



*Ministério da Agricultura*

MICHIGAN STATE  
UNIVERSITY



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**Research Workshop:**

**Agricultural Public Investments, Policies, and Markets for Mozambique's  
Food Security and Economic Transformation**

**Maputo, Mozambique**

**Hotel VIP Grand Maputo, 20 November, 2014**

**Organized by:**

*Michigan State University*

*International Food Policy Research Institute (IFPRI)*

*The Ministry of Agriculture*

**With financial support from:**

*United States Agency for International Development (USAID)*

This workshop is jointly organised by the Ministry of Agriculture of Mozambique, Michigan State University, and the International Food Policy Research Institute (IFPRI) through its Mozambique Strategy Support Programme (MozSSP), and is financially supported by the United States Agency for International Development's country-office in Mozambique (USAID/Mozambique). The workshop explores how policies and public investments can best support food security and economic transformation in Mozambique. International and national researchers present recent research findings on a range of topics relating to agricultural production, agricultural markets, food security, nutrition, and economic growth in Mozambique. The issues analysed include the following:

### ***The Role of Agriculture - Looking Forward***

Based on traditional drivers of agricultural growth such as underlying supply potential, demand growth prospects, and world price levels, fundamental growth prospects for Mozambican agriculture would appear to be very positive, particularly if continued investments to strengthen the marketing system are successfully realized. Two concerns potentially cloud this picture: climate change and Dutch disease as a consequence of substantial natural resource revenues. These concerns present real challenges. Nevertheless, at bottom, they present good reasons and real resources for investing into, as opposed to out of, agriculture.

### ***The Transformation of Agri-Food Systems in Africa: Challenges for Mozambique***

The rapid growth of urban population in Africa, along with the sustained rise during the last 15 years the per capita income are driving profound changes in patterns of food consumption, even among low-income people. This transformation of the diet - the types of food demanded by consumers - is, in turn, driving profound changes in the structure of agri-food systems in the region, with vast and nutritional implications on employment, education and training, energy use and policy priorities and public investment programs. This talk will (1) describe the changes that are underway, (2) look into possible trajectories for future developments, and (3) explore the specific implications for Mozambique with a view to maximize the positive effects of these transformations.

### ***Prioritising Agricultural Investments and Policy: New Estimates for PNISA***

This study evaluates the economy-wide impacts of Mozambique's agricultural investment plan (PNISA) on a range of economic indicators, including national and regional economic growth and household incomes and poverty. The primary aim is to determine whether the current level and allocation of funds is sufficient to achieve the CAADP target of six percent agricultural growth. Moreover, the study evaluates the potential gains from reallocating funds across expenditure items (e.g., extension, input subsidies and irrigation) and from improving the efficiency of implementation.

### ***Agriculture and nutrition: Trends in production of nutrients and patterns of consumption from production***

Agricultural sector development in Mozambique is posited as a major way to ensure household consumption and dietary diversity for the millions of Mozambican farm households. This presentation provides evidence from recent research investigating the trends in farm production and retained production from 2002 to 2012 using MINAG rural farm datasets (TIA and IAI 2012). Decreasing levels of retained on-farm production of the basic staples places higher reliance on income sources to meet the needs for macronutrients (energy, proteins and fats). The research demonstrates the patterns for three groups of basic crops: cereals, roots and tubers, and legumes. The research also evaluates linkages between agricultural production and nutrition using consumption and expenditures data of rural agricultural households from the IOF2008 Survey conducted in 2008/09 by the National Institute of Statistics (INE). Using the food expenditure data, we evaluate food consumption expenditures with respect to source, whether own production or purchases, to understand the importance of own-produced foods. This highlights the importance of overall agricultural

productivity gains in food staples and as well as income diversification to ensure rural livelihoods, food security and dietary diversity. It is the combination of programs focused on improving household nutrition education and promoting crop diversification at the farm level that are needed to ensure household food and nutrition security.

### ***Unpacking the "black box" of public expenditure statistics: Method for constructing agricultural public spending aggregate using public accounts***

This paper takes a detailed look at public expenditures in agriculture, and at how the data on expenditures are captured in government financial and budget accounts. The objective is to unpack the “black box” of country-level public expenditure statistics reported in various cross-country datasets, and ultimately to enable the use of existing government accounts and their classification and coding systems to identify levels and compositions of government agriculture expenditures, with better understanding of what these data are in fact accounting for.

### ***Competitiveness of cash crops in Mozambique: the case of cashew nuts***

This objective of this study was to analyze price incentives along value chains for cash crops in Mozambique. Cashew nuts were chosen as a case study because cashew nuts are among the three main agricultural commodities that the country exports. We analyzed two separate marketing channels: export of raw and processed cashew nuts. The methodological approach consisted basically in comparing reference prices (in the absence of policy and market distortions) with domestic prices over the period 2005 through 2013. Results from the processed marketing channel indicated that in general, farmers received prices higher than those they would have received in the absence of domestic policies. However, the incentive structure faced by farmers changes when we considered the raw marketing channel. For this segment, prices paid to farmers were lower than what they would have been if the domestic policies were not into effect

### ***Mobile money and market information systems: Prospects and Challenges in Mozambique***

While smallholders in Mozambique are often connected to output markets, input markets are weak and smallholders invest very little in inputs that would significantly increase their agricultural productivity. Mobile money has the potential to facilitate the transfer of cash from the end of one productive season to the beginning of the next, increasing the availability of resources for investments by smallholders which would lead to higher expected yields. IFPRI is collaborating with IKURU and Vodacom to pilot an intervention in which farmers receive discounts on inputs if they purchase them using mobile money, to try to break constraints both associated with input availability and with saving between seasons.

### ***Maize Cost of Production in Mozambique***

The economy of Mozambique depends heavily in agriculture as the majority (80%) of Mozambican active population depends on agriculture for food and income. Therefore poverty alleviation is positively correlated to an increase in agricultural productivity. Among agricultural crops, maize is a key crop in Mozambique as it is produced in all regions of the country accounting for 1/3 of the total cultivated land and contributes with 40% of total calorie intake in food nutrition. Although being produced mainly for household consumption, maize can be considered income crop as maize surplus from smallholders and maize produced by medium and large producers is also commercialized domestically and some exported to other countries. Hence, the evaluation of profitability of maize production is important for maize producers and policy makers. Maize profit calculation requires a computation of its production costs. Studies that have calculated returns on maize production in Mozambique overlooked different cost factors such as management time, land, processing and transportation and this might bring erroneous results. Therefore, this study calculates the profit of maize production taking into account the overlooked cost factors using a benchmark approach for both smallholder and large farms. This approach was used in Mozambique as well as in order countries

in the region and this allows comparison of the results across countries. The results show that the costs of producing maize is lower for the smallholder farm compared to large farm and it is lower for Mozambican farmers compared to the average cost in the region. Maize yield and revenues are lower for the smallholder compared to commercial farm and comparing to the regional average Mozambican maize yield and revenues are lower compared to regional average. These results also yielded lower profits (negative profits) for smallholder farm compared to large farm. Comparing to the regional average, Mozambique exhibits lower maize profits.

### ***Securing land rights: Is the community land delimitation initiative in Mozambique a cost-effective and inclusive alternative?***

Though there is a general consensus on the need for enhancing good land governance to boost agricultural productivity and enhance inclusive growth, the lack of a blueprint on required actions to safeguard land rights lead many countries to pilot various policy measures. In Mozambique, in 2003 the community land delimitation program was established as a means of supporting the registration of a community's land rights, with the ultimate objective of creating local accountability in strengthening the interests and rights to land of the rural poor, such as women and other vulnerable groups. This study aims to evaluate the effectiveness of the community land delimitation program in enhancing private sector investments (both domestic and foreign), efficiency-enhancing land transfers, smallholder agricultural productivity, and rural livelihoods more broadly. It undertakes a qualitative assessment of the process and intermediary impacts of the community land delimitation in Mozambique. Furthermore, Using household and parcel level data from Mozambique, we are able to show how demand for formalization of individual land rights (DUAT) depends on the source/type of tenure risk households face in protecting their land rights. Empirical results suggest that it may be a useful direction for the government to adopt a more pragmatic approach by intensifying/prioritizing the DUAT approach in areas where tenure insecurity is associated with private or idiosyncratic tenure risks, such as ownership or inheritance related disputes, while recognition of group land rights in the form of community land delimitation could be sufficient and more cost-effective in areas where tenure insecurity is associated with collective/systematic tenure risks, such as large-scale land acquisitions.

### ***The Food Security-Energy-Water Nexus in Mozambique – Insights for policy from analyzing improved cook stoves and small-scale irrigation***

In order to successfully implement interventions with inter-linkages between food security, energy and water it is necessary to conduct comprehensive research in advance. Corresponding results will be presented from an analysis of farmer's willingness-to-pay/contribute for fuel efficient cook stoves and small-scale irrigation technologies in Angonia, Tete.

### ***Improving Accuracy and Farmer Confidence in Weather Forecasts: Economywide Scenarios for Better Climate Information Policy***

The relevance of this study lies on increasing interest to improve information channels that can increase productivity of smallholder farmers by optimizing input allocation under uncertain weather outcomes. In the Mozambican context, for example international development partners are increasing support to help the Government build a more climate-resilient economy and deliver reliable water and weather information to people throughout Mozambique. This study will analyze how weather forecasting information is used for input decision in agriculture. It seeks to find the combination of accuracy of, and confidence in weather forecasts (yields) that justify disseminating such information to farmers who, as a result, will better plan for future shocks affected by climate. We assess optimality of accuracy and confidence pairs by looking at the expected economy wide impacts from stochastic simulations of forecasts of different accuracies under different levels of farmer confidence. Results will shed light on economy-wide impacts of confidence in weather information and its use in input allocation.

### ***Smallholder Supply Response to the High Price Environment in Central and Northern Mozambique***

This study uses panel survey data from small- and medium-holder households in selected districts of Central and Northern Mozambique from 2007/08 and 2010/11 to address three empirical questions related to the extent and nature of smallholder cropping and input responses to the higher food price environment seen in Mozambique since 2008. First, to what extent and how have they responded -- via extensification of crop production (increased area planted), intensification (increasing labor and/or other inputs applied per hectare), and/or a combination of both? Second, what role have changes in expected crop prices and market access played in affecting smallholder cropping and input behavior, relative to other household- and village-level factors? Third, are there identifiable conditions or factors that appear to be constraining a more robust smallholder supply response to this higher food price environment, and what implications (if any) are there for public policies that might alleviate those constraints? We find that while there has been a robust smallholder response to higher food prices, by both extensification and intensification of crop production, there remain serious constraints to sustained and even larger supply response will be needed for both broad-based rural poverty reduction and sufficient marketed surpluses to help reduce domestic food crop prices. These constraints could best be addressed if the GoM would focus more investment and policy attention on five key constraints: a) increase investment in secondary and tertiary rural roads so as to reduce transportation costs that raise prices for consumers and lower the output/input price ratios facing smallholders; b) implement research needed to assess the exact nature and extent of the constraints to large livestock keeping in northern provinces, which is preventing smallholders there from accessing not only income and asset growth opportunities from large livestock holding, but also improving their crop productivity via animal traction and manure application; c) provide the public goods required to alleviate the constraints that are found (tsetse eradication efforts; vaccination campaigns; large livestock extension promotion; etc); d) increase the proportion of agricultural R&D within total ag sector spending, and focus an increasing share of that budget on crops with the greatest potential for poverty reduction, namely maize and cassava; e) carefully engage in efforts to facilitate dissemination of improved seed varieties in a way that helps to facilitate private sector investment in developing seed supply chains and improve relationships between private sector retailers, village community leaders, and government and/or NGO extension efforts; these efforts must be spatially coordinated with the key crop production constraints faced by farmers in targeted communities as well as with investments in secondary and tertiary rural road investments."

## DRAFT AGENDA

Time	Researchers (main presenter in CAPS)	Topic	Affiliation	Session
08:30	Registration			
09:00	RAFAEL UAIENE, TEWODAJ MOGUES, TIM BORN, DANIEL CLEMENTE	Opening remarks	MSU, IFPRI, USAID, MINAG	Session 1 Moderator: Rafael Uaiene
	CHANNING ARNDT	Keynote speech: The Role of Agriculture: Looking Forward	UNU-WIDER	
	DAVID TSCHIRLEY	The Transformation of Agri-Food Systems in Africa: Challenges for Mozambique	MSU	
	Q&A / Discussion			
10:45	Coffee break			
11:00	JAMES THURLOW, Rui Benfica, Benedito Cunguara	Prioritising Agricultural Investments and Policy: New Estimates for PNISA	IFPRI	Session 2 Moderator: Emilio Tostao
	RUI BENFICA, Jaqueline Massingue, Cynthia Donovan	Agriculture and nutrition: Trends in production of nutrients and patterns of consumption from production	MSU	
	TEWODAJ MOGUES	Unpacking the "black box" of public expenditure statistics: Method for constructing agricultural public spending aggregate using public accounts	IFPRI	
	HELDER ZAVALA	Competitiveness of cash crops in Mozambique: the case of cashew nuts	CEPPAG-UEM	
	Q&A / Discussion			
13:00	Lunch			
14:00	ALAN DE BRAUW	Mobile money and market information systems: Prospects and Challenges in Mozambique	IFPRI	Session 3 Moderator: Rui Benfica
	JOAO MUTONDO	Maize Cost of Production in Mozambique	CEPPAG-UEM	
	HOSAENA GHEBRU	Securing land rights: Is the community land delimitation initiative in Mozambique a cost-effective and inclusive alternative?	IFPRI	
	STEFAN MEYER	The Food Security-Energy-Water Nexus in Mozambique – Insights for policy from analyzing improved cook stoves and small-scale irrigation	IFPRI	
	Q&A / Discussion			
16:00	Coffee break			

Time	Researchers (main presenter in CAPS)	Topic	Affiliation	Session
16:15	JOAO RODRIGUES, James Thurlow	Improving Accuracy and Farmer Confidence in Weather Forecasts: Economywide Scenarios for Better Climate Information Policy	IFPRI	Session 4 Moderator: Tewodaj Mogues
	BENEDITO CUNGUARA, David Tschirley, David Mather	Smallholder Supply Response to the High Price Environment in Central and Northern Mozambique	MSU	
	Q&A / Discussion			
	MINAG REPRESENTATIVE, USAID/MOZAMBIQUE REPRESENTATIVE, TEWODAJ MOGUES, RAFAEL UAIENE	Closing remarks	MINAG, USAID, IFPRI, MSU	

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The International Food Policy Research Institute (IFPRI) seeks sustainable solutions for ending hunger and poverty. IFPRI was established in 1975 to identify and analyze alternative national and international strategies and policies for meeting the food needs of the developing world, with particular emphasis on low-income countries and on the poorer groups in those countries. (More information at: [www.ifpri.org](http://www.ifpri.org) and <http://www.ifpri.org/book-7296/ourwork/program/mozambique-strategy-support-program-mozssp> )

Michigan State University (MSU) is a public research university located in East Lansing, Michigan, United States and is the firstland-grant institution that was created to serve as a model for future land-grant colleges in the country under the 1862 Morrill Act. Michigan State University (MSU) has worked with the Ministry of Agriculture (MINAG) in Mozambique since 1991. (More information at [www.msu.edu](http://www.msu.edu) and <http://fsg.afre.msu.edu/mozambique/> )

The Ministry of Agriculture (MINAG) of Mozambique has as its mission to contribute to improved food security and poverty reduction by supporting households, the private sector, government agencies, and non-governmental organisations, towards improving agricultural productivity, agro-industry and marketing within the principles of the sustainable use of natural resources. (More information at: <http://www.minag.gov.mz/> )

USAID was created in 1961 from its predecessor agencies, and is the lead U.S. Government agency that works to end extreme global poverty and enable resilient, democratic societies to realize their potential. USAID assistance to Mozambique began during the decade following independence, and includes areas like agriculture, democracy, economic growth, education, environment, health, and crisis response. (More information at: <http://www.usaid.gov/> and <http://www.usaid.gov/mozambique/> )