



**MINAG**  
IIAM DE

**MICHIGAN STATE  
UNIVERSITY**



**USAID**  
FROM THE AMERICAN PEOPLE

## **Strengthening Mozambican Capacity for Agricultural Productivity Growth, Policy Analysis, and Poverty Reduction**

### **Quarterly Project Narrative Report - FY11 (Q1) October 1 – December 31, 2010 Mozambique Associate Award / Food Security III LWA CA (656-A-00-04-00058-00)**



## Contents

---

1.	Introduction.....	1
2.	Objective 1: To assist MINAG in building institutional capacity to raise smallholder productivity and income through improved technology, markets and policies .....	1
2.1.	<b>Agriculture/nutrition linkages and gender</b> .....	1
2.2.	<b>CAADP</b> .....	2
2.3.	<b>Modernization of SIMA data system</b> .....	2
2.4.	<b>Outreach and Promotion of Policy Debates</b> .....	3
2.5.	<b>Other activities contributing to strengthening DE capacity to provide supportive policy environment</b> .....	3
3.	Objective 2: To strengthen market research and production technology development and transfer by MINAG and IIAM .....	3
3.1.	<b>Sub-sector and value chain analysis for selected commodities</b> .....	3
	3.1.1.Charcoal value chain .....	3
	3.1.2.Irish potato value chain .....	4
	3.1.3.Cassava.....	4
	3.1.4.Broilers.....	4
	3.1.5.Cotton.....	4
	3.1.6.Cashew .....	4
	3.2.Other IIAM activities .....	4
4.	Objective 3: To Strengthen of Human Resource Capacity in MINAG and IIAM.....	5
4.1.	<b>Graduate training</b> .....	5
4.2.	<b>In-service training</b> .....	5
5.	Assistance to USAID-Mozambique and Title II partners to measure program impacts using Income Proxy Method.....	5
6.	Additional USAID funded activities.....	5
6.1.	<b>Pulse CRSP</b> .....	5
7.	Activities of MSU staff in Mozambique under Food Security Group, with additional external funding .....	6
7.1.	<b>MCC/MCA</b> .....	7
	Annexes to Q1/FY2011 Report .....	8
	Annex 1: Agenda da Formacao sobre Mercados e Preços .....	9
	Annex 2: Annex 2: Kim Chung Trip Report from October 2010 Travel .....	10
	Annex 3: Website additions .....	28
	Annex 4: Mozambique CAADP webpage .....	28

## Introduction

After the Maputo demonstrations in September 2010, President Guebuza decided to make some changes in leadership and a new Minister of Agriculture, Jose Pacheco, began work on Oct. 12, 2010. A former Vice-Minister of Agriculture, Minister Pacheco is known to the leadership of MINAG and comes from the Ministry of the Interior. Having a new Minister will mean some delays in decision-making as the Minister is briefed and begins demonstrating his style of leadership and his ideas for agricultural sector development. The new Minister came into office when the draft document of Strategic Plan for the Agricultural Sector (PEDSA) was ready to be presented for discussion at the Economic Council before submission to the Council of Ministers. Arrangements for the launch of the CAADP process were at advanced stage.

It was also during this period that the Action Plan for Poverty Reduction (PARP) was being prepared after the Third National Poverty Assessment report (MPD, 2010) was released. The Poverty Assessment report indicated that consumption poverty in 2008/9 period did not decrease and in the case of rural areas the head count index increased from 55.3% in 2002/3 to 56.9% in 2008/9. The status of child malnutrition also did not change much since 2002/3 period. Among the factors cited for lack of progress in poverty reduction is the very slow growth rate in agricultural productivity.

MSU and MOZ-SAKSS have supported DE to keep the CAADP process on track and provided input in preparation of PARP. MSU staff in collaboration with IFPRI has also assisted in clarifying the poverty assessment results to the PROAGRI donor group.

The following activities were planned and implemented for this quarter:

- Contributions to the CAADP process
- Training of SIMA, CESE, and DE staff on markets and price analysis
- Progress on value chain reports with IIAM/CESE
- Continued collection of horticultural market information with SIMA with view to eventual institutionalization
- TDY by Kim Chung to work with local MSU staff and other Mozambican collaborators on review of work at interface of agriculture and nutrition
- Analysis of factors determining adoption of conservation farming technology in Tete province
- INCPROX survey implemented
- Support to DE on TIA documentation and TIA staff attached to Agricultural Census (CAP)

The rest of this report for the first quarter of FY 2011 is organized by project objective. The activities were conducted during the period October 1 to December 31, 2010.

1. Objective 1: To assist MINAG in building institutional capacity to raise smallholder productivity and income through improved technology, markets and policies

### 1.1. Agriculture/nutrition linkages and gender

Jaquelino Massingue joined the MSU team to work on agriculture and nutrition issues part time while he finished his thesis on orange-fleshed sweet potatoes for the University of Greenwich, UK. Dr. Kim Chung, with extensive experience in nutrition and food security issues, as well as community extension programs, is an associate professor at Michigan State University. Donovan and Massingue coordinated Chung's travel to Mozambique, including a field trip to Nampula province and discussions with Ministry of Health, Ministry of Agriculture, SETSAN, various UN agencies, non-governmental organizations and others. She worked with the local MSU team to identify opportunities for research and policy recommendations. Her trip report (finalized in Q2) is annexed here.

Related to this, Donovan attended the Oct 20th workshop by SETSAN with CARE on vulnerability in the south, cost of diet in selected locations, and other aspects related to food security and nutrition.

## 1.2. CAADP

The CAADP process was officially launched in Mozambique on December 13 by the Prime Minister of Mozambique. The launching ceremony was attended by the Minister of Agriculture, Vice Minister of Finance, senior officials from various ministries, key development partners supporting the agricultural sector, farmer organizations, non-governmental organizations, universities, NEPAD, SADC, and others. The Prime Minister recognized that agricultural sector performance is still unsatisfactory and that Mozambique is behind in fulfilling its commitment to increase public expenditure to agriculture to at least 10% of the total public expenditure and reiterated the government commitment to achieve the target within the current mandate. He also indicated government commitment to the CAADP process and emphasized the need to honor timeline proposed for the signing of the Compact in April 2011. The representative of development partners supporting agriculture emphasized on the urgency of having the PEDSA concluded and approved, as it provides the base for the CAADP process. With the end of ProAgri II, PEDSA is also need to provide donors with guidance on government priorities and actions.

The CAADP Country Team benefited from two trainings during this period, with strong MSU/IFPRI collaboration working with the consultant hired by MozSAKSS. The training was intended to contribute in building the capacity of the team in the implementation of the CAADP process. The training was divided into two separate sessions. Session one familiarized the team members with PEDSA and CAADP process and session two dealt with issues of implementation of the CAADP process. Gilead Mlay prepared the program for session I and together with Helder Gemo of MozSAKSS oriented the session on the CAADP framework while Director Victorino presented the PEDSA. The Ministry of Health was successfully brought into the process with a nutritionist as a member of the CAADP Country Team.

During this quarter, at the request of MINAG, MSU's Donovan began to populate a Mozambique CAADP website with government strategies, CAADP documents from Mozambique and elsewhere, links to important sites, and a limited number of relevant research reports. More information can be found on the MSU-based Mozambique [CAADP website](#).

The roadmap for the CAADP process was further elaborated during this period with input from Martin Bwalya of NEPAD, the consultant hired by IFPRI and the Country Team. The consultant produced a draft roadmap which is awaiting final review and approval by the country team.

## 1.3. Modernization of SIMA data system

INE and SIMA have worked with SISLOG to develop a new set of appropriate four digit codes for the locations and commodities of SIMA. These codes will be the basis for the SMS messaging system for diffusion of SIMA information as well as for improved data collection systems to be developed in the next two quarters. There were other developments in SIMA during this period. The Minister of Science and Technology called SIMA (MINAG) and INFOCOM (MIC) along with Vodacom for a meeting on development of systems for SMS dissemination of market information for the agricultural sector. This began a round of dialogue between SIMA, INFOCOM, and ICM on the roles of the two systems and potential for collaboration instead of duplication. FAO and PROMER staff were also involved in the discussions on how to get local information systems moving forward. An FAO project was discussed that was going to work solely with MIC, and Donovan helped work with FAO's Carlos da Silva to promote linkages between MIC and MINAG on market information systems. The key issue was work at the district level and the potential for duplication of efforts and confusion for the District Economic Services officers.

Cynthia Donovan and SIMA's Fazila Gomes were invited to an IFDC meeting in Quelimane on the development of information systems for agricultural inputs, linked to IFDC's work with trader networks. There was discussion of including a table in the Quente Quente bulletin on input prices and availability. Concerns were raised about how to have a representative sample as well as reliability in reporting for the system to distribute accurate information for farmers and farmer associations. SIMA agreed to work with them on developing information to distribute, at least a table that would be clearly labeled as coming from IFDC or trader group.

David Tschirley initiated discussions during November with CEPAGRI regarding collaboration with SIMA on horticultural market information. Because CEPAGRI has an explicit mandate to liaise with private sector, has greater budgetary and operational flexibility, and is actively involved in the horticultural sector, collaboration between the two organizations has long been thought desirable. After Tschirley's initial discussions with Roberto Albino, followed by meetings between CEPAGRI and SIMA staff, Director Xavier took-up the issue and has been further pursuing formalized collaboration. We anticipate that during the first half of 2011 this collaboration will have been agreed and will have begun in practice.

#### 1.4. Outreach and Promotion of Policy Debates

Donovan and Mlay participated in various meetings throughout the period. Donovan briefed a GAO team on the monetization report conclusions from the previous quarter. She also met with the team evaluating the Few's Net program in Mozambique and linkages with market information and policy analysis.

Mlay participated in a on roundtable dialogue on CAADP and climate change organized by FARNPRAN- Mozambique node. This provided an opportunity to inform participants on progress made on CAADP in Mozambique and also to obtain information about the support FARNPAN provides to the process. Mlay, as a member of the "Observatorio sobre o Meio Rural" (rural observatory) participated in various sessions of the observatory. The observatory was recently created and is intended to provide a platform for evidence based debates and evaluation of the performance of rural economy of Mozambique.

#### 1.5. Other activities contributing to strengthening DE capacity to provide supportive policy environment

Chung's visit in October resulted in extensive interaction with Mozambican and U.S. cooperating partners on issues of agriculture-nutrition linkages, as the first step in designing a research agenda in this area and developing ideas for inclusion in PEDSA as well as CAADP, under Pillar III.

Based on a request from the National Directorate of Agricultural Services (DNSA), SIMA approved including the Agro-Meteorological Bulletins of the Early Warning System (Aviso Previo) on the SIMA website, currently maintained with MSU assistance. See [www.sima.minag.org.mz](http://www.sima.minag.org.mz).

## 2. Objective 2: To strengthen market research and production technology development and transfer by MINAG and IIAM

### 2.1. Sub-sector and value chain analysis for selected commodities

MSU staff is involved in supporting CESE and DE staff in various value chain studies.

#### 2.1.1. Charcoal value chain

The study was conducted by CESE staff in the production in Gaza Province (Mabalane District) and in wholesale and retail markets in Maputo city. The preliminary results indicate that the gross marketing margin is about 69%; about 15.4% goes to retailers and the other 53.8% to wholesalers.

The high % of the marketing margin going to wholesalers is mainly due to transport costs. Analysis of profitability along the value chain indicates that the profit margin is highest to charcoal makers followed by wholesalers and finally retailers. It is expected that the analysis and write-up will be concluded in Q2.

#### 2.1.2. Irish potato value chain

The study's main objective is to evaluate the competitiveness of the Irish potato value chain in southern Mozambique. South Africa provides most of the Irish potatoes for this region of Mozambique. Fieldwork was conducted in Moamba, and in the Zimpeto wholesale market and other retail markets in Maputo. Financial analysis based on enterprise budgets has been completed and presently the CESE analyst is working on the economic analysis. The analysis is expected to be concluded in Q2.

#### 2.1.3. Cassava

Various studies are on-going which include a component of profitability. Under the STABEX project CESE initiated a study in the provinces of Nampula and Inhambane. The field work was concluded at the end of Q1 and analysis will commence in mid Q2 because of holidays. A diagnostic study on the production, processing and marketing of Cassava in the Province of Zambezia contains a component of profitability of cassava production and marketing. The report is being finalized by the IIAM team with input from MSU in reviewing the draft report. There is additional work on cassava under MSU's GISAMA project.

#### 2.1.4. Broilers

The broiler study has been concluded, and the preliminary report has been reviewed internally and will be available on IIAM website after clearance by IIAM. It demonstrates that the broiler production systems at the University farm are profitable and meet international standards for bird growth and feed conversion factors.

#### 2.1.5. Cotton

Draft report has been produced and reviewed by Mlay and still requires some additional revision before it can be finalized in Q2.

#### 2.1.6. Cashew

The draft report has been reviewed by Mlay and required additional work on the analysis before it can be finalized. IIAM will need to respond to comments from INCAJU on this work.

### 2.2. Other IIAM activities

- a) Mlay assisted a staff of DFTT on the design of field study to evaluate the effectiveness of Farmers Field Schools in the diffusion of agricultural technologies in Matutuine District. The support included analytical methods to be used. A case study was carried out in Matutuine. The field work and preliminary analysis were done during this period
- b) Mlay participated in the discussion between IIAM and EMPRAPA team about the proposed USAID-ABC funded program to support horticulture development. Specific input was provided on the socioeconomics component.
- c) Mlay continued to provide advice to the Director General of IIAM on issues related to institutional development
- d) In anticipation of the departure of CESE analyst Maria da Luz for graduate studies in USA at Pennsylvania State University under the Penn State Pulse CRSP project, Mlay visited the Central Zonal Center in Chimoio to review on-going socio-economics

activities and discuss arrangements for continuity of the work and management of project equipment and vehicle.

- e) Donovan and Mlay participated in the mid-term meetings of the Platform for Agricultural Research and Innovation (PIAIT) at IIAM on Nov 15. Donovan presented a key note talk : [Market development in Mozambique: Policy issues to enhance the research agenda](#) ,available on the website.

### 3. Objective 3: To Strengthen of Human Resource Capacity in MINAG and IIAM

#### 3.1. Graduate training

CESE analyst Ana Lidia Gungulo continued with her MSc training at the University of Pretoria under funding from the MSU Pulse Collaborative Research Support Program (CRSP).

Helder Zavale continues with coursework for his PhD training at MSU. His training is considered strategic by both MINAG and the University of Eduardo Mondlane as it will strengthen the collaboration between MINAG and the university in capacity building and analytical work to support decision making in MINAG.

#### 3.2. In-service training

Training was conducted at IIAM concerning Markets and Price Analysis. An Agenda for the training can be found in Annex 1. Five women and four men attended the training, from SIMA, DAP and IIAM/CESE. The sessions included both theoretical sessions by Donovan and Mlay, as well as STATA computer based exercises led by Donovan, using SIMA data.

IFPRI in collaboration with MSU offered a course to DE staff on ARCGIS.

### 4. Assistance to USAID-Mozambique and Title II partners to measure program impacts using Income Proxy Method

This work was requested in Q3 FY2009. The surveys were implemented by ANSA from October to December 2010, under guidance of Ellen Payongayong. David Megill was again contracted to ensure proper sampling frame. The collaboration between MSU and ANSA functioned very well, and ANSA did an excellent job in fielding the questionnaire, providing a solid experience for future efforts by ANSA with INCPOX and similar surveys. After double data entry and cleaning, results will be available in late January 2011.

### 5. Additional USAID funded activities

#### 5.1. Pulse CRSP

In collaboration with IIAM's CESE and DE/SIMA, MSU faculty members have supported bean research to understand the value chain for common beans and cowpeas in Mozambique. Ana Lidia Gungulo, CESE analyst, is undertaking MS studies at the University of Pretoria under this program. A request for a two year project extension (Oct 2010- Sept 2012) with additional funding was submitted in December 2009 to the Pulse CRSP for this multi-country program and approved in September 2010. In addition, an institutional capacity building project was funded with IIAM for investment in communications technology that would enable both Mozambican IIAM scientists as well as Angolan University researchers to tape and then broadcast powerpoint presentations with voice and video components. Donovan is a Principal Investigator in this project. A value chain diagnostic is being prepared and should be available in late Q2 or early Q3.

More information on this research can be found at <http://pulsecrsp.anr.msu.edu/ProjectInformation/PIMSU2MichiganStateUniversity/tabid/106/Default.aspx> .

6. Activities of MSU staff in Mozambique under Food Security Group, with additional external funding

The Food Security Group has developed various research and training efforts in Mozambique to leverage funding as well as to complement the activities under the USAID program. This includes the previously mentioned regional work with GISAMA (funded by the Bill and Melinda Gates Foundation) and impact evaluation work under MCC Land Project.

Analysis continued on a regional assessment of maize systems, with funding from Bill & Melinda Gates Foundation, based on work in Zambia, Malawi, Mozambique, and Kenya. The resulting paper will be available in Mozambique during Q3, and will be presented at an outreach conference in Kigali in April and in a policy conference in Maputo after that.

Analysis also continued on a regional assessment of fresh produce systems, with work in the same set of countries. SIMA's involvement in this study is expected to lead to the institutionalization of data collection and processing for horticultural market information. Results from this work will also be presented at the Kigali and Maputo conferences mentioned previously.

During this period MSU, as a sub-award partner with University of Florida (UF), won the first award under USAID's new trilateral approach to development cooperation. This award combines \$7.9m over a period of four years from USAID/Brazil, plus approximately 30% additional funding from Agência Brasileira de Cooperação (ABC), to facilitate collaboration among U.S., Brazilian, and Mozambican partners in two areas:

- Improving the productivity of the horticultural system serving Maputo city, in collaboration with IIAM, MINAG, EMBRAPA from Brazil, and UF and MSU. MSU will lead the socio-economics portion of this work, which will directly involve CESE analysts working with the Brazilian and US team in an assessment of marketing channels, livelihood strategies of households involved in this production, and on-farm productivity. More broadly, the program will provide extensive short-term training opportunities for IIAM staff, in Brazil and Florida, on farm- and post-farm technology and practices relevant for Mozambique.
- Piloting new school feeding programs across the country, in collaboration with Ministry of Education (MINED), the Ministry of Agriculture's extension directorate, World Food Program, and Brazil's Fundo Nacional para o Desenvolvimento da Educação (FNDE). An innovative feature of the program will be local procurement of some share of the food used in the feeding program. Full details of this program are still being worked out, but MSU anticipates (a) leading an impact evaluation of the anticipated two-year pilot and (b) working with UF to ensure participation of MINAG extension in promoting local production for these schools.

Though this program is not formally related to USAID/Mozambique's country strategy, MSU intends to manage it in such a way to maximize complementarity with its ongoing activities in the country and to ensure additional capacity building for local organizations.

## 6.1. MCC/MCA

The Urban Land Survey covering over 1700 households in two municipalities in Nampula province was conducted during this period, and Ellen Payongayong supported MINAG staff in designing and implementing the survey, with input from S. Jin and M. Maredia from campus. Ellen Payongayong also provided logistical and operational support to DE given that MINAG/DE is currently understaffed. Raul Pitoro was shifted to full time on MCC at the end of this quarter. For further information on the Mozambique Compact, see <http://www.mcc.gov/mcc/countries/mozambique/index.shtml> .

## **Annexes to Q1/FY2011 Report**

## Annex 1:

### Agenda da formação: Mercados e Preços, Dezembro 2010: Dias 14, 16, e 17

Horário	Tema
<b>Terça feira 14 de Dezembro</b>	
8:30 - 9:00	Abertura, organização, distribuição de materiais
9:00 - 9:30	Por qué ver os preços? Relevância no âmbito de políticas agro-pecuários em Moçambique
9:30 - 10:10	Funções dos mercados
10:10 - 10:50	Preços como indicadores do mercado
10:50 - 11:00	Cafe da manhã
11:00 - 12:30	Preços como indicadores do mercado (cont)
<hr/>	
12:30 - 13:30	Almoço
13:30 - 13:50	Breve resumo dos comandos básicos de STATA
13:50 - 14:15	Visto inicial dos dados do SIMA: Estrutura inicial e ficheiros analíticos. Periodicidade e conversão de dados semanais para mensais
14:15 - 14:25	Café da tarde
14:25 - 15:30	Gráfico básico dos preços
<hr/>	
<b>Quinta feira 16 de Dezembro</b>	
8:00 - 9:00	Comportamento dos preços e fontes de fluctuação
9:00 - 10:30	Sazonalidade, Tendências, Inflação, Choques
10:30 - 10:50	Cafe da manhã
	<b>ENTRAR na SALA do TIA</b>
10:50 - 12:30	Organizacao dos ficheiros e passos basicos de serie temporal
<hr/>	
12:30 - 13:30	Almoço
13:30 - 14:30	Estimação de sazonalidade
14:30 - 15:30	Inflação e tendências
<hr/>	
<b>Sexta feira 17 de Dezembro</b>	
8:30 - 10:00	Margens de comercializacao
10:00 - 10:20	Café de manhã
	<b>ENTRAR na SALA do TIA</b>
10:20 - 12:00	Preços mundiais e outros aspectos de ligação entre mercados
12:00 - 12:30	Exercícios com margens e preços internacionais
<hr/>	
12:30 - 13:30	Almoço
13:30 - 14:30	cont. Margens de comercialização e margens espaciais
14:30 - 15:30	Revisão e prática especial com aspectos identificados pelos participantes

## **Annex 2: Kim Chung Trip Report from October 2010 Travel**

**Kimberly Chung**  
**Michigan State University**

**Trip Report on Nutrition-Agriculture Linkages<sup>1</sup>**  
**Mozambique October 9-October 25, 2010**

**1. INTRODUCTION**

The purpose of this trip was to learn of current research and programming efforts that address nutrition-agriculture linkages and to assess the potential for future work in this area. The terms of reference included the following questions:

1. What is the current approach to nutrition and agriculture linkages in Mozambique and who are the agents involved?
2. What programmatic interventions are being carried out by the public sector and its donor and NGO partners focused on nutrition with the potential linkages with agriculture?
3. What broad approach and specific interventions are proposed in the Multisectoral Plan for Chronic Malnutrition that are consistent with improving nutrition-agriculture linkages?
4. How well are these plans and on-going activities linked with overall agricultural and other development programming?

During the period October 11-October 22, 2010 the in-country MSU Food Security team, including Dr. Cynthia Donovan and Jaqueline Massingue, and I worked closely to explore the questions listed above. We held 24 meetings with professionals from the Mozambican government as well as various NGOs. The majority of our time was spent conducting interviews in Maputo. Mr. Massingue and I also made a 4-day field visit to Nampula to interview government contacts in Nampula and Ribáuè and to observe an NGO project in Mossuril. The visit culminated in a presentation at USAID on October 22, 2010. The names and organizational affiliation of each person are detailed in Appendix A.

The report below addresses points 1-4 above and is based on: 1) interviews with government and development professionals in Mozambique; 2) documents provided by these contacts; and 3) my knowledge of the literature on nutrition-agriculture linkages.

**2. Conceptual Framework Illustrating Agriculture-Nutrition Linkages**

Figure 1 illustrates the various relationships that link agriculture and nutritional status at the household and individual levels.

Beginning on the left-hand side, household food production is expected to improve individual food intake by either 1) increasing own consumption or 2) contributing to household income to purchase food. In turn, improved food intake provides energy that is needed for bodily growth, maintenance and activity. A high quality diet, however, also provides protein and various micronutrients (vitamins and minerals) that are essential for optimum growth and functioning. As such the term “diet quality” refers to the idea that an adequate diet will provide more than just energy, but also other essential nutrients needed by the body.

---

<sup>1</sup> This Trip Report will be used as a basis for forthcoming policy syntheses.

**Fig 1: Ag-Nutrition Linkages at the Household and Intra-Household Levels**

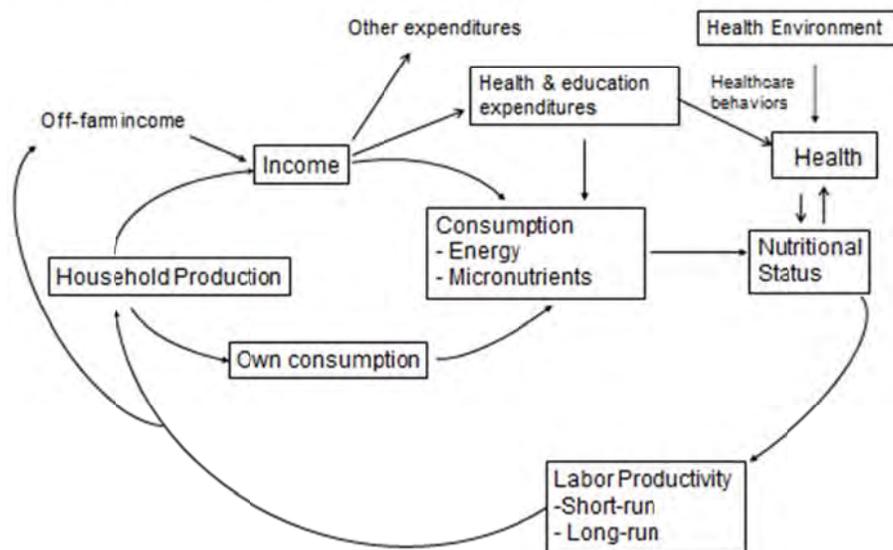


Figure 1 also shows that adequate food intake is a necessary but not sufficient condition to produce good nutritional status. At the right side of the figure, we can see that nutritional status is dependent upon health status, which is itself a function of health care behaviors and the health environment (e.g. access to water, sanitation and health services). Increased expenditures on education and health services are shown to have beneficial effects on nutritional status by supporting healthy behaviors and individual health status. The important point here is that nutritional status is inseparable from health status and that any discussion of nutrition must take into account health care behaviors and the health environment.

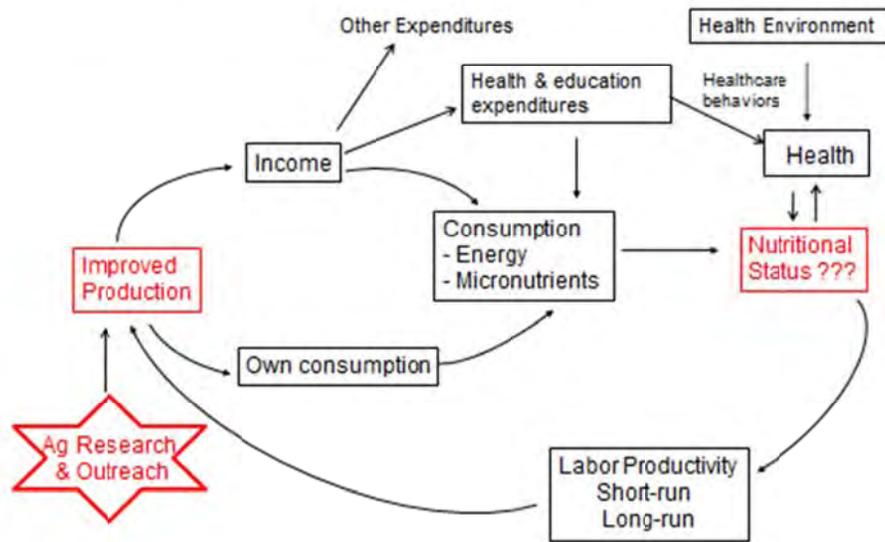
In addition, improved nutritional status and health status are expected to increase individual productivity in the short run (particularly in areas in which manual labor is common) and in the long run, thereby improving household production and income. As such, the set of agricultural-nutrition relationships at the household level is bi-directional, suggesting that vulnerable households can get locked into a vicious cycle of poverty and chronic undernutrition. In addition, exogenous shocks to production systems, or health, market and other conditions can bring about a downward spiraling effect for vulnerable households.

Finally, the relationships shown here are at the household and intrahousehold level. Clearly, the household functions within an environment in which prices, market conditions, and various other incentives for behavior are determined.

### **3. Current Approaches to Integrating Nutrition-and Agriculture Programming in Mozambique**

I will use the above framework to introduce five approaches in which agriculture and nutrition programming may be integrated. I describe each approach below and give examples I observed in Mozambique.

Figure 2: The Trickle Down Approach to Improving Nutrition thru Agriculture



### 3.1. The Trickle Down Approach (Figure 2)

In this approach, the focus is on improving production, usually through some sort of technical change at the farm level. Typically this involves some combination of research and outreach to develop and disseminate the new technology. Examples of such interventions include developing new varieties or management techniques that are expected to increase yields and in turn increase farm output or profits.

I call this the trickle down approach because it assumes that an increase in output will be sufficient to elicit changes in nutritional status within the farming household. In Figure 2, the intervention is marked by a red star and has its primary effect on improving household production. Nutritional status is presumed to improve as a result of increases in own consumption or farm income. In addition, trickle down can also benefit consumers if in the aggregate production changes are large enough to reduce prices of important staple crops.

The problem with the trickle down approach is that there are many linkages that mediate the effect of improved production on nutritional status. It is possible that a technology may increase yield, but not result in improved food consumption or nutritional status. Households may sell their crop but not direct the new income to improved consumption or health. A large literature explores these mediating relationships and makes it clear that it is an empirical question whether adoption of a new technology or management practice will result in increased income, food intake, or nutritional status.<sup>2</sup> As such, programs that take this approach should examine the effect of the production change on nutrition or consumption indicators rather than presuming an effect will occur.

**Examples of Current Work in this Genre.** Around the world the trickle down approach is a common strategy for those involved in agricultural research. Mozambique appears to be no different. At IIAM, for example, conversations with a small group of CGIAR scientists revealed a fairly basic understanding of the ways in which agriculture and nutrition are linked. Scientists identified their work as linked to nutritional concerns if the crop or animal they worked on was important to poor people. Descriptions of such projects, however, revealed a focus on the technical aspects of

<sup>2</sup> Figure 2 omits the linkage between individual labor productivity and non-farm income. This was done to make the figures less cluttered as more items are added. Increased labor productivity is assumed to increase both farm and non-farm income just as it does in Figure 1. For clarity Figures 3-5 will similarly omit this link.

production. Most excluded direct explorations of income, consumption, health and nutrition effects. Since nutrition was not central to their work it was clear that most would need assistance in framing research questions that linked nutrition more explicitly to agriculture.<sup>3</sup>

Clearly, programs that take a trickle down approach to improving nutritional status need to examine the relationships that bring about changes in nutritional status. The body of work concerning poverty and nutrition at IFPRI provides excellent examples, as does MSU's earlier work on the effects of cash cropping on household consumption and nutrition. Typically the weak link in doing this work is the ability to frame nutrition and agriculture questions in an interdisciplinary fashion. As such, interdisciplinary partnerships are key to this work. In Mozambique the most obvious place to start might be to expose researchers to these frameworks and then follow this with a brainstorming and prioritizing of the most pressing nutrition-agriculture research questions.

### **3.2. The Magic Food or Biofortification Approach (Figure 3)**

This approach focuses on tightening the relationship between production and improved consumption by promoting new cultivars that are rich sources of nutrients that are lacking in the diet. Typically, this approach focuses on staple crops that are widely consumed by the target population. I call it the Magic Food of Biofortification Approach because it aims to improve nutritional status by introducing *a single, nutrient-dense food*, usually through biofortification. In doing so, it creates a stronger connection, or follow through, between the production and consumption linkages shown in Figure 3. In doing so, it aims to improve access to nutrients that are under-consumed (such is iron or vitamin A) and to improve nutritional status by improving diet quality.

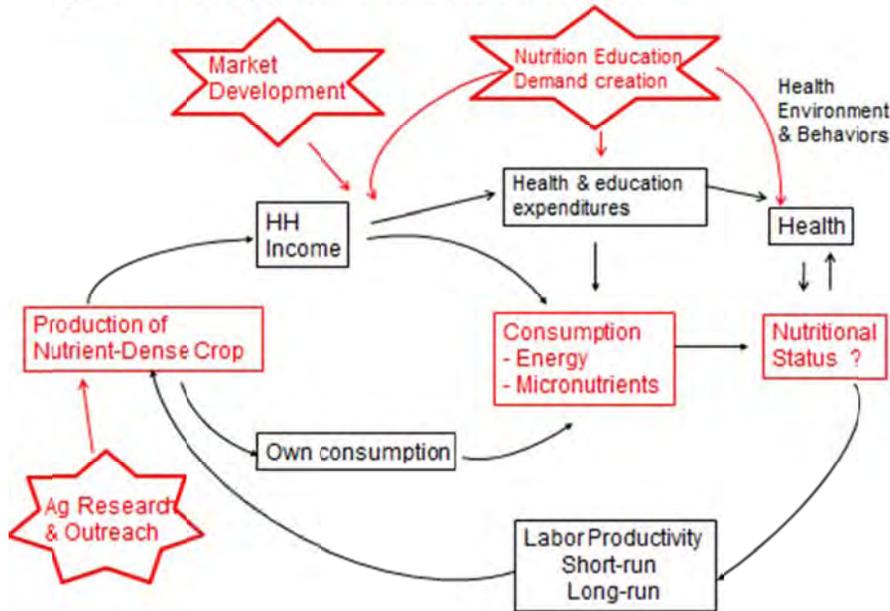
The Biofortification Approach requires research on the production side to develop appropriate plant materials as well as effective outreach to support farmers in their adoption (See starred interventions in Figure 3). A good strategy, however, will not focus solely on production issues. Rather consumer preferences must also be taken into account to ensure that new varieties have the characteristics desired by consumers. In addition, once a new variety passes consumer acceptance tests, there must be efforts to ensure that consumers are aware of its healthful attributes. This approach should therefore include nutrition and health education to help the population understand the benefits of the new food. Finally, efforts must also assist markets and traders to overcome any hesitation they may have to trade in the new crop.

Thus far there have been few biofortified foods that are highly successful nutrition interventions. Part of the problem has been to identify appropriate vehicles that satisfy the various requirements. Ideally, the target crop must be a poor people's food that is readily accepted by the food insecure population. It must have all the functional attributes of the conventional/ unfortified food. In addition, it must be affordable, storable, and provide a stable source of the target nutrient. Finally, to develop and field test such a variety takes years of research and funding.

---

<sup>3</sup> This finding is consistent with my experience working in the CG system and with agricultural scientists at research universities in the United States. It is not particular to Mozambique.

**Figure 3: The Magic Food or Biofortification Approach**



**Examples of current work in this genre.** In Mozambique, the best-known example of the Biofortification Approach is the work on the Orange Flesh Sweet Potato (OFSP). OFSP has been under study for almost two decades as a biosource for pro-vitamin A in Sub-Saharan Africa. In my view, there are at least two reasons for the success of the OFSP work.

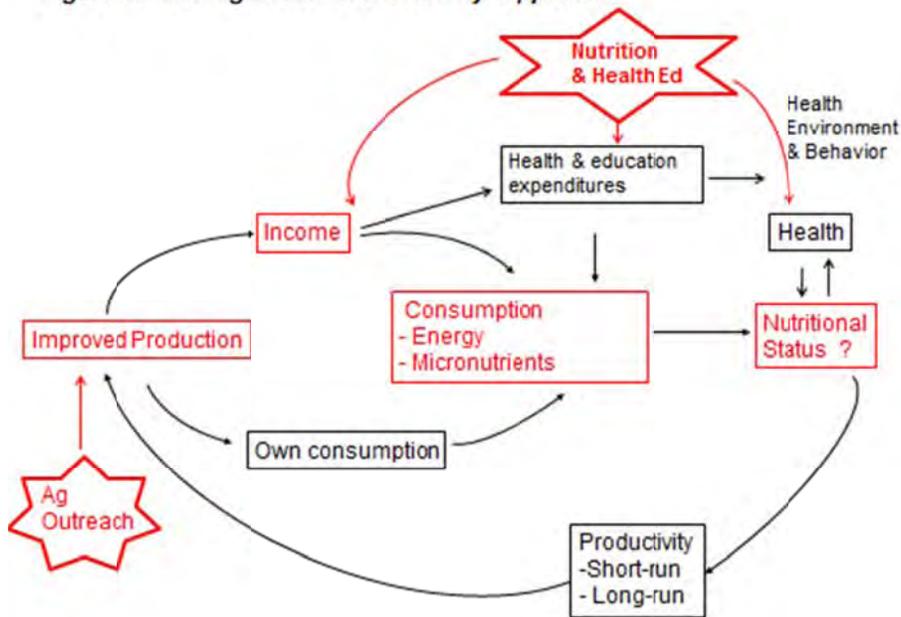
First, sweet potato is an excellent candidate for biofortification. Women traditionally cultivate and sell the crop. It is affordable and widely consumed in areas of Mozambique where nutritional status and vitamin A intake is poor. Although the orange-flesh variety was not traditionally consumed, with successful outreach it is now recognized as a variety that carried important nutritional advantages.

Second, work on OFSP has consistently included diverse forms of expertise, including disciplinary diversity (e.g. agronomists, plant breeders, applied economists, nutritionists, and health communicators) as well as organizational diversity. Researchers have partnered with NGOs and community-based organizations, local government, and local and national media to carry out the production, marketing and educational outreach that have been needed to develop the interest and capacity to produce, market, and consume the new “vitamin potato.”

A large impact evaluation conducted by the Harvest Plus consortium recently reported positive effects of OFSP on vitamin A status. Nevertheless, applied research and outreach continues on OFSP. New varieties are needed that will be more successful in drought-prone areas. In addition, systems are needed to maintain and distribute OFSP vines locally. Finally, more research is needed to understand the location and gender-specific production, marketing, and consumption behaviors associated with OFSP in high-malnutrition, high-vulnerability areas.

Although OFSP garners most of the biofortification attention in Mozambique, interviews revealed significant interest among IIAM, SETSAN, and partnering NGOs to develop biofortification programs for other important staple crops. At IIAM, for example, the directorate cited current breeding efforts to improve the protein composition on various maize and bean varieties. IIAM has already released high protein maize varieties that are being grown by farmers. Certainly, more needs to be

**Figure 4: The Ag-Based Diet Diversity Approach**



known about the status of these efforts and the extent to which companion studies have explored the demand for such crops. The OFSP case has demonstrated the level of investment (in terms of time and resources) that is needed to produce a successful product. Clearly not all products will merit such a long program of work.

Having a successful OFSP program in Mozambique, however, provides a useful model for how other biofortification research might efficiently proceed. In particular, the early interdisciplinary work on OFSP that determined 1) the appropriateness of the sweet potato as a biofortification vehicle, 2) the potential demand for the new product, and 3) the multi-pronged efforts needed to support the production, marketing, and consumption of OFSP can provide a template for planning research on other crops.

### 3.3 An Ag-Based Diet Diversity Approach (Figure 4)

Like the Biofortification Approach, the Diet Diversity approach focuses on improvements to the *quality of the diet*. However, it does so by different means. First, instead of promoting the nutritional benefits of a single crop (such as OFSP) it encourages the production and consumption of varied sources of micronutrients, usually through a home production system that improves access to a more diverse, high quality diet (See Figure 4). Second, in contrast to the Biofortification Approach, it relies on community-based programming that is heavy on nutrition, health, and agricultural education. NGOs work intensively with small learner groups to support the practice of better nutritional, health and agricultural practices. Third, this approach makes use of simple messages to improve health practices as well as low-tech approaches to increase access to and utilization of locally-produced foods. Such techniques are more likely to be practical and ground-tested rather than the result of high-end science. Finally, programming efforts tend to be tailored to the circumstances of each locale, taking into account the existing livelihood structure within a village.

An example of work that employs this strategy is the Homestead Food Production projects carried out by Helen Keller International in Asia. HKI focuses on developing local food production through gardens and small-scale animals and livestock. As suggested by Figure 4 nutritional status is expected to improve through the income generated from the sale of vegetables and animal products as well as increased consumption of nutrient-rich foods from own consumption. Like the biofortification approach, agricultural extension and nutrition and health education are major components of this

approach. However in contrast to that approach, outreach efforts tend to include a wider variety of activities and focus on practices that are customized to the existing context.

Another example of such work might include programming around a school garden. Like the above example the programming would be context specific and would take into account the existing dietary patterns, as well as production and food preparation practices that are beneficial as well as problematic.

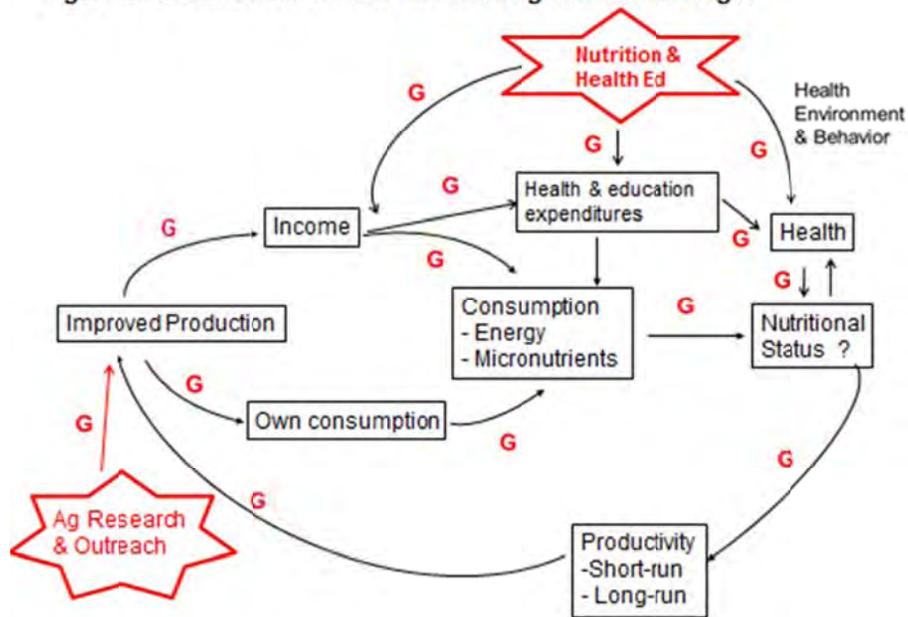
***Examples of current work in this genre.*** The Multi-Year Assistance Programs (MYAP) supported by USAID Mozambique employ a diet diversity approach to integrating nutrition concerns into agriculture. Most appear to deliver the same basic outreach messages at the community level, but differ slightly in the design of their programs.

During this trip we were able to visit one MYAP program, Save The Children's SANA Project (Food Security through Nutrition and Agriculture Programming=SANA in Portuguese). SANA employs community-based nutrition/health education as well as agricultural education aimed at increasing income through the adoption of new production and marketing practices. The program works by delivering educational programming through small groups of mothers and farmers in each village. The groups function as collaborative learning circles in which new knowledge is brought into practice through a public (i.e. social) space. Local health promoters, called *animadoras* hold learning sessions with mothers groups that include food preparation, child care, and hygiene demonstrations. Educational songs and dramas are used to spread important health messages and provide a simple means by which they may be remembered.

Similarly, the agricultural outreach focuses on small farmer groups to pass on knowledge that can be put into immediate practice. Programming emphasizes practical endeavors, such as experimenting on demonstration plots or learning to develop business plans or market analyses for new crops or products. Special emphasis is placed on how to work in groups or associations to undertake new entrepreneurial activities.

The educational efforts on the nutrition and health side are often carried out separately from those on the agriculture and entrepreneurship side. The programs, however, are integrated in at least three ways. First, households are often involved in multiple groups, thus Save the Children claims there is a "natural integration" at the level of the household. Second, programs are based on the same model of outreach---using small voluntary groups to develop capacity for collective learning and action. In this sense Save the Children aims to do more than just pass on technical information; they are also developing capacity for problem identification and action at the local level. Learning becomes a shared, public process in which new practices become part of the public discourse. This on-going discourse provides support for the learners and has the effect of changing the culture surrounding health behaviors, experimentation and entrepreneurship. Finally, with this approach programming efforts are adapted to the particular circumstances of the locale, taking into account local food and production practices, health behaviors and beliefs, and social structures. This is one of the major advantages of a community-based approach as the actual activities can be tailored for the circumstances of the site.

Figure 5: A Gendered View of Nutrition-Agriculture Linkages



### 3.4. Gendered Approaches (Figure 5)

The literature very clearly shows that males and females play different roles in household activities, including the feeding and provision of care for children. As such, we must recognize that the relationships shown in Figure 1 are likely to be affected by the gender of the individual involved (Fig 5). For example, a household's decision whether a crop should be sold or stored for future consumption may differ according to the gender of the individual with decision-making power. Similarly, decisions about expenditures on food or health care are expected to differ by gender. Health and nutritional requirements will differ by gender (as well as other attributes, such as age). The point here is that a program that involves any of these relationships must be cognizant of the gendered aspects of each one of these links.

The literature indicates that some of these gendered linkages are more generalizable than others. For example, increasing women's control over household resources is expected to improve child nutrition. However, understanding how agricultural programs and policies might increase women's control over such resources is more likely to be location-specific. In addition, cultural factors can limit women's participation in groups or the adoption of new technologies or practices. They can also lead to changes in time allocation which can have adverse effects on maternal and child health. It is therefore important to have a good understanding of the existing sets of behaviors that programs and interventions are expected to change. Assumptions about gender roles and gendered behaviors need to be verified before interventions are piloted. A better understanding will lead to research, education and communication strategies that are more effective for the target communities.

**Current work in this genre.** My general impression is that there is very little work in Mozambique that focuses on understanding (and acting upon) the different roles that men and women play within these nutrition-agriculture relationships. As such, most programs are built upon assumptions about gender roles that are not explicitly stated. In some circumstances, assumptions are probably reasonable (eg. that women are the primary caregivers of young children). But there are many areas where we may not know the gendered aspects of a particular program, especially when such relationships are expected to be location-specific. What, for example, has been the effect of the OFSP program on women's control of income? Is it the same across regions where the use of OFSP differs? Has women's control over the crop remained stable, or has it been changing as OFSP becomes more important as a cash crop? And, does this have an effect on the assets the woman

controls or her bargaining power within the household? These are only examples of the kinds of questions that should be considered, but certainly the answer to each would affect program and outreach strategies.

### **3.5. “Developing a More Conducive Policy Environment” Approach**

Finally, it’s important to consider the systems from which integrated nutrition and agriculture programs are expected to emerge. If, for example, the agriculture or health ministries do not understand how nutrition and agriculture concerns can be integrated it is unlikely that progress can be made. Furthermore, if officials at decentralized levels of government, such as the district or provincial levels, are unaware of such links, it is not likely that integrated programs would emerge at the local level.

During my visits to the Ministries of Health and Agriculture there was only limited discussion that linked agriculture and nutrition concerns. That doesn’t mean, however, that officials do not see linkages. The 2010 PEDSA, for example, was issued in draft form during my visit and laid out priorities for the development of the agricultural sector. There is little mention of nutrition in the document, except via a footnote to the latest Food Security and Nutrition Strategy (known as ESAN II, developed by SETSAN). However, a closer reading of the document suggests support for an environment that is conducive to nutritional improvements. The focus on vulnerable households, gender roles in agriculture and food production, the relationship of endemic diseases such as AIDS to agricultural productivity, and the elevation of access to a nutritious diet as a human right are all consistent with improving food security for the most vulnerable households, and improving nutritional status. Thus, while the PEDSA does not explicitly mention integrated nutrition-agriculture strategies in its plan, it does present a platform that would be highly supportive of such strategies.

In terms of interest at the provincial and district level, I was surprised by what we found. The objective of our trip to Nampula was to talk to government officials at the provincial and district level and to ascertain whether there was potential at this level to even conceive of integrated nutrition-agriculture projects. While in Nampula we interviewed 5 officials representing various functions within the provincial and district governments.

Our time was limited (as was our coverage) but the interviews suggested that it was not difficult for local-level officials to conceive of programs that integrated nutrition and agriculture concerns. Most gave intuitive but clear examples of how the sectors were linked. In addition, most cited example of projects they had already worked on that integrated functions across government sectors. More surprisingly, I was struck by their lack of resistance to collaborating across sectors. To the contrary, local officials portrayed cross-cutting work as a logical and uncomplicated strategy to improve decision-making and to develop relevant new programs. In addition, most thought funding would be the main constraint, but agreed there would be a “window of opportunity” when the Local Development Investment Funds (known as “FIIL” or the Fundo de Investimento para Iniciativas Locais) were made available to district planning teams. Because the FIIL would represent “new money” they would provide a means to finance new projects without having to find places to cut from current budgets.

We were only able to speak with a handful of officials from 3 districts, so I cannot claim that this finding is generalizable across the rest of Mozambique or even Nampula Province. But these interviews do show that there are local-level officials who understand these relationships well and see an opportunity for cross-cutting programs to be developed.

I should also add that SETSAN is working to support local food security planning processes. Specifically, SETSAN has embarked on a FAO-supported pilot to train district officials to develop multisectoral food security projects as part of the FIIL planning process. I spoke for several hours with one of the SETSAN team members who was conducting these training sessions in Cabo Delgado and Nampula Provinces. It was clear that SETSAN is very committed to the idea that decision-makers at the local level must be able to recognize food security problems in their district and develop cross-cutting projects that are customized to their needs. In my view, this is an important step to

improving the policy environment for nutrition-agriculture programming and for empowering local officials to develop projects that suit the local context.

Finally, I was very impressed by the efforts on the part of the central government to develop awareness around the democratic processes that were occurring in the area of food security policy. SETSAN was very committed (and proud) of its efforts to enable local governments to develop programs that were customized to their needs. At the same time, district officials (in both Ribáue and Memba) were very serious (in word and deed) in terms of expressing a sense of accountability to local residents. In separate interviews they each described their efforts to engage local community members in discussions on actions that were being taken by the government, in one case on a new federal law on the Right to Food, and in the other case, on getting input on the performance of previously-funded FIIL projects and ideas for future FIIL projects. I found this to be surprising and remarkable. These efforts suggest an interesting and potentially very productive connection between the efforts to improve democratic governance and the development of food security programming.

### **3.6. Addendum: An Agribusiness-Corollary to the Magic Food Approach**

Five approaches to integrating nutrition and agricultural concerns have been presented above. USAID-Mozambique showed a particular interest in including small and medium-scale agribusiness in a strategy to integrate agriculture and nutrition programming. In particular, they asked if there is a role for agribusiness within this framework.

Ostensibly, food processors could participate in a parallel strategy to develop food products that are fortified with important micronutrients. As with a biofortification project, the challenge is to find food vehicles that are appropriate and affordable for the target population.

Fortification can be approached in a number of ways. Mass fortification can occur when there is a large public health risk and the capacity for regulation is high. Targeted fortification can occur when specific populations are at particular risk for nutrient deficiency, for example young children who are receiving complementary foods or refugees who are at risk of severe macro and micronutrient deficiency.

Fortification can also take a market-driven approach in which private firms develop food products that are fortified with various nutrients. In Figure 1 the effect would be to increase the availability of nutrient-dense foods that can be purchased by households, thereby improving nutritional status and health. Market-driven strategies can have important public health effects, but success generally depends upon an educated population of consumers as well as a reliable system of regulation. It is for these reasons that nutrition and public health experts have raised concerns about the growth of market-driven fortification in developing countries. Specifically, if government institutions are weak and oversight is poor, it is possible for harm to occur. Unnecessarily high levels of nutrients can be delivered to individuals of different ages with different requirements. Conversely, products can also be underfortified, leaving consumers with a false sense of security that they are getting essential nutrients. A major concern, therefore, is the combined circumstances of an unregulated fortification process and an uneducated, nutritionally-vulnerable consumer population.

In addition, based on the experience from developed countries, public health specialists worry that fortified foods, particularly those that are tasty but poorly composed in terms of nutrient content, can subvert healthy dietary patterns and encourage increased consumption of sugars and decreased consumption of fiber.

Given these concerns, the question is can agri-business make a contribution? Is it possible to encourage the growth of an industry that can effectively provide healthful, fortified food products?

I think it's possible. At present there is a great amount of interest in food fortification among the food security community in Maputo. Recently, the National Food Fortification Committee of

Mozambique has been formed. The Committee is a coordinating body that includes the representatives of the Ministries of Health and Industry and Commerce, as well as from industry and many NGOs. At the time of my visit they lacked a consumer representative. Would it be possible for this group to lobby for appropriate food laws and industry codes of practice? Is it possible to ensure that market promotion does not conflict with national food and nutrition policies, particularly as they concern the vulnerable populations? There is an excellent literature on this topic and many good models to follow if there is interest. Some options include permitting only certain foods to be fortified (thus limiting the level of oversight that must occur) and/or providing health education campaigns that make it clear how these products can be used in healthful and not harmful ways.

**4. What broad approach and specific interventions are being proposed in the Multisectoral Action Plan for the Reduction of Chronic Malnutrition that are consistent with promoting agriculture-nutrition linkages?**

The Multisectoral Action Plan (MP) includes 7 strategic goals. Within these 7 goals, Strategic Goal #4 (“Strengthen the activities targeted to households to improve access and use of foods of high nutritional value”) represents the strongest opportunity for integrated nutrition-agriculture programming. Within Strategic Goal #4 there are 5 sub-goals, 3 of which can be addressed through the activities described in the Magic Food/Biofortification and Diet Diversity Approaches described above. They are:

- 4.1. Increase locally-produced foods with high nutritional value used by poorest households.
- 4.2. Strengthen capacity of households vulnerable to food and nutrition insecurity to process and store food properly.
- 4.3. Increase access of households vulnerable to food insecurity to support services and social protection to ensure sufficient and diversified food for pregnant women, infants, adolescents, and children from 6-24 months of age.

The MP is a good piece of work that was created (under quite a bit of time pressure) by a consortium of organizations. The group tried to focus on activities that have the greatest ability to make progress on indicators of chronic nutrition. Most of the highlighted strategies are based upon a set of interventions known as Essential Nutrition Actions (ENA). The ENA is an evidence-based framework that supports simple “do-able” behaviors that are known to improve nutritional status among women and children. The activities included in the MP propose an ambitious plan of work, but proponents hope to make it feasible by targeting the interventions geographically. The MP is not yet funded, but the World Bank is the most likely donor.

My understanding is that USAID representative lobbied to get Strategic Goal #4 included in the MP. But in my conversations with other organizations I did not get any sense that there was resistance to this objective once the document was finalized. Overall, I think people were very supportive of this strategy and saw it as necessary component of a more holistic approach to chronic undernutrition.

**5. How well are these plans and on-going activities linked with overall agricultural and other development programming?**

I interpret this question to be asking about the overlaps between the Multisectoral Action Plan and the PEDSA and CAADP-Pillar III.

*The PEDSA.* From my reading there is little direct overlap with the Multisectoral Action Plan (MP). Hunger is tied to agriculture in only passing references. The document defers to the ESAN for providing the primary strategy for food security and nutrition (see footnote). This is not surprising as

the PEDSA is not meant to focus on health and nutrition issues, while the MP is specifically focused on the reduction of chronic malnutrition.

As stated above, the PEDSA does not integrate nutrition concerns directly into its agricultural planning, but it does put forward principles that are consistent with the outcomes cited in Strategic Goal #4 of the MP. The PEDSA, for example, states that increasing agricultural productivity and competitiveness is expected to contribute to reducing hunger. Under its guiding principles it states that access to adequate quantities of safe and nutritious food is a human right. Finally, it acknowledges the importance of women in agriculture, citing their roles in the production, processing, storage, and sale of agricultural products and as chief providers of household nutrition. It also acknowledges that the ability of women to perform in these roles is severely constrained by the vulnerability of their position in society, as well as unequal access to resources and services. For these reasons, the tone of the PEDSA appears consistent with outcomes outlined in the MP, and with the 5 approaches we have outlined in this report.

**CAADP-Pillar III.** As with the PEDSA, the overlap between the MP and the CAADP-III objectives at first blush does not appear to be exceptionally strong. However, there are many opportunities to include nutrition objectives in CAADP-III Operational Plans.

To start, CAADP-III focuses on “increasing food supply, reducing hunger, and improving responses to food emergency crises.” It specifies 4 key objectives that are meant to increase the resilience of vulnerable populations:

1. Improve risk management at the household, community, national and regional levels to inform decisions that impact the building and protection of assets and to strengthen responses to climatic and economic shocks.
2. Increase the supply of affordable commodities through increased production and market linkages
3. Increased economic opportunities for the vulnerable
4. Increased quality of diets through diversification of food among target groups

Objective 4 overlaps most strongly with the MP, through the MP’s Strategic Goal #4 (“Strengthen the activities targeted to households to improve access and use of foods of high nutritional value”). As such, efforts to decrease chronic malnutrition through Strategic Goal #4 (particularly Sub-Goals 4.1, 4.2, and 4.3) might be included in the CAADP-III operational plan. These projects could generally be classified as strategies that fall into the Biofortification or Diet Diversity approaches outlined above.

In fact, all of the CAADP-III objectives are consistent with the 5 nutrition-agriculture approaches outlined in this document. As such, one could make an argument that the current constellation of nutrition-agriculture activities (or improvements on or derivatives of such activities) could be included in or serve as examples for future CAADP-III operational plans. This would include all the approaches characterized in Part III of this document, including those that focus on building a more conducive policy environment. For example, SETSAN’s work to improve food security analysis and programming at the district level could be seen as an effort to improve risk management at the community level and to strengthen community responses to shocks that risk and undermine the coping mechanism of vulnerable populations.

## **6. Opportunities for Future Work**

### **6.1. Developing a Comprehensive Strategy that Links Agriculture to Nutrition**

The most striking thing I noticed is that there was very little understanding of what it means to integrate nutrition and agriculture concerns. As a result, there is no over-arching strategy within organizations to integrate nutrition and agriculture concerns. Instead, it seems that people have

favorite projects or favorite examples, but they are not able to express strategies to expand their work or to connect their work with other efforts. As such, there appears to be a lot of room for education on *how* to think about nutrition-agriculture linkages.

In particular, the framework and examples presented in Section III illustrate that multiple efforts are needed for any given strategy to work (eg. Research and outreach on the production and markets sides, health and nutrition education, gendered relationships, location-specific behavioral work, plus other things such as improving the health environment). As a result, I believe that organizations need to think beyond advocating for a single “home run” approach and instead think about building a larger, coherent strategy that comprises many varied approaches. Understandably, each organization has its own strengths. But finding ways to cut across these experiential bases is important if we want to affect nutritional concerns through agriculture.

MSU has expertise in multiple areas and can make a contribution by “walking the talk” of integrating nutrition and agriculture programming. At the very least, MSU can develop an explicit strategy for its own work in Mozambique. The advantage would be that individual projects will be linked better to each other and to the country’s overall goals of decreasing undernutrition. This could serve as an example for other organizations to do the same. In the aggregate, this would also help to link the MP directly to future CAADP-III operational plans.

Below I describe ways in which MSU might rely on its strengths to develop a more comprehensive an integrated strategy.

## **6.2. Working with Agricultural Scientists to Improve Trickle Down and Biofortification Approaches**

MSU is strong in the agricultural sciences. In addition, we have social scientists from many disciplines who are skilled at working with rural households and agricultural scientists.

Many breeding programs want to address nutrition concerns by working on poor people’s crops. Many, however, begin work without considering the social science aspects that are central to supporting positive nutritional outcomes using the Trickle Down or Biofortification approaches. How do people use the target crop in the most vulnerable targeted areas? What attributes are consumers seeking? Is there a market for these improved varieties? What are associated marketing constraints? Who is benefiting? There is no advantage to pursuing nutritional improvements through breeding or any other technical work if we are not working on a variety that consumers want to eat .

What can we add? By this time there must be a significant body of experience from OFSP and other successful project to outline a series of steps and related social science explorations that might guide the successive steps for developing an improved variety or management process. In particular, participatory approaches are an important way to determine whether breeding products are on the right track.

I think MSU can make important contributions by working with IIAM (and other CG breeding programs) 1) to assess the potential of improved crop varieties to improve nutritional status of vulnerable populations; and 2) to develop a protocol for making decisions about continued research on a particular variety that is seen as promising for improving nutritional problems. The basis of this work would be the application of social science methods (including participatory approaches) to assess consumer interest and farmer reactions to new materials as well as other constraints to success (eg. market conditions, existing policies, etc).

## **6.3 Expanding the reach of OFSP**

While work on OFSP has been very successful my sense is that there is still much to be done if it is to fulfill its potential. It is important to explore the current gaps in our knowledge and areas of weakness in terms of OFSP use, an analysis that might be in process under SASHA. For example, I understand that OFSP has not been successful in drought-ridden areas--essentially, the areas where people are most vulnerable to food insecurity. In addition, sweet potato use varies by region. Consequently, it makes sense to expand our understanding of the role that sweet potato plays in the diet, how its use varies within the household, and the potential for it to make a contribution to improved vitamin A status among those most vulnerable. Finally, the gendered effects of all these relationships should be examined. Sweet potato is considered to be a woman’s crop. What does this

mean? Does this hold up in across all of the most vulnerable areas of the country? And what happens when sweet potato becomes a commercialized commodity? Do women retain control over the crop and its proceeds?

There has also been talk of thinking about the kinds of nutrition and health messages that can be piggy-backed on the outreach efforts with the OFSP. OFSP project staff have wanted to keep the messages clear and simple, but it does seem possible to think about priority messages that can be added to this work, especially as OFSP (and its original messages) becomes more established in specific areas.

#### **6.4. Identifying important nutrition-agriculture relationships that are gendered**

During our interviews we heard very little that actually addressed the gendered nature of these nutrition-agriculture relationships. In particular, there was little evidence of efforts to understand the dynamics that determine a woman's control of resources as well as her bargaining power within the household. The literature demonstrates that it is crucial to understand these relationships if agricultural programs and policies are to have the desired effects on the health and nutrition of children and women. In addition, there was little discussion of the effect that gender may have on program participation and effectiveness. In some cases, programs are targeted along gendered lines, for example health education circles for women and agricultural extension services for men, but this did not seem to be the product of a critical, gendered analysis of the ways in which education and action might affect women's decision-making or child nutrition outcomes. Of course, cultural factors are also expected to affect the participation of women in agricultural programs as well as their allocation of time across various caring functions. Many of these factors will change across location. As such, for high priority agriculture improvement programs it is important to take a gendered approach to any given intervention. Recognizing this and carrying out appropriate analyses is an important way to push the boundaries on nutritional change through agricultural programming. MSU can be of help in this regard as it is particularly strong in the interdisciplinary study of gendered relationships within development.

#### **6.5. Building Capacity**

In Mozambique, numbers are certainly an issue when it comes to working in nutrition. Government staff are extremely limited and people are stretched very thin. Nevertheless, Mozambique is doing an impressive amount with the few people it has. International NGOs bring important resources and manpower for cross-cutting nutrition-agriculture work and many fruitful collaborations between government and NGOs are in place. Most cross-over work between sectors, however, is not initiated by government, but by donors and NGOs. Government does partner with these efforts, and at the local level we learned of their involvement in such activities.

For Mozambicans to lead in this area it is important for partners to help support and train local professionals to recognize nutrition-ag linkages and develop programs that integrate the two areas. This needs to happen at all levels of the government. SETSAN has begun to experiment with this and I believe MSU can be helpful in this regard.

Finally, Mozambique lacks a critical mass of people who have university-level training in nutrition and/or public health. Not surprisingly, three of the six strategies in the Multisectoral Action Plan involve building capacity to enable nutrition programing and planning, and many partners think that these are the most crucial strategies identified in the MP.

**Appendix A: List of Meeting and Contacts**

<b>Date</b>	<b>Contact</b>	<b>Organization</b>
Oct 11	Bill Hagelman, Title II Food For Peace Officer Martina Forgwe, Program Manager	USAID Africare
Oct 11	Marcela Libombo, Executive Director Almeida Tembe Edgar Cossa	SETSAN
Oct 12	Victorino Xavier, Director Lucia Luciano, Adjunct Director Celia Cassimo, Analyst Sofia Manussa, Analyst	Ministry of Agriculture (MINAG), Directorate of Economics (DE)
Oct 12	Tania Goossens-Allen, Country Director	Helen Keller International
Oct 12	Calisto Bias, Director General Manual Amane, Director of Crops Directorate	IIAM
Oct 13	Abdul Naico, Researcher	CIP, SARRNET
Oct 13	Edna Possolo, Dept of Nutrition Celia Cassimo, Analyst	Ministry of Health MINAG/ DE
Oct 13	Marina Pancas, Coordinator of UN Joint Program on Children, Food Security, & Nutrition	FAO
Oct 14 Oct 14	Carlos Dominguez, Director of Agricultural Research Platform (PIAIT) Joseph Rickman James Garrett Siboniso Moyo	CGIAR/ IIAM IRRI IFPRI ILRI
Oct 14	Maaike Arts Sonia Khan	UNICEF
Oct 14	Kerry Silvestre, Executive Director	ANSA

Oct 15	<p>Maria Jose da Silva Pinto, Nutritionist, Health Program</p> <p>John McMahon, Senior Ag Policy Advisor</p> <p>Irene de Souza, Agricultural Activities Manager</p>	USAID
Oct 15	<p>Jan Low</p> <p>Richard Dove</p> <p>Anna-Marie Bell</p> <p>Chance Briggs</p>	<p>CIP</p> <p>World Vision-ex</p> <p>Harvest Plus</p> <p>World Vision</p>
Oct 17	Almeida Tembe	SETSAN
Oct 18	Carlos J. Fonseca, TPA Pecuaria, SETSAN Coordinator	Nampula Provincial Dept Agriculture
Oct 18	Male Técnico (did not get his name) SETSAN District Focal Point	Memba District Dept of Planning
Oct 18	Severe Garcia, Nutrition Technician ("Técnico de nutricao")	Nampula Provincial Dept Health
Oct 18	Richard Dixon, Regional Programme Manager	Save the Children Nampula
Oct 18	Greta Stina, Field Coordinator	
	Salazar Portugal, District Director of Health	
Oct 19	<p>Visits to Ampivine and Namaralo villages, Mossuril</p> <p>Amour</p>	Save the Children Mossuril
Oct 20	Imane Cássimo, Reparticao de Admin & Planificacao	Ribáuè District Office
Oct 21	Alison Tumilowicz Senior Nutrition and HIV Specialist	FANTA

Oct 21	<p>Tina Lloren, Regional Food Security and Nutrition Advisor</p> <p>Paula Machungo, CAADP Representative for NGOs in national Team</p>	<p>Save the Children Maputo</p>
Oct 21	<p>Tania Goossens-Allen, Country Director</p>	<p>Helen Keller International</p>
Oct 22	<p>Maria Jose da Silva Pinto, Nutritionist, Health Program</p> <p>John McMahon, Senior Ag Policy Advisor</p>	<p>USAID-Maputo</p>

## Annex 3 Additions to Mozambique website

**"Flash"**: series of short papers, closely focused on issues of relevance for understanding the Mozambican food and agricultural system.

[Início Tardio da Campanha de Comercialização Agrícola 2009/10: Preços Altos Dominam a Comercialização](#). Equipe de SIMA. 1 de Outubro de 2010. Volume 55p.

### Policy Presentations

#### IIAM

• [Market development in Mozambique: Policy issues to enhance the research agenda](#). Cynthia Donovan.  
Presentation at the *Midterm Meetings of the Platform for Agricultural Research and Innovation in Mozambique*. IIAM. 15 November 2010.

#### MINAG

• [Sobre o CAADP](#). Helder Gemo e Gilead Mlay. Apresentação no 1o Workshop de Capacitação do Grupo Nacional do CAADP. Maputo, IIAM, 28 de Outubro de 2010.

### Professional Publications

Tschirley, David L., Colin Poulton, Nicholas Gergely, Patrick Labaste, John Baffes, Duncan Boughton and Gérald Estur (2010). "[Institutional Diversity and Performance in African Cotton Sectors](#)". *Development Policy Review*, 2010, 28 (3): 295-323

## **Annex 4 Mozambique CAADP webpage**



## Mozambique CAADP

Quick Links on This Page

### Lançamento do CAADP em Moçambique: Mozambique's CAADP Process Launch Dec, 13, 2010

- Article in Jornal Noticias: Num horizonte até 2015: [Duplicam fundos para a agricultura](#)
- Article in Jornal Noticias, Dec 13, 2010: [Governo lança programa agrário](#)
- Article in Jornal Pais, Dec 14, 2010: [Governo garante atingir meta de 10% do orçamento para agricultura antes de 2015](#)

### Presentations and Documents on CAADP/Mozambique (English and Portuguese)

- [Introduzindo o Programa Compreensivo para o Desenvolvimento da Agricultura em África \(CAADP\), para os Parceiros de Apoio do CAADP](#). Richard Mkandawire, Tradução ao Português. Ficheiro original no [www.nepad.org](http://www.nepad.org).
- [Trabalhando em prol da Prosperidade Africana. Agência para Planificação e Coordenação da NEPAD](#). Tradução ao Português Ficheiro original no [www.nepad.org](http://www.nepad.org).
- [Sobre o CAADP](#). Helder Gemo e Gilead Mlay. Apresentação no 1o Workshop de Capacitação do Grupo Nacional do CAADP. Maputo, IIAM, 28 de Outubro de 2010.
- [O CAADP na Agenda de Desenvolvimento Nacional: Uma introdução para a tomada de decisão para a aceleração do processo em Moçambique](#). Ministério da Agricultura, Março de 2010.
- [Importância do CAADP para Moçambique](#). Helder Gemo. Apresentado na Revisão Técnica Anual do MINAG/ PROAGRI de 2010. Maputo. Abril de 2010.
- [Programa Compreensivo para o Desenvolvimento Agrícola em África \(CAADP\), Pilar III: Quadro para a Segurança Alimentar Africana](#). NEPAD. 2009.
- [Programa Compreensivo para o Desenvolvimento Agrícola em África \(CAADP\), Pilar III: Guia de Implementação](#).

### Mozambique government strategies and documents [Top](#)

- [Strategic Plan for Agricultural Development \(PEDSA\) 2010-2019](#). Republic of Mozambique, Ministry of Agriculture. English version. Maputo. 2010.
- [Plano Estratégico para o Desenvolvimento do Sector Agrário \(PEDSA\) 2010-2019](#). Versão 10 de Outubro 2010. República de Moçambique, Ministério da Agricultura. Maputo. 2010.
- [Plano Estratégico do IIAM. Versão preliminar](#). Instituto de Investigação Agrária de Moçambique (IIAM). Maputo. 2010.
- [Programa Estratégico para a Redução da Pobreza Urbana 2010-2014](#). Versão de 20 de Agosto 2010. Republica de Moçambique. 2010.
- [Programa Quinquenal do Governo para 2010 – 2014](#). Resolução 4/2010. Boletim da Republica. I Serie, No. 14, Suplemento. República de Moçambique. 2010.
- [Plano de Acção Multisectorial para a Redução da Desnutrição Crónica em Moçambique 2011 – 2014 \(2020\)](#). República de Moçambique. Julho de 2010.
- [Plano de Acção para a Produção de Alimento 2008-2011 \(PAPA\)](#). Ministério de Agricultura (MINAG). Maputo. 2008
- [Estratégia e Plano de Acção de Segurança Alimentar e Nutricional 2008-2015](#). Segurança Alimentar e Nutricional, um Direito para um Moçambique Sem Fome e Saudável. República de Moçambique, Secretariado Técnico de Segurança Alimentar e Nutricional. Setembro de 2007.
- [Concept, Principles and Strategy of the Green Revolution in Mozambique](#). Republic of Mozambique, Ministry of Agriculture. 2007.
- [Estratégia de Comercialização Agrícola para 2006-2009 \(ECA II\)](#). Conselho de Ministros de Moçambique, Maputo. 2006.
- [Action Plan for the Reduction of Absolute Poverty 2006-2009 \(PARPA II\)](#). Republic of Mozambique. May 2006.
- [Avaliação da Vulnerabilidade as Mudanças Climáticas e Estratégias de Adaptação](#). Ministério para a

- Coordenação da Acção Ambiental, Direcção Nacional de Gestão Ambiental. Maputo. 2005.
- [Action Plan for the Reduction of Absolute Poverty 2001-2005 \(PARPA\)](#). Republic of Mozambique. April 2001.
- [Estrategia de Desenvolvimento Rural. Resolução 11/1995](#). Boletim da Republica. I Serie, No. 9: 52-6 a 52-19. 28 de Fevereiro, 1996. República de Moçambique. 1996.

## Reports and relevant publications [Top](#)

- [Plano quinquenal do governo](#)
- [USAID Moçambique Segurança Alimentar](#)
- [Poverty and Wellbeing in Mozambique: Third National Poverty Assessment](#). Ministry of Planning and Development National Directorate of Studies and Policy Analysis. Maputo. October 2010.
- [Pobreza e Bem-Estar em Moçambique: Terceira Avaliação Nacional](#). Ministério da Planificação e Desenvolvimento Direcção Nacional de Estudos e Análise de Políticas. Maputo. Outubro 2010.
- [Comprehensive Food Security and Vulnerability Analysis](#). World Food Programme with Vulnerability Assessment Group (GAV) of the National Secretariat for Food Security and Nutrition (SETSAN). Maputo. September 2010.
- [Proposta do Plano Económico e Social Para 2010](#). República de Moçambique. Maputo. 2010.
- ['A woman should not be the boss when a man is present'. Gender and Poverty in Southern Mozambique](#). Inge Tvedten, Margarida Paulo, Minna Tuominen. Chr. Michelsen Institute (CMI) Report R 2010:7. 2010
- ['Não fica bem que uma mulher seja chefe quando existem homens'. Género e Pobreza no Sul de Moçambique](#). Inge Tvedten, Margarida Paulo, Minna Tuominen. Chr. Michelsen Institute (CMI) Report R 2010:7 (Port). 2010
- [Se homens e mulheres fossem iguais, todos nós seríamos simplesmente pessoas" Género e Pobreza no Norte de Moçambique](#). Inge Tvedten, Margarida Paulo and Minna Tuominen. Chr. Michelsen Institute (CMI) Report R 2009: 14 (Port).
- ["If men and women were equal, we would all simply be people" Gender and Poverty in Northern Mozambique](#). Inge Tvedten, Margarida Paulo and Minna Tuominen. Chr. Michelsen Institute (CMI) Report R 2009: 14.
- [Determinants of Agricultural Technology Adoption in Mozambique](#). R. N. Uaiene, C. Arndt, W.A. Masters. Discussion papers No. 67E. National Directorate of Studies and Policy Analysis, Ministry of Planning and Development. Maputo. 2009.
- [Efeito do Cultivo e Comercialização de Culturas de Rendimento Sobre a Segurança Alimentar](#). Félix Simione. Discussion papers No. 62P. National Directorate of Studies and Policy Analysis, Ministry of Planning and Development. Maputo. 2009 .
- [Estabelecimento de Prioridades para a Investigação Agrária no Sector Público em Moçambique Baseado nos Dados do Trabalho de Inquérito Agrícola \(TIA\)](#) . T. Walker, R. Pitoro, A. Tomo, I. Siteo, C. Salência, R. Mahanzule, C. Donovan, and F. Mazuze. IIAM-DFDTT Relatório de Pesquisa 3P. August 2006.
- [Plano de Acção para a Redução da Pobreza Absoluta 2006-2009 \(PARPA II\)](#). Maputo. 2006.
- [Mozambique: Country Assistance Strategy 2009-2014](#). US Government. 2009.
- [Poverty, Inequality, and Geographic Targeting: Evidence from Small-Area Estimates in Mozambique](#). FCND Discussion Paper 192. Kenneth R. Simler and Virgulino Nhate. 2005.
- [Plano de Acção para a Redução da Pobreza Absoluta 2001-2005 \(PARPA I\)](#). República de Moçambique. Maputo. 2001.

## Mozambican Links [Top](#)

- [Instituto de Investigação Agrária de Moçambique](#)
- [Instituto Nacional Estatística](#)
- [Ministério de Industria e Comercio](#)
- [Ministry of Plan and Development](#)
- [Plataforma para Investigação Agrária e Inovação Tecnológica em Moçambique \(PIAIT\)](#)
- [USAID Mozambique](#)

## General Links [Top](#)

- RESAKSS <http://www.resakss.org/> Regional Strategic Analysis and Knowledge Support System. Publications:
  - Working paper series (30)
  - Trends reports (5)
  - Procedures (1)
  - Presentations (32)
  - Posters (6)

- Other (21)
- Issue briefs (17)
- CAADP Country Technical Reviews (14)
- CAADP Country Investment Plans (16)
- CAADP Country Compacts (21)
- CAADP Country Brochures (75)
- CAADP Country Briefs (67)
- [Famine Early Warning Network](#)
- [International Food Policy Research Institute](#)
- [USAID](#)
- [NEPAD](#)
  - [What is CAADP?](#)
  - [Implementing the CAADP Agenda](#)
  - [Useful Resources](#)
  - [Land & water management](#)
  - [Market Access](#)
  - [Food Supply and Hunger](#)
  - [Agricultural Research](#)
  - [Kenya signs continental agricultural improvement scheme](#)
  - [Three countries sign CAADP Compacts](#)
- [Compacts from other countries](#)
  - [ECOWAS Agricultural Policy \(ECOWAP\)/Comprehensive African Agriculture Development Programme \(CAADP\) Ghana Compact to Support the Successful Implementation of the Ghana Food And Agriculture Sector Development Policy \(FASDEP II\). Republic of Ghana. 2009.](#)
  - [Rwanda CAADP Compact to Support the Successful Implementation of the Strategic Plan for the Transformation of Agriculture under the Economic Development and Poverty Reduction Strategy. Government of Rwanda. Kigali, 2007.](#)
- [FANRPAN](#)
  - [7th Comprehensive Africa Agriculture Development Programme \(CAADP\) Partnership Platform \(PP\) Meeting. Yaoundé, Cameroon 21 November 2010 - 23 November 2010](#)
  - [Towards a COMESA Regional CAADP Compact. Framework for the Development of a COMESA Regional CAADP Compact. 13 August 2010](#)
  - [Comprehensive Africa Agriculture Development Programme \(CAADP\) Annual Report. 2008](#)
- [COMESA](#)
- [CAADP](#)