zambia* at a workshop organized by the project for MACO staff. Lusaka.

June 2000. Zulu and Nijhoff presented first draft of FSRP Working Paper *Is the Glass Half Full or Half Draft Empty? An Analysis of Agricultural Production Trends in Zambia* at the Workshop on Positive Developments in Agriculture in Lusaka, sponsored by ACF, MACO, and FSRP.

June 2000. Zulu presented FSRP Working Paper No. 1, *Improving Smallholder and Agribusiness Opportunities in Zambia's Cotton Sector: Key Challenges and Options* to Provincial MACO staff, private sector, and NGOs in Chipata, Eastern Province.

June 2000. Zulu presented FSRP Working Paper No. 1, *Improving Smallholder and Agribusiness Opportunities in Zambia's Cotton Sector: Key Challenges and Options* to professional staff at the Economics and Market Development Department, MACO. Lusaka.

May 2000. Zulu, Govereh, and Nijhoff presented FSRP Working Paper No. 1, *Improving Smallholder and Agribusiness Opportunities in Zambia's Cotton Sector: Key Challenges and Options* to all major stakeholders in the cotton sector at a meeting organized by the Cotton Development Trust in Lusaka.

April 2000. Govereh and Donovan made a presentation on FSRP and its intended research and training activities during a meeting with soil scientists and other staff members of the Crops and Soils Research Branch of Mt. Makulu Research Station, MACO.

April 2000. Jayne and Nijhoff made a presentation on the effects of agricultural liberalization on crop production, based on preliminary analysis of national and provincial crop data, during a USAID briefing session held in Lusaka.

April 2000. Jayne and Nijhoff made a presentation on the effects of agricultural liberalization on crop production, based on preliminary analysis of national and provincial crop data, during a planning meeting for an Agricultural Trends Workshop, held in Lusaka. The presentation was aimed at providing other potential workshop collaborators with an insight of longer term agricultural production, productivity and food security related trends.

April 2000. Nijhoff and Govereh made presentations on FSRP and its intended collaborative program with CSO, and the proposed modifications and additions to the Post Harvest Survey questionnaire, during a two-day CSO organized workshop on the 1998/99 Post Harvest Survey.

March 2000. Nijhoff, Govereh, and Zulu made a presentation on FSRP and its intended collaborative program with MACO and ACF during a meeting attended by all professional staff at the Economics and Market Development Department, MACO.

October 1999. Jayne presented a summary of Zambian statistics on cotton production and yield trends during the Cotton Industry consultative meeting, held in Lusaka. The presentation also compared Zambia's cotton yield estimates with those of other African countries, as well as information on the relative importance of cotton compared to other crops.

October 1999. Tschirley presented main features of the world market for cotton during the Cotton Industry consultative meeting, held in Lusaka. The presentation highlighted the long term downward trend in world cotton prices as well as recurring cyclical variations and concluded that increased productivity of the Zambian cotton industry is required if Zambia is to remain competitive.

#### **5.4. MSU Backstop Trips to In-Country Team**

December 2002. Tschirley trip to backstop the Zambian component of the MSU/FSRP/Wye College smallholder commercialization research.

December 2002. Jayne trip to backstop crop marketing research and policy implementation issues, poverty/land research, and overall project planning and research activities with FSRP team.

November 2002. Donovan trip to backstop AMIC.

September 2002. Shaffer trip to assist in the preparation of the government seminar on poverty, crop marketing, maize imports and fertilizer issues.

September 2002. Jayne trip to assist and participate in government seminar on poverty, crop marketing, maize imports and fertilizer issues.

June 2002. Beaver trip to provide training in data cleaning of various PHS data sets to MACO and CSO staff.

June-August 2002. Knepper trip to provide in-service training in data analysis and data cleaning to MACO and CSO staff.

May 2002. Donovan to backstop AMIC and assist during market information training workshop.

March 2002. Shaffer trip to backstop fertilizer marketing research, and crop marketing research.

March 2002. Jayne trip to backstop fertilizer marketing research, poverty/land research, and overall project planning and research activities with FSRP team.

March 2002. Tschirley trip to initiate the Zambian component of the MSU/FSRP/Wye College smallholder commercialization research.

September 2001. Jayne trip to backstop fertilizer marketing research, poverty/land research, and overall project planning and research activities with FSRP team.

June 2001. Beaver trip to assist in data cleaning of the 1999/2000 PHS Supplemental Survey.

June 2001. Bingen trip to backstop farmer organization research.

June 2001. Donovan trip to backstop AMIC and assist in planning research on conservation farming

May 2001. Jayne trip to participate in review of first draft of fertilizer working paper.

March 2001. Yamano trip to assist in training field staff 1999/2000 PHS Supplemental Survey.

March-April 2001. Donovan trip to Mali with Zambian collaborators to attend 2001 West Africa Regional Outlook Conference following which a trip to assist in training field staff 1999/2000 PHS Supplemental Survey and backstop AMIC.

March 2001. Weber trip to assist in the launch of the 1999/2000 PHS Supplemental Survey.

March 2001. Bingen trip to launch the farmer organization research, in conjunction with FAO.

February 2001. Jayne trip to participate in planning and designing of 1999/2000 PHS Supplemental Survey.

February 2001. Donovan trip to continue work with AMIC staff in redesigning the AMIC system and participate in planning and design of 1999/2000 PHS Supplemental Survey.

January 2001. R. Kelly trip to assist with project administration and finances.

December 2000. Donovan trip, with Mwiinga from FSRP, to Mozambique with 5 AMIC colleagues for a study tour on the Mozambican Agricultural Market Information System (SIMA).

December 2000. Beaver trip to conduct SPSS training sessions for AMIC, MACO, CSO, and others.

December 2000. Tembo familiarization trip to Zambia before joining the field team.

November 2000. Weber trip to participate in Advisory Board meeting, finalize a working paper on agricultural production trends, and assist in the planning of project activities. Also accompanied MACO staff to a market information and trade meeting in Malawi.

November 2000. Jayne trip to participate in Advisory Board meeting, finalize a working paper on agricultural production trends, and assist in the planning of project activities.

September-October 2000. Donovan trip to continue work on fertilizer profitability with Mt. Makulu staff, to meet with various stakeholders on conservation farming, to participate in AMIC planning meetings, and to assist AMIC staff in evaluating a redesign of AMIC system.

August 2000. Jayne trip to assist the in-country team's participation in rapid appraisal field work as part of the research activity on fertilizer profitability and marketing, to finalize a working paper on agricultural production trends, and to assist in the planning of project activities.

July/August 2000. Nijhoff trip to MSU to participate in project planning exercise in preparation of further project planning meetings with in-country team, collaborators and the Advisory Board.

July 2000. Megill trip to assist CSO redesign its agricultural sampling frame and statistical estimation procedures.

June 2000. Jayne trip to assist the in-country team to execute a rapid appraisal as part of the research activity on fertilizer profitability and marketing, and to assist in the planning of project activities.

June 2000. Donovan trip to assist the in-country team in implementing the research on fertilizer profitability, providing technical assistance to CSO on PHS sampling and estimation, improving the PHS questionnaire, and implementing technical assistance to AMIC.

April 2000. Beaver trip to conduct a two-week training course in SPSS, attended by 6 professional staff from CSO and 4 professional staff from MACO, focusing on SPSS basics as well as applied training in the analysis of 1997/98 Post Harvest Survey data that are now available in SPSS compatible format.

April 2000. Donovan trip to assist in the above training course and to assist the in-country team in implementing the research on fertilizer profitability, planning technical assistance to CSO on PHS sampling and estimation, improving the PHS questionnaire, and implementing technical assistance to AMIC.

March 2000. Jayne trip to co-present preliminary findings on agricultural trends in Zambia at a meeting to plan a workshop on agricultural trends, and at a USAID briefing. Also assisted the in-country team to plan a rapid appraisal as part of the research activity on fertilizer profitability and marketing.

February 2000. Jayne trip to attend the cotton industry consultative meeting as well as the first Project Advisory Board Meeting. Assisted in-country coordinator with project planning.

January 2000. Donovan trip to assist the in-country team plan research in fertilizer farm-level profitability and marketing, and to assist CSO in making fundamental improvements in Post Harvest Survey sampling and estimation procedures.

October 1999. Donovan trip to assist the in-country team plan and commence implementation of specific project activities with CSO (Post Harvest Survey data analysis) and MACO (assistance to Agricultural Market Information Centre, AMIC).

October 1999. Tschirley trip to prepare and conduct the Cotton Industry Consultative Meeting, and to meet in-country team.

October 1999. Weber and Jayne trip to assist the in-country team establish the project office, set research priorities, and prepare and conduct the Cotton Industry Consultative Meeting.

August 1999. Jayne trip to discuss objectives, work plans, and project organization with project partners in the Agricultural Consultative Forum and Ministry of Agriculture, Food and Fisheries.

## 6. Project Activities

### *Activity 1. Improving the Information Base on Agriculture and Food Security in Zambia*

#### *Activity 1.1. Improving Accessibility of CSO Post Harvest Survey Data Files*

The objective of this activity is to support the development of a demand-driven, nationally-managed database for agricultural policy analysis and related rural development issues. At present, agricultural information is collected by CSO, but local policy units have had little role in the development of the surveys and information contained in them, nor are there many MACO staff who were able to use and analyze this data. As a result, the situation as it existed in 1999 was that many topical policy issues could not be meaningfully addressed on the basis of solid empirical information because specific information was not contained in national agricultural surveys to fit end-user (policy makers') needs, and because local staff in the line ministries were not familiar with the software required to analyze this information.

The project completed the process of converting CSO data files from the 1997/98, 1998/99, 1999/2000, and 2000/01 Post Harvest Surveys from IMPS into SPSS. With the data in SPSS, FSRP researchers, in collaboration with local analysts, have conducted more sophisticated analysis than would otherwise be possible. Training of staff in MACO's Database Management Unit and ACF has allowed more ministry staff to analyze the data, and this has in turn enabled policy makers to provide assignments to their staff that make better use of the empirical insights available in the national agricultural database. By putting policy makers in a position to report on actual rural behavior and agricultural performance, this can generate more locally-driven, demand-based national statistical services.

In addition, members of the Database Management Unit at MACO, who are in effect the main users of the Post Harvest Survey, are developing the skills and means to analyze data sets generated by CSO, after a number of training courses. The hardware and software necessary for the work have been provided to CSO and MACO staff.

*Activity 1.2. Preparation for 1998/99, 1999/2000, 2000/01 and 2001/02 Post Harvest Surveys (completed)*

The project provided assistance to CSO and MACO in the planning of the four recent Post Harvest Surveys. Assistance focused on increasing compatibility between policy makers' informational requirements and the type of information contained on the survey instruments.

*Activity 1.3. Planning of Agriculture Component of 2000 Population Census (completed)*

The 2000 Population Census was carried out during September 2000 and provided an opportunity to include basic questions on agriculture, enabling CSO to redesign the agricultural sampling frame and zoning. This ensures greater accuracy of the estimates produced from the next National Census of Agriculture, or from the Post Harvest Survey. Unlike previous occasions, the 2000 Population Census did not automatically include agricultural data collection. The project worked with MACO and ACF to identify several strategic questions relating to agriculture, thus taking advantage of this rather unique (once every ten years) census opportunity to update the sampling frame.

*Activity 1.4. Improving Statistical Methodology Applied by CSO (ongoing)*

Progress has been made on the PHS sampling and estimation methodologies with active involvement from MACO's Database Management Unit and CSO's Agriculture Division. A consultant worked in close collaboration with CSO and MACO staff to develop a new methodology and improved local technicians' understanding of the statistical issues involved. When the agricultural data from the 2000 Population Census are available, some of the recommendations are hoped to be implemented, leading to an updated and improved sampling frame.

*Activity 1.5. 1999/2000 PHS Supplemental Survey (completed)*

The project collaborated with CSO and MACO in the design and implementation of a survey that revisited all 1999/2000 PHS respondents to obtain additional household-level information, serving research data needs in the areas of land allocation, fertilizer marketing, farmer organizations, food marketing, household demographics, adult deaths related to HIV/AIDS, and other issues. The survey covered some 8,000 rural households throughout Zambia.

During the planning and implementation of the survey, some 250 CSO staff were involved in various training and other capacity building exercises.

*Activity 1.6. 2001 Crop Forecasting Survey (completed)*

In response to urgent needs for national crop production estimates in 2001 to support government decision making, and in light of the discontinuation of the annual Crop Forecasting Survey in Zambia, the FSRP, in conjunction with MACO, CSO, and USAID, agreed to include a section on crop production estimates in the 2001 Supplemental Survey to satisfy the national Crop Forecast Survey requirements for 2000/01. While this is not the first time that such information is being collected in Zambia, it appears to be the only one in which such data can be matched at the household level with other household characteristics, so the attributes of households that are "doing well" and "not doing well" can be more comprehensively understood.

*Activity 1.7. HIV/AIDS Awareness Campaign (completed)*

In recognition of the impact of AIDS on the agricultural sector, an HIV/AIDS awareness component was introduced as part of the 1999/2000 PHS Supplemental Survey (activity 1.5), targeting over 250 survey field staff, as well as all 8,000 households in the sample. The exercise was carried out in close collaboration with the USAID-funded Zambia Integrated Health Program, and was based on participatory training (field staff), and the distribution

of information leaflets combined with open discussion (farming households). It is envisaged that such campaigns become part of routine surveys carried out by Government.

*Activity 1.8. Planning of 2001/02 Post Harvest Survey (ongoing)*

The project provided assistance to CSO and MACO in the planning of the 2000/01 Post Harvest Survey. Assistance continues to help improve the survey instrument each year.

*Activity 2. Analysis of Zambian Smallholder Cash Crop and Food Crop Performance*

*Activity 2.1. Cotton Industry Review (completed)*

In October 1999, the project was asked to assist MACO, ACF, and the cotton industry to facilitate a consultative meeting to discuss problems and constraints currently faced by the Zambian cotton industry. The consultative meeting was held on 26 October 1999, the proceedings of which were used as a basis for further research. A policy paper was prepared, highlighting the main issues, constraints and opportunities, and possible courses of action. On 30 May 2000, FSRP was invited by the Cotton Development Trust to present the paper to a meeting attended by all stakeholders in the cotton sector. The presentation was followed by a discussion on the way forward, whereby various stakeholders identified possible courses of action to be worked out in further detail.

*Activity 2.2. Fertilizer Marketing and Farm-Level Profitability Review (ongoing)*

In February 2000, the project was asked by ACF and MACO to initiate a review of fertilizer marketing and farm-level profitability to gain insight into the potential for private sector fertilizer marketing in Zambia and to identify areas where fertilizer application is not profitable. The objective of the research was to provide policy makers more information to guide the planning of constructive government roles to support the development of viable input and output marketing systems. The research was based on surveys of fertilizer traders and distributors to understand the constraints facing private sector input suppliers and the types of government involvement that could increase their operational investment in support of smallholder farmers. The research also entailed an in-depth review of fertilizer trials and other relevant agronomic research where available, to assess the profitability of using fertilizer on maize and cotton in particular areas of Zambia. MACO and FRA staff have directly contributed to the field work and drafting of the reports, which are now completed.

The project has been participating in working groups, coordinated by MACO, on agricultural finance and on agribusiness development and marketing, as part of the ASIP successor program formulation process. The research on fertilizer marketing and profitability has made contributions to the formulation or implementation of these program components.

In addition to the analysis of existing trial data to determine likely profitability levels, further research is being conducted using PHS data. The aim is to demonstrate that, depending on the area, recommended fertilizer application levels for maize should vary according to the different levels of profitability achieved.

The Ministry of Agriculture and Cooperatives is supporting the active role of farmer cooperatives in agricultural marketing. Apart from individual private entities, cooperatives can play an important role in extending the distribution network of fertilizer to areas unreachable through conventional mechanisms of distribution. To be effective, however, these cooperatives need to champion the interest of the farmers and operate in a business-like manner. A draft report on the experience of cooperatives in handling fertilizer in the 1999/2000 agricultural season and the challenges ahead has been prepared.

*Activity 2.3. Analysis of Food and Cash Crop Production and Productivity during the Period 1980s to Present (completed)*

The objective of this study was to evaluate the trends in agricultural performance in response to partial market liberalization. There is great controversy in Zambia about the effects of liberalization on agricultural performance, but little empirical data has been assembled to assess the situation. Using PHS data from 1994-1999 and Crop Forecast Survey data from 1986-1999, a report was prepared, identifying changes in cropping patterns, value of production, and rural per capita energy production to provide a first indication of general performance of, and changes within, the agricultural sector during recent years. A full copy of the report can be downloaded from the Zambia Food Security Research Project website: <http://www.aec.msu.edu/agecon/fs2/zambia/index.htm>

*Activity 2.4. Economic Analysis of Conservation Farming (ongoing)*

The project has begun research on the economics of conservation farming, in collaboration with the Golden Valley Agricultural Research Trust (GART). Various stakeholders are included, such as the Conservation Farming Unit (CFU) and MACO's research department at Mount Makulu. Various research protocols for the 2000/01 season have been discussed and refined to allow economic analysis to be included. Trial results are in process of being analyzed. On-farm trials will most likely be included in the set of activities.

*Activity 2.5. Research on Poverty and Land Issues (ongoing)*

This study involves collaboration with researchers from the University of Zambia and MACO. Following from the preliminary analysis on land area under cultivation by smallholders, which suggested an important link between household crop production and land holding size, a research activity on land has been launched by the project. Ongoing analysis is examining the characteristics associated with rural poverty; it is hypothesized that this may be closely related to household land-holding size. Preliminary findings of highly differential access to, or use of, land suggests that programs aimed at increasing access to land and/or off-farm opportunities for those households cultivating little area may be an important element in rural poverty reduction strategies. This work is directly contributing to MACO's working groups on land and crop marketing for the ASIP successor program.

*Activity 2.6. Research on Farmer Organizations (completed)*

In collaboration with FAO, a research activity was initiated that focused on identifying farmer organization approaches that have benefitted smallholder farmers in terms of service delivery and economic benefits as a result of organization membership. Within two different districts, various types of farmer organizations were examined, as well as their supporting organizations and government structure. PHS data and data from the 1999/2000 PHS Supplemental Survey provided further insights. The research was considered inconclusive and, thus far, no working paper has been prepared.

*Activity 2.7. Smallholder Farm Commercialization Strategies (ongoing)*

The project continues to assist in identifying ways to address the multifaceted constraints on improving the productivity of smallholder agriculture, with particular attention to their ability to raise their incomes through partial shifting to higher-valued crops and more intensified crop production patterns. This research is being undertaken based on extensive consultation with agribusiness and NGO stakeholders in the Agricultural Consultative Forum in Zambia. As mentioned above, the project participates in agricultural sector program formulation working groups on agribusiness development and marketing, and agricultural sector finance, and it is expected that these program components will be instrumental in the design and implementation of commercialization strategies.

Following on from the cotton sector review mentioned under Activity 2.1, collaborative research between MSU and Wye College has begun in March 2002, whereby Zambian research activities include a cotton and tobacco sector overview, identifying public and private institutional innovations that have, at least to some extent, overcome the various constraints identified in the cotton sector review in 2000 (Activity 2.1). Cross-country comparisons of the cotton sector overviews also provide valuable insights regarding various levels of coordination of industry activities and levels of competition.

### *Activity 3. Improving Agricultural Market Information Systems in Zambia*

#### *Activity 3.1. Improving Collection and Management of Price Data at AMIC (ongoing)*

The project has been working with AMIC to consolidate, update, clean, and reformat price data files containing district level weekly price data for a whole array of commodities. Part of the exercise was to establish procedures for receiving original data sheets, entering data, and filing original data sheets. Also, locations where data is infrequently or not at all collected were identified.

More recently, the project started to assist AMIC to improve its data processing methods and software. AMIC staff undertook a study tour to Maputo, Mozambique, in December 2000, to benefit from experiences by the local market information service. AMIC has now redesigned its systems, which includes a transition from spreadsheet software to SPSS.

In March 2001, an additional study tour was taken with members of the Agricultural Consultative Forum (ACF), the Cotton Development Trust and the Zambian National Farmers Union (ZNFU) so that those stakeholders in market information system development could participate as observers in the 2001 West African Regional Outlook Conference. During the one week tour, they also visited the Market Information System main office at the Chamber of Agriculture in Bamako, the PASIDMA project office, and participated in a field trip to understand how the innovative SIM is functioning with its data collection, transmission and analysis at the local level. (Cotton development authorities were also interviewed.)

In 2002, 140 MACO field staff with AMIC responsibilities attended market information training workshops conducted by AMIC staff and assisted and funded by FSRP. Improved data collection and transmission procedures were introduced and responsibilities and duties were clarified. Yet, the MACO budget at the district level may prove insufficient for AMIC activities in some areas, and MACO has been encouraged to identify priority areas for market information activities.

#### *Activity 3.2. Evaluation of Existing Resources and MACO Priorities for AMIC Activities (ongoing)*

In preparation of further system design improvements, a review of AMIC's planning and budget has been carried out, aimed at matching human and financial resources with system requirements and costs. FSRP staff have assisted MACO staff to evaluate the objectives of the system, identify the kinds of activities that can be achieved with available resources, and to develop a strategic plan for AMIC.

#### *Activity 3.3. Reviewing AMIC User Needs (completed)*

The project has assisted AMIC in conducting a user needs assessment to assist in a review of AMIC's product range, including distribution, means of communication, and geographical scope. This review takes account of national as well as provincial/district level information needs.

#### *Activity 3.4. Improving AMIC Systems and Design (ongoing)*

Based on the findings of the User Needs Assessment, the project is assisting AMIC in designing a new system as well as putting together implementation modalities, both at national as well as at provincial and district levels. This will involve the training of data collection personnel based at district level.

The project is working with AMIC on upgrading the existing bi-monthly Market Bulletin in terms of content and coverage. Incorporating information from neighboring countries and other relevant international information, as well as conducting more frequent interviews with the formal and informal trading sectors are some of the actions that AMIC is currently taking.

#### *Activity 3.5. Establishing AMIC as Partner of Subregional Market Information Sharing Network (paused)*

In 1999, AMIC became one of the three initial partners in the TradeInfo-Africa initiative, a joint venture between MSU/USAID and EU/Resal, aimed at facilitating and hosting a marketing information network, linking market information services from Mozambique, Malawi, and Zambia. Since January 2001, TradeInfo-Africa is non-active, due to the withdrawal of EU/Resal, but it is hoped that an alternative arrangement will provide a continuation of this effort very soon.

## **7. Main Results and Research Findings of the Food Security Research Project <sup>3</sup>**

### **7.1 Selected Policy Impact**

#### **The impact of fertilizer marketing analysis on government policy and program development.**

FSRP studies on fertilizer marketing and farm-level profitability have helped inform the debate on the respective roles of government and private fertilizer marketing firms. Market analysis and information have demonstrated that the private sector has the potential to develop fertilizer markets and is capable of importing large volumes of fertilizer. As a result, government is no longer importing fertilizer itself, but rather purchases the commodity from the private sector. It has been demonstrated that many farmers are able to pay cash for fertilizer, suggesting that the need for input credit has been exaggerated. It has also been demonstrated that without improved seed and improved management practices, fertilizer will not result in increased income on many farms. Now, government has adopted a new transitional strategy where the fertilizer is to be sold at subsidized prices, without a credit element, and the level of subsidy is to be phased out over a three year period. Government is also selling improved seed along with the fertilizer. Attention is now being paid to private sector development by involving local fertilizer firms in this transitional program.

FSRP analysis in 2001 identified the 60% tax on diesel fuel as responsible for increasing costs of fertilizer to smallholder farmers. In 2002, the Government of Zambia reduced this fuel tax from 60% to 45%, consistent with FSRP recommendations to promote fertilizer use in Zambia.

#### **Making food markets work for the poor; the impact of market information and policy analysis on government maize import policy during the 2002/03 deficit season.**

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<sup>3</sup>Here we present brief summaries. Readers should obtain the various FSRP Policy Syntheses and Working Papers for more information. See <http://www.aec.msu.edu/agecon/fs2/zambia/index.htm>

Poor consumers in urban and rural areas tend to prefer their maize meal in the form of "mugaiwa," a less refined and less expensive form of maize meal than packaged roller and breakfast meal. Most consumers acquire mugaiwa by buying grain in small quantities and taking it to local hammer mills for processing. The cost-savings of consuming mugaiwa over breakfast meal are so great that a low income household can save up to 20% of its annual disposable income by fulfilling its maize meal requirements in this way. Research has shown that mugaiwa consumption is especially popular among the poor. However, market analysis, based on the FSRP-supported Agricultural Market Information Center's market data, reveal that maize grain becomes extremely scarce at public markets during deficit seasons, forcing low-income consumers to purchase relatively expensive industrial meal, thus decreasing their real incomes. Traditionally, the bulk of commercial and government maize imports is channeled through the large industrial mills, bypassing the public markets and hammer mills. FSRP has recommended that a proportion of government imports should be channeled through the small-scale trading and milling sector to offer affordable food to low-income consumers. This recommendation was accepted and, in conjunction with FSRP, the government is now establishing modalities for implementing maize grain through small-scale informal trading channels to ensure that consumers will have access to the less-expensive and more nutritious mugaiwa meal.

### **Policy outreach extended to include parliamentarians.**

As part of the policy outreach function of FSRP, policy analysis in the form of reports and policy synthesis papers have been made available to members of Parliament, through the Library of the National Assembly. During a recent seminar on economic development, sponsored by AWEPA (European Parliamentarians for Africa), FSRP addressed 80 parliamentarians from Zambia, Zimbabwe and Malawi on food security policy issues. The discussions that followed confirmed that members of Parliament need to be better informed, and that FSRP's policy outreach should not stop at the executive government level. The Ministry of Agriculture and Cooperatives has since encouraged interaction with parliamentarians and is now arranging for consultations with the Parliamentary Sub-Committee on Agriculture.

## **7.2. Improved Policy Processes**

### **Improving government agricultural data collection systems for policy analysis.**

FSRP is providing technical assistance and in-service training to some 20 professional staff from the Central Statistical Office and the Ministry of Agriculture to improve the quality and accessibility of agricultural statistics. Making data more accessible is encouraging overall use of the data, while improving quality is gradually increasing end-users' confidence in the data and subsequent analysis.

### **Improving analytical capacity of government technical staff.**

Professional staff at the Ministry of Agriculture and Cooperatives have been involved in numerous research activities that were identified by themselves and other stakeholders. They are actively participating in field surveys and conduct analysis using the available agricultural data sets. Moreover, they take part in report writing and formulating policy recommendations for subsequent submission to policy decision makers.

### **Creating demand for policy analysis by policy decision makers.**

With the improving policy analysis resource base as described above, policy decision makers are better informed by their technical staff and start using all or part of the recommended actions or strategies. Decision making is increasingly based on empirically grounded material rather than conventional wisdom. Completed analyses are also starting to generate demand for more, which is the ultimate aim of FSRP's various activities. For example,

completed research on crop marketing has triggered demand for further analysis on the proposed Crop Marketing Authority's maize buying and selling functions.

### **7.3. Cotton Industry Review**

ACF and MACO identified the need to conduct research on cotton sub-sector performance due to the increasing importance of cotton as a smallholder cash crop in Zambia. Cotton production in Zambia has doubled since the dismantling of the cotton parastatal Lintco and the introduction of outgrower programs supported by private agribusiness firms in the mid 1990s. In spite of these achievements, the cotton sector has in the past two years been plunged into crisis. This crisis involves four major problems: 1) lack of industry organization and coordination; 2) excess ginning capacity creating incentives for undercutting and side selling; 3) relatively high per unit processing costs for firms not operating at or near capacity; and 4) long term declining trend for international cotton price.

Analysis of the 1997/98 Post Harvest Survey (PHS) of smallholders shows that in general, cotton farmers cultivate about twice as much land, are substantially more likely to use animal traction, and also grow more maize per household, compared to non-cotton farmers in the cotton regions. There are important differences between cotton farmers as well. PHS results indicate that cotton is valuable for a broad range of farmers, so enabling the industry to survive is important.

To survive and thrive, there are various aspects that the industry must address. With excess ginning capacity, ginners have strong incentives to undercut each other, competing for cotton from farmers while ignoring the increasing effects on loan recuperation for themselves and their competitors. Since farmers need financing for cotton inputs, industry must find a way to reverse the trend to default, by changing the system within each firm or for the industry as a whole. Farmer organizations provide one way for the industry to reduce its costs and in turn offer better prices and services to cotton farmers. However, it will take great efforts to help mobilize farmers into efficient and commercially-oriented groups, and this may be a useful role for donors and NGOs to support.

A rise in total cotton production will reduce industry processing costs and is likely to result in higher prices for farmers. Achieving production levels more in line with current ginning capacity would reduce ginning costs, which could partially be passed on to farmers in the form of higher prices, which would in turn stimulate even greater production. The long-term trend of decreasing real prices for cotton shows clearly the need to obtain regular and substantial increases in productivity throughout the cotton chain, from input marketing through to ginning and output marketing. In light of scarce resources for public investments in agronomic and seed breeding research and extension services, Zambia faces the challenge of developing some type of self-financing cotton research and extension system, such as a levy.

Various complementary actions must be taken to resolve the loan recovery and productivity problems, including credit and default information systems, and standards and grades for pricing. Overall, the cotton industry needs to determine how to organize the provision of inputs and credit to farmers, as well as the provision of the needed research and extension services. Farmer organizations may assist with the former and with delivery of extension services, although how to assist in the development of farmer organizations remains to be addressed. It may be necessary to use a levy or other mechanism to fund research and development. The role of government and the legal system may be critical for contract enforcement and standards, a role to be assessed by the industry.

### **7.4. Analysis of Agricultural Production Trends**

This broad assessment of crop production trends and developments using available national survey data has identified four key conclusions: 1) evidence of shifts in crop production from maize to other crops; 2) a slight

upward trend in crop production amidst high weather-based fluctuations from one year to the next; 3) some indication that domestic food production expressed in energy terms is holding steady or increasing slightly; and 4) an important association at the household level between land area under cultivation and crop income.

The agricultural sector's performance, when measured in value and energy terms at national level, is not showing a negative trend, but rather a stable, if not slightly increasing one. Hence, the sector may be doing better than the local press and public opinion lead one to believe. However, it is also true that the agricultural sector has not been growing at a level required to pull most rural smallholders out of poverty. There is a pressing need to properly identify the key constraints on small farmer productivity and develop strategies to overcome them.

Public intervention in the agricultural sector has been based on the conventional wisdom that agricultural production could be boosted mainly through improving farm yields. This is demonstrated over the past several decades by the various programs designed to provide smallholders with fertilizer. However, the PHS survey findings indicate that fertilizer distribution subsidies may be an ineffective way to address rural poverty for many poor households that farm too little land to make a difference if fertilizer is applied on their small plots. Preliminary analysis suggests that there is an important link between production and land holding size which means that programs aimed at increasing access to land and area under cultivation may be an important component of boosting agricultural production and overcoming rural poverty.

Other efforts to increase agricultural sector productivity should focus on the commercialization of smallholders through encouraging continued private sector investment especially in the more remote areas, improving market linkages for inputs and outputs, and efficiently channeling public services and commercial transactions by developing demand driven producer organizations. Public investments in transportation and communication infrastructure could make a major contribution to these goals.

Land access, input- and output marketing, as well as farmer organizations are topics of ongoing research in support of agricultural sector planning.

## **7.5. Developments in Public and Private Fertilizer Marketing**

Using 1999/2000 Post Harvest Survey Data and additional rapid appraisal field data, the review found that:

1. Only 20% of smallholder farmers used fertilizer in 1999/2000. These households were relatively better off than households who did not use fertilizer. The government's program was not significantly more likely to deliver fertilizer to poor farmers and remote areas than private firms. The recipients of government-subsidized fertilizer were better off, on average, than those who did not receive the subsidized fertilizer.
2. Evidence suggests that the government programs created an un-level playing field for fertilizer trading and reduced the possibilities for private firms unaffiliated with the government programs to develop and expand the scope and scale of their services.
3. Promoting fertilizer use in areas where its use is not profitable would represent a loss in national income, not the elimination of a constraint to efficient use of fertilizer.
4. Even in the districts where fertilizer use is the highest (e.g., Mazabuka, Chipata, Mkushi), the CSO's national survey data indicate that no more than 50% of small-scale farmers use fertilizer, despite the fact that it is available for purchase or swap by private traders. Small-scale farmers differ considerably in their resources, ability to make investments and take risks, and in their knowledge. These and other resource- and knowledge-related constraints of small-scale farmers (besides the cost of fertilizer) explain why so many do not use fertilizer, despite its availability in relatively "high-potential" and "well-connected" areas. The limited use of fertilizer in Zambia's small-scale farming sector is more complex than simply agro-ecology,

infrastructure, and credit. Identifying these other household-level constraints and overcoming them will raise the value of using fertilizer to farmers and to the nation.

A key role of government is to identify cost-effective strategies to make fertilizer profitable for more of the 80% of small-scale farmers who currently do not use fertilizer. "Cost-effective" strategies are those that, at a minimum, provide a greater value of output than the cost of input. While promoting the profitable use of fertilizer for "resource poor" farmers is important, it must be kept in mind that fertilizer use is not appropriate in areas where the agro-ecology is unsuitable for it. But there appears to be great scope for government to raise the use of fertilizer in Zambia by taking steps to overcome some key constraints that currently limit its profitable use by small-scale farmers. These include:

1. Government should take direct steps to identify the most fertilizer responsive maize varieties for each agro-ecological region of Zambia and proactively support the distribution of these varieties to smallholder farmers.
2. Given that there is a blanket recommendation on fertilizer application levels throughout Zambia, government, in collaboration with the private sector, should develop fertilizer application recommendation domains that are more appropriate to local conditions, and then work with the extension service to publicize improved new recommendation rates to smallholder farmers in each area. Emphasis should also be given to publicizing the benefits of using lime and to provide incentives for the private traders to distribute it.
3. Given that fertilizer prices are sensitive to transportation costs, it is recommended that government should determine where the highest payoffs from increased road and transport investments would occur, and consider making these investments to make fertilizer use by small-scale farmers more profitable. Further investments in rural electrification and communication services are instrumental in the establishment and expansion of existing smallholder cash crop production schemes.
4. Recognizing that well-off and resource poor farmers live side by side, regional targeting might be inappropriate. Government should explore the possibility of having profiles of farmers and promote self-targeting mechanisms on fertilizer programs. To allow self-targeting mechanisms for conferring benefits to resource poor smallholder farmers, government should eliminate the need to administer a costly credit program by replacing it with a program where beneficiaries work for inputs. A "service for work" program may also help government extricate itself from spending resources to recover loans. Relevant experiences need to be studied closely to identify how a "fertilizer for work" program can be designed and implemented.
5. Creating a more level playing field between agents of government programs and non-agent private companies will lead to greater incentives for new entry by other firms and will discourage the potential for non-competitive practices. Government programs should complement and not compete with non-agent private sector.
6. To facilitate effective preparation and planning by the private sector, government should make clear statements backed by consistent action about its ongoing and intended operations in the fertilizer market.
7. To facilitate the smooth exit of government from programs providing fertilizer on credit to smallholder farmers, government needs to specify a plan for phasing out the programs. Clearly stating how long and under what conditions the government plans to continue in the fertilizer business, that is, the length of the transitional phase, could provide more long-term clarity for the sector and would facilitate long-term investment decisions on the part of the private sector.
8. Recognizing that the private sector is not fully exploiting the cash market for fertilizer due to inherent market risks, government should facilitate further reduction of these risks by dissemination of market information, establishing market centers, capacity building of farmer organizations, and by exploring co-financing and risk sharing opportunities with the private sector.
9. To facilitate the smooth passage of fertilizer at ports and borders, it is recommended that government should negotiate for favorable terms for handling Zambia's fertilizer cargo at shipping ports through Joint Permanent Commissions (JPCs) and regional bodies.

## 7.6. Profitability of Fertilizer Use

Based on existing fertilizer trial data and using current input and output prices, the research found that:

1. Inorganic fertilizer use can be profitable on maize and cotton, but often it is not in Zambia. This research indicates that variability and risks can be high if weather and soil and crop management practices do not enable crop responses to the fertilizer. With a market price of 55,000 Kwacha, fertilizer is often unprofitable, except in the best of cases, where weather, soils, and crop management practices combine to give responses. Often on-station researcher trials are seen to be the "best possible results" and there are some high yields. Yet overall, Zambian researchers experience many of the problems and the consequent effects on yields as smallholder farmers do: inputs not available or late, lack of resources for adequate weeding, weather risk, and initial soil fertility constraints. Thus these results may be a reasonable representation of outcome variability in maize and cotton production.
2. Profitability of fertilizer is improved by lowering fertilizer cost or raising crop prices. Two of the policy instruments available have been used in the past to improve the input/output price ratios: 1) to subsidize fertilizer and lower its price; and 2) to subsidize output prices, through marketing boards. Both of these policy instruments have proven costly in Zambia and are not sustainable without government revenues from other sources. In addition, untargeted subsidies may encourage input use where it is not economically viable. Lowering input prices and improving output prices through expansion of markets and greater efficiency of markets may provide greater long-term benefits, by improving the incentives for soil fertility enhancements by the farmers.
3. Improving fertilizer productivity means investments in research and extension, as well as on the farm, particularly in knowledge development. Another policy instrument available that may have longer term benefits is to invest in productivity. This would be through education, research, and extension that enables more farmers to evaluate the most efficient use of his or her resources, getting the best efficiency in resource use, whether that means 6 ton yields with a high dose rate or 3 ton yields with a moderate dose rate. It would also facilitate the farmer to know not only when fertilizers are not the best investment, but when a crop shift or management shift is needed. This is a challenge that researchers, as well as farmers, battle because information is lacking. Extension programs that work with farmers to assess land and labor productivity constraints and how to minimize them would be a productive investment for the country. Extension must be combined with research on issues such as soil acidity and lime. Both extension and research could extend the current suitability mapping to include more economic analysis on crops and crop management practices, with site-specific results.
4. Farmers can and should be able to assess profitability of fertilizers and then make their own choices, given their prices, resources, and returns. Each farmer must be equipped with the information and knowledge to assess the most likely outcome and then decide whether or not to invest in fertilizer purchases. If they invest, they then make the decision on how much to invest, depending on credit availability, productivity, and returns to the investment. If farmers can replace maize purchases late in the season when prices are high with their own maize production, the investment may have high returns. Input/output price ratios can be used as guidelines for comparison to expected response rates. If the I/O price ratio is 4.0, then a farmer who does not expect to get at least 4 kilograms of additional maize or cotton with fertilizer application might be better off investing less in fertilizer and more in other aspects of crop production.

## 7.7. The Role of Markets to Improve Rural and Urban Food Security During Deficit Seasons

In recent years, national maize production has fallen short of typical consumption requirements. Once again in the 2002/03 marketing season, maize will need to be imported to ensure households' access to food. Particularly vulnerable households will require food relief, but the achievement of national food security will also require that

maize meal is accessible at affordable prices to consumers through the market. To the extent that markets can provide affordable food to consumers, the burden and cost of food relief programs can be reduced.

Maize shortfalls are typically met by (1) imports for commercial sale, and (2) imports for free distribution among vulnerable households. The large urban markets in the Copperbelt and Lusaka are met almost exclusively through commercial markets. Food relief distribution takes place mainly in rural areas. Even in drought years, the majority of rural households' residual maize requirements (after exhausting own production) are met through markets. Preliminary analysis suggest that 38%, 45%, and 75% of rural households in Eastern, Southern, and Western provinces are estimated to meet their consumption requirements through the market during the current season (some households even remain maize surplus).

The high proportion of households who are unable to pay for their maize deficit confirms the serious nature of the 2002/03 food crisis in southern parts of Zambia. In the three provinces, some 210,000 households may require food relief of varying degree. On the other hand, in the three provinces some 140,000 rural maize deficit households are estimated to have the purchasing power to buy their maize requirements. Part of that requirement may come from those households who are estimated to have a net maize surplus. In order to reduce the burden of drought relief programs, markets will need to function well so that households with adequate purchasing power can purchase their residual maize requirements at affordable prices.

Hammer mills are found throughout the country and produce mugaiwa, or "straight run" maize meal with no by-product. Until public market supplies reduce towards the end of the marketing season, hammer mills may process as much maize as the industrial mills. All hammer mills provide service milling for customers who bring relatively small maize quantities to be milled. Some hammer mills have also started commercial milling and sell their product to the public. Hammer millers' fees for grinding maize grain into mugaiwa are substantially less than large-scale commercial millers' costs of milling maize into roller and breakfast meal plus the packaging and retailing costs incurred on these kinds of maize meal. Because of this, consumers buying maize grain and milling it into mugaiwa at a local hammer mill pay only about 60 to 80% of the cost of purchasing breakfast or roller meal in retail stores.

Hence, hammer mills are important to many urban and rural consumers' food security. Most rural consumers prefer to satisfy their remaining maize needs by purchasing maize grain and having this grain hammer milled into mugaiwa rather than purchase relatively expensive roller or breakfast meal. Urban consumption of mugaiwa is also known to be important, particularly for low-income consumers. However, during times when the availability of maize grain through the small-scale public market distribution channels is constrained, i.e. when local maize shortages occur, industrial mills have traditionally been able to import maize, or have preferential access to government-imported maize, resulting in a temporary increase of the market share for industrial mealie meal versus hammer meal. These periods usually reflect consumers' temporary inability to procure maize grain due to shortages in local markets. This occurred in 2001/02, following the importation of some 150,000 MT of maize facilitated by Government, channeled exclusively through industrial mills. Low-income consumers were forced to pay a higher price for their maize meal than would have been the case if some imported grain were made available to small traders and consumers. The nutritional value of mugaiwa is superior to industrial meal, and processing efficiency increases total quantity of food available directly to the consumer.

Arranging maize imports in such a way that consumers' access to mugaiwa is protected during years of national shortfalls will result in big cost savings among low-income households. If mugaiwa consumption through the availability of maize grain is to be facilitated, policy interventions should aim at supplying maize grain through the small and medium scale trading, milling, and public market distribution channels during those months of the season when local small-scale supplies normally "dry up". These efforts should not be restricted to large urban centers, and should include the rural maize trade and hammer milling sector. The proposed Crop Marketing Authority may be able to play a useful role in this respect.

## **7.8. The Need for Predictable Government Actions to Make Food Import Markets Work During Deficit Seasons**

Food relief for vulnerable groups is important in times of deficit. For the remainder of the population, well functioning grain markets can save lives during times of food shortfalls. Predictable government behavior in the market can improve markets' ability to meet the needs of consumers.

Using AMIC price data, analysis revealed that past attempts by the government to import maize resulted in temporary market paralysis, due to signals and measures that discouraged many private sector participants to import outstanding import requirements. To ensure that this is not repeated during the 2002/03 marketing season, the following recommendations were made:

1. Import arrangements, either in the form of subsidies for selected market participants or in the form of direct government imports, should only be announced if and when the necessary resources are in place to cover the entire announced import requirement. Uncertainty over government actions in the market will compound the risks that private traders face in importing supplies. A key goal of government is to add stability and clarity to the market, so that traders can respond to opportunities. Clear statements about government intentions backed up by timely action will help in this regard.
2. If Government is uncertain that the required resources will be available to meet its intended import target, it is in the country's interest to encourage private sector imports by clearly announcing the sale of any maize imported by government at full commercial US dollar-based price, covering all import costs. The private sector is unlikely to arrange commercial maize imports to supplement government efforts unless there is a guarantee that government will not sell below commercial market prices. The sale of government imports can be through a series of open tenders with full import cost as the reserve price. The cost to consumers could actually be lower under this approach than if government attempts, and fails, to import and sell sufficient quantities at subsidized rates.
3. If maize import arrangements (subsidized or not) are to benefit consumers, maize grain should not be available exclusively to large mills, but also to small scale traders, hammer mills, and consumers.