

# Fact Sheet • MOZAMBIQUE STUDY

▸ FOOD SECURITY COOPERATIVE AGREEMENT ◀  
between  
▸ U.S. AGENCY FOR INTERNATIONAL DEVELOPMENT/ MOZAMBIQUE MISSION & MICHIGAN STATE UNIVERSITY ◀  
▸ TIME PERIOD: OCTOBER 1990 - OCTOBER 2001<sup>1</sup> ◀

## 1. Cooperating Institutions

Directorate of Economics, Ministry of Agriculture and Fisheries, Mozambique  
Agency for International Development, Mozambique Mission (USAID/Maputo)  
Agency for International Development, Global Bureau, Economic Growth Center, Office of  
Agriculture and Food Security (AID/G/EG/AFS)  
Department of Agricultural Economics, Michigan State University (MSU)

## 2. Researchers Involved

**Ministry of Agriculture:** Director, Directorate of Economics, and Heads, Department of Statistics (DEST) and Department of Policy Analysis (DAP)

**MSU In-Country Researchers:** Duncan H. Boughton - Principal MSU Representative In-Country (effective 1 October 1998), Donald Rose, Ana Paula Manuel dos Santos, Anabela Christina da Conceição Mabota, Pedro Arlindo, Higino Francisco De Marrule, Jose Jaime Jeje, Paulo Mole, and Carlos Jaquissone

**MSU Campus Backstop:** David L. Tschirley and Michael T. Weber; also Julie Howard and Jean-Charles Le Vallee.

**Collaborators:** 50 market enumerators distributed throughout the country's 10 provinces.

## 3. Objective of the Research

Assist the Directorate of Economics in conceptualizing and executing data collection and data analysis activities to monitor the evolution of agricultural input and output markets, evaluate the effects of policy on these markets, and determine the impacts of the resulting market performance on rural smallholder household incomes, food security and broader agricultural productivity.

## 4. Research Approach

Establish and continue to support a national Agricultural Market Information System in the Directorate of Economics. Design this system on the basis of initial rapid market appraisals, then utilize the system as a basis for continued market research. Adjust the design of the system as market research highlights changes in the structure and performance of markets.

Complement this market research with focused rural household, trader, and firm level research evaluating the effects of institutions, technologies, and policies on household incomes, food security and broader agricultural productivity.

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<sup>1</sup> Version of Briefing Sheet: October 1998

## 5. Outputs to Date

### 5.1 Written Outputs

- **Statistical Reports**

**Weekly:** The project produces weekly price tables that are distributed throughout the country within four days of data collection. Government, private sector, and NGOs all receive this information, and several NGOs distribute it to farmers through their extension agents. This same output is carried each week by Mozambique's innovative *MediaFax*, a daily newspaper distributed by FAX.

Other weekly output includes radio reports (nationally and in several provinces), and market briefings for USAID and the U.S. Embassy.

**Monthly:** The project produces a monthly bulletin (*Boletim Mensal de Informação do Mercado*) with a distribution of 1,000 copies throughout the country.

	1991	1992	1993	1994	1995	1996	1997	1998
Jan		X	X	X	X	X	X	X
Feb		X	X	X	X	X	X	X
Mar		X	X	X	X	X	X	X
Apr		X	X	X	X	X	X	X
May		X	X	X	X	X	X	X
Jun	X	X	X	X	X	X	X	X
Jul	X	X	X	X	X	X	X	X
Aug	X	X	X	X	X	X	X	X
Sep	X	X	X	X	X	X	X	X
Oct	X	X	X	X	X	X	X	
Nov	X	X	X	X	X	X	X	
Dec	X	X	X	X	X	X	X	

- **Research Notes (“Flash”)**

*Flash* is a series of short papers, approximately three pages of text and two to three tables or figures, closely focused on issues of relevance for understanding the Mozambican food system. The papers are designed to be read in less than a half hour and to make a limited number of clear points about the issue at hand. Publications to date under this series are:

Regional Trade and the Economic Development of Northern Mozambique, volume 13E, 14 May 1998

Preços mais estáveis, mas ligeiramente mais baixos foi a tônica da última campanha de comercialização de castanha de caju 1997-97 em alguns distritos de Nampula, volume 12P, 5 February 1998

Designing Market-based Approaches to Short and Long-run Emergency Assistance in Africa, volume 11E, 26 September 1997

Uma Abordagem Estratégica Sobre Planificação De Programas De Pesquisa Agrícola Na África Sub-sahariana, volume 10P, 12 June 1997

Uma Breve Análise do Desempenho do Mercado de Castanha de Caju na Última Campanha 1996-7 em Alguns Distritos de Nampula, volume 9P, 27 May 1997

A Disponibilidade Produtos e o Poder de Compra dos Consumidores: Farinhas de Milho e Arroz, volume 8P, 7 July 1997

A Disponibilidade de Produtos e o Poder de Compra dos Consumidores: Grãos de Milho e Arroz, volume 7P, 10 April 1997

Fomentando a Transformação Agrícola e do Sistema Alimentar em África, volume 6P, 23 January 1997

Relato do Sucesso da Segurança Alimentar em Moçambique, volume 2P, 20 September 1996.

O Desafio da Produtividade em Moçambique: Orçamentos Parciais do Algodão, volume 4P, 12 August 1996.

Tendências dos Preços Reais do Grão de Milho Branco no Sul de Moçambique, volume 3P, 27 May 1996.

Mozambique’s Food Security Success Story, volume 2E, 26 April 1996.

A Política de Preços Mínimos: Benefícios para Quem, e a Que Custo? volume 1P, 24 April 1996.

- **Research Reports**

Donald Rose, Paul Strasberg and David Tschirley, “Household Food Consumption in Mozambique: A Case Study of Three Northern Districts”, Research Report No. 32, October 1998.

Jaime Jeje, Calisto Bias, Julie Howard, Paul Strasberg, David Tschirley, Eric Crawford, and Michael Weber, “A Intensificação Agrícola Será Rentável para o Sector Familiar em Moçambique? Uma Avaliação do Subsector de Insumos Agrícolas e do Programa DNER/SG2000 1996/97” ( traduzido do Inglês), Relatório de Pesquisa No. 31P, Outubro de 1998.

Jaime Jeje, Calisto Bias, Julie Howard, Paul Strasberg, David Tschirley, Eric Crawford, and Michael Weber, “Is Agricultural Intensification Profitable for Mozambican Smallholders? An Appraisal of the Inputs Subsector and the 1996/97 DNER/sg2000 Program”, Research Report No. 31, September 1998.

Ana Paula Santos, Anabela Mabote, Pedro Arlindo, Rafael Achicala e Jean Charles Le Vallee. “Séries Históricas dos Preços de Grão de Milho Branco e suas Tendências Reais em Alguns Mercados do País”, Relatório de Pesquisa No. 30, 18 May 1998.

David L. Tschirley. “Preparando para a Seca em Moçambique: Balanceando o Papel da Ajuda Alimentar e Mercados Alimentares”. Relatório de Pesquisa No. 29P (traduzido do Inglês), October 1998

David L. Tschirley. “Planning for Drought in Mozambique: Balancing the Roles of Food Aid and Food Markets”, Research Report No. 29, 30 April 1998

PSA MA/MSU Research Team. “Desafios para Garantir a Concorrência e Reduzir os Custos no Sistema Alimentar de Moçambique”, Research Report No. 28, 13 April 1998

Benfica, Rui, “An Analysis of the Contribution of Micro- and Small Enterprises to Rural Household Income in Central and Northern Mozambique”, M.S. Thesis, Dept. of Agricultural Economics, Michigan State University, (**Reprint**), March 1998

PSA MA/MSU Research Team. “Micro and Small Enterprises in Central and Northern Mozambique: Results of a 1996 Survey”, Research Report No. 27, September 1, 1997

Larson, Donald, “Informação de Mercado Agrícola para o Sector Familiar em Moçambique”, Working Paper No. 26P, 20 June 1997

Larson, Donald, “Agricultural Market Information for Family Farms in Mozambique”, Working Paper No. 26, 20 June 1997

PSA MA/MSU Research Team. “Smallholder Cash-Cropping, Food-Cropping and

Food Security in Northern Mozambique: Summary, Conclusions, and Policy Recommendations”, Working Paper No. 25, June 1997.

Strasberg, Paul, “Smallholder Cash-Cropping, Food-Cropping and Food Security in Northern Mozambique”, Ph.D. Dissertation, Dept. of Agricultural Economics, Michigan State University, Working Paper No. 24 (**Reprint**), 1997

PSA MA/MSU Research Team. “Culturas de Rendimento, Culturas Alimentares e a Segurança Alimentar do Sector Familiar no Norte de Moçambique: Métodos do Estudo”, Working Paper No. 22P, November 1996

PSA MA/MSU Research Team. “Smallholder Cash Cropping, Food Cropping and Food Security in Northern Mozambique: Research Methodology”. Working Paper No. 22, February 1996.

PSA MA/MSU Research Team. “O Sector da Castanha de Caju - Lucros Potenciais Perdidos por Africa?” (**Reimpressão**) Working Paper No. 21, November 1995.

PSA MA/MSU Research Team and Department of Statistics, Ministry of Agriculture. “Diagnóstico da Estrutura, Comportamento e Desempenho dos Mercados Alimentares Rurais de Moçambique”. Working Paper No. 19, 4 de Julho de 1995. PN pending.

PSA MA/MSU Research Team. “Inquerito ao Sector Moageiro de Pequena Escala em Mocambique: Observacoes Metodologicas”. Working Paper No. 20, January 1995.

PSA MA/MSU Equipa de Pesquisa. “Quem Come Milho Amarelo? Alguns Resultados Preliminares de um Inquérito sobre as Preferências do Consumidor de Farinha de Milho na Cidade de Maputo”. Working Paper No. 18P, Novembro 1994.

PSA MA/MSU Research Team. “Who Eats Yellow Maize? Some Preliminary Results of a Survey of Consumer Maize Preferences in Maputo”. Working Paper No. 18, October 1994.

PSA MA/MSU Equipa de Pesquisa. “Padrões de Distribuicao de Terras no Sector Familiar em Mocambique: A Similaridade entre duas Pesquisas Distintas e as Implicacoes para a Definicao de Politicas”. Working Paper No. 17, May 1994. PN ABS 749.

PSA MA/MSU Research Team. “The Evolution of the Rural Economy in Post-War Mozambique: Insights from a Rapid Appraisal in Monapo District of Nampula Province”. Working Paper No. 16, January 1994. PN ABS 371.

PSA MA/MSU Equipa de Pesquisa. “Política de Preços d distribuição da ajuda alimentar de milho amarelo em Mocambique: Uma Análise de alternativas”. Working Paper No. 12P, 25 November 1993. PN ABS 410.

PSA MA/MSU Research Team. “The Pricing and Distribution of Yellow Maize Food Aid in Mozambique: An Analysis of Alternatives”. Working Paper No. 12, October 1993. PN ABS 745.

PSA MA/MSU Research Team. “Determinantes do Rendimento e Consumo Familiar nas Zonas Rurais da Província de Nampula: Implicações para a Segurança Alimentar e as Reformas de Política Agrária”. (Translated from English.) Working Paper No. 6P, August 1993. PN ABS 743.

PSA MA/MSU Research Team. “The Determinants of Household Income and Consumption in Rural Nampula Province: Implications for Food Security and Agricultural Policy Reform”. Working Paper No. 6, August 1993. PN ABS 742.

Ministry of Agriculture/Mozambique. “Mini-SIMA e Análises Específicas: Um Ensaio Aplicado aos Mercados de Maputo”. Working Paper No. 15, July 1993. PN ABS 748.

Ministry of Agriculture/Mozambique. “O Estudo do Mercado de Maputo: Observações Metodológicas”. (Translated from English.) Working Paper No. 9P, June 1993. PN ABS 744.

Ministry of Agriculture/Mozambique. “The Organization, Behavior, and Performance of the Informal Food Marketing System”. Working Paper No. 10, May 1993. PN ABS 411.

Ministry of Agriculture/Mozambique. “The Maputo Market Study: Research Methods”. Working Paper No. 9, March 1993. PN ABS 638.

Dengo, Maria Nita. “Household Expenditure Behavior and Consumption Growth Linkages in Rural Nampula Province, Mozambique”. M.Sc. thesis, Michigan State University (**Reprint**). December 1992. PN ABS 943.

Ministry of Agriculture/Mozambique. “Inquérito ao Sector Familiar da Província de Nampula: Comercialização Agrícola”. Working Paper No. 4, January 1992. PN ABS 738.

Ministry of Agriculture/Mozambique. “A Socio-Economic Survey in the Province de Nampula: Agricultural Marketing in the Smallholder Sector”. (Translated from Portuguese.) Working Paper No. 4E, January 1992. PN ABS 739.

Ministry of Agriculture/Mozambique. “A Socio-Economic Survey in the Province of Nampula: Cotton in the Smallholder Economy”. (Translated from Portuguese.) Working Paper No. 5E, January 1992. PN ABS 740.

Ministry of Agriculture/Mozambique. “A Socio-Economic Survey of the Smallholder Sector in the Province of Nampula: Research Methods”. (Translated from Portuguese.) Working Paper No. 3E, January 1992. PN ABS 737.

Ministry of Agriculture/Mozambique. “Inquérito ao Sector Familiar da Província de Nampula: Observações Metodológicas”. Working Paper No. 3, November 1991. PN ABS 736.

Ministry of Agriculture/Mozambique. “Inquérito ao Sector Familiar da Província de Nampula: O Algodão na Economia Camponesa”. Working Paper No. 5, November 1991. PN ABS 741.

Ministry of Agriculture/Mozambique. “Informing the Process of Agricultural Market Reform in Mozambique: A Progress Report”. Working Paper No. 1, October 1990. PN ABS 734.

Ministério Do Comercio, Departamento De Segurança Alimentar Republic Popular de Moçambique. “Situação Actual da Produção, Consumo e Avaliação Nutricional na Cidade de Nampula - Pesquisa”. Maputo, Agosto de 1990. (The UZ/MAU project contributed computer software and training to facilitate the production of this report.)

Ministry of Agriculture/Mozambique. “A Pilot Agricultural Market Information and Analysis System in Mozambique: Concepts and Methods”. PN ABS 735.

Liedholm, Carl and Donald Mead. Role of Micro enterprises, Small-scale Enterprises: a Profile in *Economic Impact: A Quarterly Review of World Economics*, No. 63 (**Reprint**). Working Paper No.14. PN ABS 746.

Liedholm, Carl and Donald Mead. Pequenas Empresas: Um Perfil em *Economic Impact: A Quarterly Review of World Economics*, No. 63 (**Reprint, translated from English**). Working Paper No.14P. PN ABS 747.

- **Theses**

Mole, Paulo. An Analysis of Cashew Subsector Development Opportunities and Linkages to Food Security. Ph.D. dissertation forthcoming, August 1999.

Benfica, Rui. “An Analysis of the Contribution of Micro- and Small Enterprises to Rural Household Income in Central and Northern Mozambique”, M.S. Thesis, Dept. of Agricultural Economics, Michigan State University, March 1998

Marrule, Higinio. “Land-Poor in a ‘Land-Abundant’ Setting: Unraveling a Paradox in Mozambique”. M.Sc. thesis, Dept. of Agricultural Economics, Michigan State University, March 1998

Strasberg, Paul. “Smallholder Cash Cropping, Food Cropping and Food Security in Northern Mozambique.” Ph.D. dissertation. Dept. of Agricultural Economics, Michigan State University, December 1996.

Donovan, Cynthia. “The Effects of Monetized Yellow Maize Food Aid on Local Maize Prices in Mozambique”. Ph.D. dissertation, February 1996.

Dengo, Maria Nita. Household Expenditure Behavior and Consumption Growth Linkages in Rural Nampula Province, Mozambique. M.Sc. thesis. December 1992. PN ABS 943.

- **Journal Articles**

Tschirley, David, Cynthia Donovan and Michael T. Weber. 1996. Food Aid and Food Markets: Lessons from Mozambique. *Food Policy*, May 1996.

Tschirley, David and Michael T. Weber. 1994. Food Security Strategies Under Extremely Adverse Conditions: The Determinants of Household Income and Consumption in Rural Mozambique. *World Development*, Vol. 22, No. 2 (February). PN ABT 298.

- **Other Publications**

Over 10 articles in *Notícias*, the main daily newspaper in Maputo. These articles have related primarily to market information and analysis, but have also included food security and policy issues.

Five articles in *MediaFax*, a daily fax newspaper, on food security, marketing, and agricultural policy issues.

Two articles in *Tempo*, a monthly news magazine, on food security, marketing, and agricultural policy issues.

PSA/DE/MAP Research Team, “Qual a importancia da informacao do mercado agricola” *Celeiro* No 20, Boletim informativo dos serviços de extensao, Junho de 1998. (*Celeiro* is the national extension service’s monthly bulletin).

Ana Paula Santos “A importancia do mercado para a seguranca alimentar” *Celeiro* No 12, Boletim informativo dos serviços de extensao, Junho de 1996. (*Celeiro* is the national extension service’s monthly bulletin).

## **5.2 Oral Presentations**

- **Progress/Planning Meetings**

Raul Varela, along with Drs. Tschirley and Weber, held a series of meetings with USAID/Maputo and Ministry of Agriculture staff during the period January-April 1995 to develop an extension of the project through the period January 1996 until August 1997.

Dr. Tschirley held a meeting in East Lansing on September 22, 1994 with Jean Paul Chausse and Hilmar Hilmarsson of the World Bank on food markets and

cotton production and marketing. Agreed to collaboration between MSU/AID/WB.

Dr. Weber, along with Raul Varela, held meetings during April 1994 with Ministry of Agriculture and USAID/Maputo about proposed project research and policy dialogue activities to be included in an extension for the period July 1994 through December 1995.

Drs. Tschirley and Weber, along with Raul Varela, held meetings during September 1993 to plan renewed rural and urban research activities and negotiate an extension of the project past December 31, 1993.

Drs. Tschirley and Weber, along with Raul Varela, held a series of meetings with USAID/Maputo personnel during summer 1992, to negotiate a one year extension of the project through December 31, 1993.

- **Research Presentations**

Various seminars to USAID/Maputo officials by Dr. Weber, Dr. Tschirley, and in-country team. Ongoing.

Dr. Tschirley was a member of the panel on trade opportunities in agriculture at the “Final Conference on the SADC Regional Trade Protocol”, Maputo, August 1998

Jaime Jeje, Dr. Tschirley, Dr. Howard presented a paper entitled “Is Agricultural Intensification Profitable for Mozambican Smallholders: An Appraisal of the Inputs Subsector and the 1996/97 DNER/SG2000 Program”, at the International Fertilizer Association Conference held in Maputo, June 1998

Rui Benfica, Higinio de Marrule, Dr. Tschirley, “Algumas Reflexões sobre a Pobreza e as Perspectivas de Crescimento no Sector Rural de Moçambique”. Special seminar presented to Provincial Directors of Agriculture and other Ministry of Agriculture and Fisheries personnel, and Universidade de Eduardo Mondlane, May 1998.

Dr. Tschirley led the agricultural policy group in the PROAGRI appraisal and Dr. Weber participated in several groups during this appraisal, May 1998

Pedro Arlindo presented “O SIMA e a Comercialização Agrícola” in an internal seminar for AMODER, April 1998.

Pedro Arlindo presented “Credito a Micro e Pequenas Empresas em Moçambique” in the national seminar on micro finance, hosted by INDER. April 1998.

Paulo Mole Presented to the members of the cashew working group the research project on “Effects of Policy, Technology and Institutions on

Incentives for Increased Smalholder Cashew Production and Quality in Mozambique”, February, 98.

Paulo Mole presented to the members of the cashew working group the *Flash* on cashew pricing behavior during in the 1996/7 and 1997/8 cashew marketing seasons. February 1998.

Dr. Tschirley prepared an invited paper entitled “Planning for Drought in Mozambique: Balancing the Roles of Food Aid and Food Markets”, for the European Union conference “Markets and Institutions for Food Security”, held 10-12 December 1997 in Brussels.

David Tschirley , Ana Paula Santos, Anabela Mabote and Pedro Arlindo presented “ Sistemas de Mercado e a Comercializacao Agricola” in the module on production and post-harvest systems at the training course for supervisors and rural extensionists, September 1997.

David Tschirley and Ana Paula Santos made a presentation on use of market price information for food security analysis at the regional Food Security and Policy Formulation Course, presented by UEM/IFPRI/SADC. August 1997.

Ana Paula Santos, Anabela Mabote and Pedro Arlindo presented “Analise Grafica de Series Temporais de Preços” in the module on Quantitative Methods in Food Security Analysis, in the regional Food Security and Policy Formulation Course, presented by UEM/IFPRI/SADC. Maputo, July 1997.

Anabela Mabote and Pedro Arlindo presented a talk on SIMA to professors at the Instituto Peagogico de Boane, in a training course for technical school professors. July 1997.

Ana Paula Santos presented “Desafios para Garantir a Concorrencia e Reduzir os Custos no Sistema Alimentar de Moçambique” in the II Technical Seminar for the National Food Security and Nutrition Strategy, July 1997.

Ana Paula Santos presented the section on Food Access of the National Food Security and Nutrition Strategy Paper, at the III Technical Seminar for the National Food Security and Nutrition Strategy, July 1997.

Ana Paula Santos presented “Proposta das Areas de Colaboracao e Contribuicao para o GTC do PSA/DE/MAP”, at the Cashew Working Group meeting on 9 de July 1997.

Dr. Tschirley presented a paper entitled “Patterns of Production and Marketing of Maize in Mozambique: Implications for Regional Trade”, at a regional conference on regional and informal cross border trade, sponsored by USAID, October 1997

Jaime Jeje, Dr. Strasberg, Dr. Tschirley and team, Nampula and Maputo, “Culturas Alimentares e de Rendimento: Como Maximizar os Benefícios para Produtores, Empresas e o País:”, March 1997

Ana Paula Santos, Anabela Mabote, and Pedro Arlindo presented a series of six provincial seminars to provincial and district authorities in Maputo, Gaza, Inhambane, Zambezia, Nampula, and Cabo Delgado provinces, on Food Markets and the Role of Local Officials in a Market Economy, June 1996 April 1997.

Ana Paula Santos presented “Informação sobre Mercados no Sistema de Informação do MAP” in the seminar entitled “New Methodology for Information Gathering in the Agricultural Sector”, April 1997.

Ana Paula Santos made a presentation on SIMA to the fourth year agricultural economics students at Instituto Agrario de Boane, 4 & 6 November 1996.

Ana Paula Santos and Anabela Mabote presented a seminar entitled tema “Estrategias de Segurança Alimentar numa Economia de Mercado” in a short-course for district administrators in the north of the country, in Nacala, Nampula, 9 October 1996.

Drs. Weber and Tschirley and the entire research team made a presentation in the Ministry of Agriculture and Fisheries to national directors, department heads, and analysts. The presentation included material on enterprise budgets for cotton and maize, which launched the project’s effort to examine options for increasing productivity in the Mozambican food system. July 1996.

Ana Paula Santos presented results from our household data set in Northern Mozambique on allocation of women’s and men’s time within the family, at a course on Gender and Development held at the Agricultural Training Center (CFA) in Maputo. May 1996.

Pedro Arlindo presented a paper on Markets and Food Security in an international seminar on Dislocated Populations, Nutrition, and Food Security: Preventive Contributions to Food Security, organized by the International Organization of Women and Ministry of Health. March 1996.

Dr. Tschirley, Paul Strasberg, and the Mozambican team presented a series of mini-seminars in Maputo on preliminary results from the research in Northern Mozambique, entitled Markets, Food Crops, Cash Crops, and Food Security in Mozambique. Participants included the Vice-Minister of Agriculture, several national directors, NGOs, donors, and private sector representatives. March 1996.

The entire team gave presentations on food market behavior and performance at a short course for provincial directors of commerce, sponsored by the Ministry of Commerce in coordination with FAO. February 1996.

Raul Varela and David Tschirley assisted the Ministry of Commerce in preparing materials on marketing and pricing of food products to be presented to a Committee of the Parliament of Mozambique on Domestic Marketing Policy Issues. November and December 1995.

The entire in-country team, David Tschirley and Michael Weber assisted the World Bank in organizing and conducting national policy seminars on maize and cotton subsectors. The team assisted in the up-country workshops on maize in Nampula and Manica, and on cotton in Nampula. The team also participated actively in the workshops in Maputo. November 1995.

Paul Strasberg and Jose Jeje conducted various mini-seminars in Nampula about emerging results from the ongoing surveys among cash crop/food crop smallholders in Nampula and Cabo Delgado. June-November 1995.

Raul Varela, David Tschirley, and Ana Paula Santos conducted three mini-seminars with representatives of government organizations, donors, NGO's and private sector participants on food marketing issues, especially on those in the maize subsector. This was in collaboration with the World Bank office in Maputo, and in preparation for the WB sponsored workshop on maize held in November 1995. Conducted in September 1995.

Raul Varela, Michael Weber and Ana Paula Santos met with Ministry of Commerce and USAID officials to present an updated assessment of maize market behavior and discuss alternative yellow maize pricing strategies. July 1995.

Raul Varela and other in-country team members presented research on food aid, market price effects, and pricing of yellow maize to a meeting organized by the Ministry of Commerce. This brought together food aid consignees, donors, and key government of Mozambique officials interested in Title III maize pricing issues. May 8, 1995.

Michael Weber, Cynthia Donovan and Ana Paula Santos presented research results on the effects of monetized food aid and local purchases of food aid on market prices in Mozambique to a meeting of donors and government officials organized by FAO/WFP. A major objective of this presentation was to call attention to the potential danger of purchasing too much local maize to be used for emergency food aid, and thus placing major upward pressure on maize market prices in the forthcoming 95/96 hungry season. April 1995.

Paul Strasberg and in-country team members presented seminars in each of the three rural household level research areas of Nampula and Cabo Delgado provinces.

Seminars included provincial and local government officials, cotton company officials, and smallholders. January-April 1995.

In-country research team presented three seminars on results from the maize preferences study. Seminars were presented in the Ministry of Agriculture (DEA), USAID, and in selected neighborhoods where the survey was conducted. October and November 1994.

SIMA Research Team presented observations on food aid and food markets in Mozambique to USAID on September 8, 1994. Stress on role of informal sector and its risk-bearing role.

Raul Varela, Paul Strasberg and other in-country team members presented research results on land access in Nampula and comparisons to empirical research results from other Provinces at a national-level conference on land in Mozambique organized by the Ministry of Agriculture and the University of Wisconsin, held on May 25, 26 and 27, 1994.

Raul Varela and other in-country team members presented a series of three seminars to students of Eduardo Mondlane University, Faculty of Agronomy on various dimensions of food security and rural income growth. May 24 and 26, and June 5, 1994.

Raul Varela, Ana Paula Santos, Paul Strasberg and Michael Weber presented a one half day seminar to officials of the Ministry of Agriculture and private sector firms in Nampula on April 27, 1994. This covered results market analysis and the proposed new research on alternative investments and organizational arrangements to spark rural income growth in Northern Mozambique.

The in-country research team presented a seminar on the food aid pricing and distribution policy in Mozambique, December 9 and 10, 1993. Tema: Política de Preços e Distribuicao da ajuda alimentar de milho amarelo em Mocambique: Uma Análise de Aternativas.

Drs. Tschirley and Weber made a presentation to USAID Africa Bureau ARTS/FARA research collaborators workshop on research results and future research priorities in Mozambique, December 1993.

Drs. Tschirley and Weber presented a seminar in Washington, D.C. to the USAID Africa Bureau staff on food aid pricing and distribution policy in Mozambique, December 1993.

Drs. Tschirley and Weber along with the in-country research team presented separate seminars on food aid pricing and distribution policy to the following four groups in Maputo: Donors, traders, researchers at Eduardo Mondlane University, and officials of the Ministry of Commerce, September 1993.

Dr. Tschirley and the in-country research team presented seminars in Nampula province and Maputo city on rural food security strategies and land access issues, during March 1993.

Dr. Tschirley presented a seminar to donors and GOM officials on reform of the food aid distribution system in April 1992.

Dr. Weber and Dr. Tschirley presented a seminar to USAID officials in Washington, D.C. on food aid reform, April 1992.

Dr. Weber presented a seminar on rural and urban research findings of the project at USAID/Maputo Cooperator's Workshop, January 1992.

The in-country research team presented a seminar on results of the Nampula Smallholder Survey in Nampula City in December 1991.

Dr. Weber presented a seminar on food security in Southern Africa to a group of 30 Mozambican analysts and policy makers on October 28, 1989 at Hotel Rovuma, Maputo.

### 5.3 Short Term Training and Collaborative Research Activities

Two regional SIMA meetings, July 1998. Enumerators from throughout the country came together to share experiences of market development and market information collection and learn new techniques for market reporting.

Ana Paula Santos, Anabela Mabota and Rafael Achicala (of DEST) attended a three week training session at MSU in East Lansing on data analysis techniques, entitled “Mozambique - Market Information System and Time Series Data Analysis”. They worked with MSU staff, especially Michael Weber and Jean-Charles Levalle, to revise the programming of SIMA to incorporate new information and formatting, and produced a paper on historical price trends for maize grain in markets throughout the country.

Ana Paula Santos, Anabela Mabota, Pedro Arlindo, Rafael Achicala, and Simão Nhane realized 4 separate training sessions for the establishment of provincial market information systems in the provinces of Manica and Nampula, during September 1997 - June 1998. These sessions included computer training for data processors, and rapid market appraisals and data collection training for field enumerators and supervisors.

Dr. Strasberg and Dr. Tschirley conducted training sessions for *Departamento de Estatística* personnel during November 1997 in data cleaning techniques.

Five Mozambicans from the Ministry of Agriculture and Fisheries participated during September 1997 in a three week short-course on data collection, processing and analysis at Michigan State University. MSU personnel involved were Dr. Weber, Dr. Strasberg and Dr. Rose. Dr. Jaikisan Desai of the World Bank in Washington also participated in this session.

Annual meeting of SIMA enumerators, March 1996. Enumerators listened to and participated in presentations on the evolution of food markets in the country, and analyses of key policy issues such as producer minimum prices.

10 Mozambicans from the Ministry of Agriculture and Fisheries and from the cotton subsector participated during October 1995 in a Mali Study Tour. This activity was arranged an organized study visit to Mali to learn about Malian experience in market information/reform and commodity subsector (and research) reorganization, especially in a key cash crop (cotton) subsector and related food crop subsectors. These are areas of significant positive development in Mali and insights about how they were accomplished are of timely importance to current challenges and opportunities for change in the food system in Mozambique. Five of the participants were funded by the World Bank and five by the PSA-MA/MSU Food Security Project.

One Mozambican staff member of the Statistics Department of the Ministry of Agriculture spent one month at MSU during November 1995. She learned word

processing and SPSS software and participated in writing a report on the rapid appraisal of food markets in Mozambique.

Two Mozambican staff members participated in English Training in South Africa during November 1994.

One Mozambican staff member spent four weeks at MSU during September and October 1994, learning data processing and analysis techniques while analyzing data and writing a report from the project's survey of consumer maize preferences in Maputo.

One Mozambican staff member spent four weeks at MSU during July and August 1994, learning data processing and analysis techniques while analyzing data from the project's survey of small scale millers.

Two Mozambican staff members participated in an English Training workshop held in South Africa, November-December 1993.

One Mozambican analyst received computer training in SPSS at MSU and collaborated with MSU researchers on the analysis of food aid pricing and distribution policy, May 1993.

Four Mozambican analysts participated with Dr. Weber and Dr. David Tschirley in the 1991 and 1992 Annual Conferences of Food Security Research in Southern Africa, sponsored by MSU/University of Zimbabwe.

Five Mozambican analysts participated in the Workshop on Socioeconomic Surveys: Concepts, Applications and Analyses, in Tucson, Arizona, September 16-October 11, 1991.

Three analysts from Mozambique participated in the Food Security Research Design and Data Analysis Short Course conducted at MSU during the month of January 1990.

#### **5.4 Long Term Training**

Pedro Arlindo began his English, Statistics and Economics training at Boulder in September 1998. He will begin course work for his M.S. in Agricultural Economics at MSU in January 1999.

Rui Benfica finished his M.S. degree training in Agricultural Economics at MSU in February 1997 (Atlas Program Funding)

Higino de Marrule completed his M.S. degree at MSU in May 1998. (Atlas Program Funding)

Paulo Mole began his Ph.D. degree at MSU during Fall term 1994. (Atlas Program Funding)

Maria Nita Dengo completed her M.Sc. in Agricultural Economics in December 1992, and returned to Mozambique. She is currently working within the Ministry of Agriculture.

## **5.5 MSU Backstop Trips to In-Country Team**

September 1998: Weber trip to a) work with Rose and Mozambican team members in institutionalization of new Policy Analysis Department, b) work with Benfica and Marrule in finalizing project publications on cashew in the smallholder economy.

June 1998: Howard trip to present research findings from FY 97 research to USAID/Mozambique, SG2000 and the International Fertilizer Association meetings in Maputo; and work with FSP, DNER and SG2000 staff to design and begin to implement a follow-up survey with SG2000 participants. Also, develop a format for data entry and help train and supervise data entry personnel.

May 1998: Weber trip to work with Tschirley, project staff, and USAID/Mozambique officials on the joint MAP/Donor appraisal of Proagri.

March 1998: Strasberg trip to work with DE/DEST staff to produce final statistical compendium and methodological report on TIA96.

February 1998: Trip by Jean-Charles Levallee to work with Tschirley and the Mozambican team on SPSS programming for the redesign of SIMA.

October/November 1997: Strasberg trip to assist DE/DEST in processing and analysis of TIA96 data.

June 1997: Strasberg trip to a) disseminate key findings related to project research results on the relationship between cash cropping, food cropping, and food security in Northern Mozambique, and b) collaborate with DE/DEST staff to produce a preliminary report with TIA96 data.

May/June 1997: Howard trip to 1) help supervise data collection for SG2000 survey and prepare data for entry/cleaning at MSU, 2) work with FSP staff to carry out interviews with key informants, collect secondary data, and begin drafting report for the rapid appraisal of seed, fertilizer and pesticide subsectors.

May 1997: Weber trip to assist team with maize productivity data collection.

March 1997: Howard trip to 1) Participate in a national workshop organized by SG2000, and 2) Meet with officials from the Ministry of Agriculture, SG2000, and

other NGOs to explore possible future collaborative research to analyze the financial and economic impact of technology being tested in on-farm demonstrations.

December 1996: Strasberg trip to work with Tschirley and Mozambican team members on cleaning and analysis of 24-hour consumption recall data.

November 1995: Weber trip to participate in project's collaborative efforts with the World Bank and the Ministry of Agriculture to conduct seminars on results of the studies of maize and cotton subsectors.

October 1995: Tschirley moves full-time to Mozambique to intensify the research and outreach effort of the project.

August 1995: Tschirley trip to assist team (and collaborate with the World Bank) in conducting mini-seminars on maize subsector research results and to assist the Nampula team in research implementation and data analysis.

June-July 1995: Weber trip to review progress on the market information system changes, to conduct food aid and maize market analysis updates and to assist the team in Northern Mozambique on implementation of the producer surveys.

June-August 1995: Paulo Mole (Mozambican Ph.D. student at MSU) trip to assist the in-country team to begin developing background information and undertake preliminary rapid appraisals on the cashew subsector.

May 1995: Tschirley trip to follow up on design and implementation of new producer price collection and to assist in-country team during training of market enumerators.

April 1995: Weber and Donovan trip to start pilot design of producer price collection for food market study.

January 1995: Tschirley trip to Nampula to help implement 2nd round of household data collection.

August-September 1994: Weber and Tschirley trip to help plan three seminars on Nampula work and plan with Ministry and USAID future collaborative research.

June 1994: Tschirley trip to assist in training of enumerators for first round of Nampula household data collection.

April 1994: Weber trip to assist local team in start-up research design and implementation activities in Nampula, and to dialogue with Ministry of Agriculture and USAID on future food security research needs.

March 1994: Strasberg trip to begin assisting local team in start-up of new farm level research activities in Nampula Province.

January 1994: Tschirley and Strasberg trip to present Rapid Appraisal report, consult with Ministry of Commerce and USAID on food aid policy reforms, and plan future research with Ministry of Agriculture and USAID.

September 1993: Tschirley and Weber trip to a) present results of food aid pricing and distribution study and b) finalize discussions with Mission regarding continued research and policy dialogue activities of the project.

August 1993: Strasberg trip to conduct rural household and rural market rapid appraisal, in preparation for launching renewed research program in late 1993.

July 1993: Weber trip to backstop Donovan in food aid study.

June-July 1993: Donovan trip to begin study of food aid pricing and distribution.

March/April 1993: Tschirley trip to present a) preliminary results from Maputo Market Study, b) further food security and land access results from Nampula Family Sector Household Survey, and c) begin discussions with mission regarding future research and policy dialogue activities.

September 1992: Tschirley trip to finalize Maputo Market Study.

July 1992: Weber trip to backstop Donovan and Strasberg in Maputo Market Study.

June-August 1992: Trip by graduate students Cynthia Donovan and Paul Strasberg to continue Maputo Market Study.

June 1992: Tschirley trip to launch Maputo Market Study.

April 1992: Tschirley trip to plan Maputo Market Study.

November 1991: Tschirley, Weber, and Fox (UA) trip to a) participate with project personnel in Seventh Annual Food Security Research in Southern Africa Conference, in Victoria Falls, Zimbabwe, and b) present preliminary findings from the Nampula Family Sector Household Survey in Maputo.

June-August 1991: Tschirley, Weber, Finan (UA), and Langworthy (UA) trips to a) finalize the launching of the SIMA, b) finalize questionnaires and logistics for Nampula Family Sector Household Survey, and c) conduct Nampula Family Sector Household Survey.

March/April 1991: Tschirley, Finan (UA) trip to a) continue development of SIMA and b) further plan the rural data collection efforts.

January/February 1991: Langworthy (UA) trip to continue development of SIMA.

January 1991: Weber trip to continue development of SIMA.

October/November 1990: Tschirley, Weber, Finan (UA) trip to begin planning field research activities and pilot market information system (SIMA).

## 5.6 Examples of Impact of Project Findings/Information

The project has been recognized as the primary source of information on food markets, marketing and food security in the country, and its information and analyses are widely solicited. Project team members' time is in constant demand for consultation with government officials, donors, and researchers.

Official recognition of the project's efforts has been shown in several ways. First, MAP has adopted SIMA as its official source of information on agricultural markets; DE/DEST personnel have been assigned to work on SIMA, and the system is being formally incorporated into the Ministry's bureaucratic structure. Second, the project's *provincial SIMA* initiative has been adopted by DE, and to date two provincial SIMAs have been launched (in Manica and Nampula provinces) as official efforts of the Provincial Directorates of Agriculture. Third, the National Agricultural Research Institute (INIA) in early 1998 requested project assistance to integrate it into CIMMYT's *Maize and Wheat Improvement Research Network* (MWIRNET). As a result a project employee is the official INIA representative in this network, coordinating CIMMYT's support to agricultural productivity research in Mozambique. Fourth, MAP requested the project's assistance in the area of policy analysis during the joint MAP/Donor Proagri appraisal in May 1998. Project personnel played a leadership role in coordinating the Proagri sessions on developing policy analysis capacity in MAP, and have been at the center of creating a new Policy Analysis Department in DE since that time. Fifth, MAP requested in late 1997 that the project fill one of the Ministry's positions on the *Cashew Working Group*, due to its work on smallholder level cashew production and marketing. Finally, in mid-1997 the Ministry of Industry, Trade and Tourism (MICTUR) requested the project's assistance in organizing a study and seminar regarding the future of ICM, the cereals marketing parastatal. Project personnel worked closely with MICTUR to select the consultants, provided the consultants with field assistance and market data from SIMA, and assisted in organizing the national level seminar. The conclusions of that seminar stand as current official government policy on agricultural marketing in the country. Finally,

The project is seen as a leader in Mozambique in demonstrating innovation in organizing and implementing applied research and policy dialogue activities. The cooperative effort with the World Bank during 1994 and 1995 to conduct studies and policy dialogue on maize and cotton subsector organization and policy is a good example of this. The joint product/in-service training approach was adopted. It resulted in having PSA-MA/MSU staff cooperate closely with World Bank consultants. This assisted in getting more Mozambican involvement in the studies, in using considerable empirical data on Mozambique in the analysis, in publishing more output in Portuguese and in holding mini-workshops in Maputo and up-country workshops prior to having the major policy seminars in Maputo. The end result was

that the studies and the participatory policy dialogue process were well received by the Mozambican technical and policy maker community.

During the period of heavy food aid dependency in Mozambique, project seminars and reports on yellow maize food aid pricing and distribution policy made recommendations that were incorporated by USAID/Maputo, the Government of Mozambique, and other donors into policy changes for their food aid programs. This included major price increases on yellow maize for the 1995-96 marketing period.

The project's work on rural food security has also earned it a reputation for careful, in-depth analysis of key issues such as smallholder land access, the effects of cotton growing on smallholder incomes and consumption, and the food security status of smallholders. The project's input was solicited by the government in September 1992, during a series of meetings meant to better define its agricultural strategy.

The project was officially commended by the USAID/Maputo Program Officer in Spring 1992, for outstanding research and timely and effective use of research results in support of policy and programming decisions by the Mission and the Government of Mozambique.

## **5.7 Surveys Undertaken**

Ongoing weekly SIMA surveys (price and wholesale stocks and flows) in 25 locations of all ten provinces.

Follow-up survey in Nampula province during June-July 1998 evaluating the issue of land access in the smallholder sector. This effort built on previous work by collecting quantitative data on the size of traditional matrilineal land units, the clan the household belongs to, and household land holdings to attempt better to explain the reasons for limited land access among some households.

Collaboration with USAID-funded NGOs in the first round of an income proxy survey during June 1998. The second and final round will be conducted in November 1998. This effort is designed to allow NGOs in out-years to provide USAID with quantitative estimates of household income in their target areas while limiting their data collection to “proxy variables” which are relatively easy to observe and process.

Focused surveys of cropping systems in selected cashew growing areas of Nampula province during 1998. These data, when combined with existing project data on cotton, maize, manioc and non-farm economic activities, will allow the development of a model to evaluate the incentives for smallholder farmers to adopt improved cashew production technologies. The attractiveness of these technologies will be evaluated in relative to other agricultural and non-agricultural income earning opportunities open to these households.

Two surveys evaluating alternative approaches to increasing productivity of maize. In May-June 1997, the team collaborated with the Provincial Rural Extension Services in Manica and Nampula provinces to collect labor allocation, field size and yield data from farmers participating in a Rural Extension/SG2000 program encouraging the use of improved seeds, fertilizer, and improved agronomic practices in maize. This work was the basis for economic and financial analyses of the profitability of intensified maize production under this program. In June 1998 a similar survey was conducted in Nampula province of SG2000 farmers, farmers adopting only the official extension package (which omits fertilizer), and farmers not reached by extension. This survey will be used for comparative financial and economic analyses of the three technological packages.

Quantitative and qualitative data collection during early 1997 in areas of Nampula and Cabo Delgado provinces to examine more closely the issue of land-poor households. This collection contributed to Higinio de Marrule’s M.S. thesis on the same topic. Selected villages and households surveyed during the 1994-95 field work were revisited, key data on income and land holdings were confirmed, and additional information was collected to evaluate the reasons for the existence of land-poor households in an apparently land-abundant setting.

Collaboration with the Statistics Department, Directorate of Economics, Ministry of Agriculture and Fisheries, on the 1996 agricultural survey (TIA96). The project added a micro and small enterprise module to this survey in the four most populous provinces of the country. This MSE survey was also conducted in urban in November and December 1996; it was the first representative survey of MSE activities ever conducted in Mozambique.

Collaboration with the University of Wisconsin land tenure project working in Northern Mozambique on household surveys in Nampula and Cabo Delgado. This collaboration occurred during January and February 1996, and will result in both LTC and MSU having access to a broader range of data for improved food security analysis.

Collaboration with CARE International on a household survey in selected districts of Nampula Province where the CARE Oilseeds Project is operating. CARE resources were used primarily for the field work in March 1995 and PSA-MSU resources were added to conduct a second round of the survey in July and August 1995.

Rapid appraisal surveys of rural food markets in several locations of the south, center, and north of the country, August-September 1994. This survey systematically evaluated the evolution of rural food markets since the Peace Accords of 1992.

Village and Household Surveys in Nampula and Cabo Delgado Provinces to examine the household income and food security effects of cotton production. Fieldwork began in May 1994 and terminated in January 1995.

Survey of Maize Milling Establishments in SIMA market collection locations throughout Mozambique, May 1994.

Maize Preferences Survey, a random sample of 400 consumers in the City of Maputo, March and April 1994. This survey evaluated the price changes that would induce low-income urban households to switch from refined to cheaper whole maize meals, and from white to the cheaper yellow maize grain.

Rapid Appraisal in Monapo District of Nampula Province, focusing on changes in household mobility and access to land since the ending of the war in October 1992. September 1993.

Maputo Market Study, July/August 1992. A series of data collection activities involving the informal food marketing sector in Maputo.

Nampula Family Sector Household Survey, July/August 1991. 343 rural households in 15 villages of three districts of Nampula province.

## 6. General Research Activities

### 6.1 Prior to 1992 Peace Accords

Research activities prior to the ending of the civil war included a) rural food security research (the Nampula Family Sector Household Survey, b) research on the organization, behavior, and performance of urban food markets, and c) analysis of the effects of food aid on urban markets. The rural research addressed issues such as the determinants of income and consumption of smallholders, the role of cash cropping (primarily cotton) in smallholder food security strategies, and the performance of rural markets at the household level. Key findings highlighted the extensive failure of rural food and labor markets, the surprisingly unequal access to land among surveyed smallholders, and the extremely vulnerable position of most of those households with small amounts of land.

The urban food market research focused primarily on the informal food marketing sector in Maputo City, and its extension into the southern three provinces of the country (Maputo, Gaza, and Inhambane). Trader behavior and system performance were analyzed. Key findings were that the informal food marketing system is efficient in the sense that margins were generally in line with costs and profits were low. It was found that the sector was growing rapidly and increasingly integrating the southern portion of the country into a single food market. However, results also showed that the system was extremely small-scale, that rapid entry and exit of traders inhibited the accumulation of knowledge for improving the system, and that prices were highly volatile.

The food aid research analyzed how the programming, pricing and distribution of commercial food aid, and the programming and distribution of emergency food aid affected consumers and the informal food marketing system in Maputo, and producers in southern areas of the country. Alternatives for the programming, pricing, and distribution of commercial food aid were proposed to and adopted by USAID/Mozambique and the Ministry of Industry, Trade and Tourism.

### 6.2 Since 1992 Peace Accords

Research since the ending of the hostilities has integrated the rural and urban work through a subsector approach emphasizing maize and cash crops. The rapid appraisal of rural food markets in 1994 represented the first systematic examination of rural food markets in the country. The small-scale miller survey and consumer maize preferences survey added processing and consumer level dimensions to the research. Together, this research has shown that the rural food marketing system is expanding rapidly, reaching even remote areas of the north during years of regional deficit to supply central and southern cities; that the small-scale milling sector is likewise expanding vigorously; and that poor urban consumers are quite price sensitive, switching readily to yellow maize or whole meals as these are discounted relative to white maize and refined meals. The research continues to show as well that the food

marketing system for domestic consumption is very small-scale and, though economically efficient, suffers from high costs of operation, price volatility, and low returns to most traders.

The rural household research conducted during 1994/95 in Nampula and Cabo Delgado provinces showed that cotton farmers who were otherwise similar to non-cotton farmers generally enjoyed higher per capita incomes and larger hungry season food reserves; these results were most accentuated when farmers used fertilizer on cotton. In this latter case, cotton farmers achieved mean **maize** yields approximately 50% above those of non-cotton farmers, despite using similar technology in maize production. Smallholder cotton production in outgrower schemes was shown to be financially profitable for the participating smallholders and the contracting companies under a range of domestic and international price scenarios. It was also shown to be economically profitable for the country, and all these results were found to be stronger when cotton was produced using fertilizer. In short, these results demonstrate the positive income and food security effects of cotton cultivation in the north of the country and highlight the important role played by fertilizer; by implication, the results suggest reason for concern due to the very limited use of fertilizer on this crop and in Mozambican agriculture in general.

Results of this research lead to a closer examination of productivity issues in Mozambican agriculture, especially for maize in northern and central provinces. In collaboration with the National Directorate for Rural Extension (DNER) and SG2000, the project has evaluated the financial and economic profitability of intensified maize production. This research in 1997 showed that, under current conditions, such intensification can be highly profitable *if* export markets are functioning and the farmers apply the package appropriately. If either of these conditions are not satisfied, a majority of farmers suffer financial losses from the package. The key importance of targeting the technology to the most capable farmers and most promising agroecological zones while ensuring loan repayment by participating farmers (to avoid creating an attitude of strategic default), has been highlighted by this work. Future work will compare the economic and financial results of intensification with alternative, less intensified approaches to maize production.

Research on land access initially showed a surprising degree of inequality in land holdings within the smallholder sector; combining these data with data on cashew tree holdings and cultivation has shown 1) a similar concentration in this productive asset, and 2) a strong positive association between land holdings and cashew holdings and production. This research has thus identified a subset of smallholders who, though still poor by most standards, have access to more land, are more likely to hold cashew trees, and hold more trees on average than other farmers. These relatively favored farmers may be in a position to respond more actively and successfully to efforts to intensify agricultural production. Thus, this sector needs to be examined carefully in any strategy to increase growth in rural areas of Mozambique.

Using the *Flash* series, the project has intensified its effort to produce policy-relevant and easily digested analyses for decision makers among government and donors.

Topics investigated have included the minimum pricing policy, food aid policy in responding to droughts, regional trade and its effects on economic development in the north of the country, and others.

### **6.3 Since May 1998 Proagri Appraisal**

Project activities since the Proagri appraisal have focused on institutionalizing market information and policy analysis capacity within MAP. MAP will draw on the project's approach to identifying research themes and conducting the data collection, analysis, report writing and policy dialogue, to strengthen its data collection and, especially, policy analysis capacity.

## **7. Outputs Anticipated**

### **7.1 Research Reports and *Flashes***

Papers examining land access in the smallholder sector, tying inequality at the household level to stratification within the local societies, and both to variability in household incomes and consumption.

Papers quantifying the relationship between household income and wealth, and relatively easily observed proxy variables; these papers will suggest ways in which rural welfare can be monitored in a relatively cost-effective manner.

Papers comparing the economic and financial profitability of alternative maize production technologies, from traditional to packages using improved seeds, fertilizer, and improved agronomic practices. These papers will also evaluate the effectiveness of Rural Group Enterprises (sometimes referred to as farmer associations) in better coordinating delivery of inputs and extension assistance, and in improving marketing opportunities and prices received.

Papers examining the role of cashew in smallholder income and food security strategies, and the incentives for adoption of improved cashew production technologies.

### **7.2 Journal Articles**

Journal article writing will focus on the issues of land access, maize productivity, and methodological issues of measuring and analyzing household income and consumption and the relationship between these.