

# CEPPAG

Centro de Estudos de  
Políticas e Programas  
Agro-alimentares

# CEPPAG

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### Increasing the capacity for agricultural modeling and policy analysis in Mozambique

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#### Key notes

1. Around 15 researchers from CEPPAG, Ministries, Commodity Exchange, and the Central Bank, have been trained in agricultural sector partial equilibrium models and their use in policy analysis, This capacity building exercise was co-organized by, BFAP, FAPRI and CEPPAG, and took place in Maputo, during August 2016.
2. The one-week training focused mainly on building a partial equilibrium model for maize. Following the conclusion of the training, participants have been working together in preparing the Mozambique's 2016 Maize and Rice Outlook under the leadership of CEPPAG. So in addition to being technical, this was a team building exercise.
3. The Outlook, which will be launched this March, includes a section on policy responses to extreme weather events, inspired by recent experience with El-Niño. Simulation results show that commodity prices are expected to increase significantly, leading to a reduction in maize consumption and a slight growth in rice consumption. Given that Mozambique is huge net importer for rice, there is seems to be room for policy.

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The views expressed here are those of the authors alone, and do not necessarily reflect the opinions of Universidade Eduardo Mondlane, University of Pretoria, or University of Missouri.

## Increasing capacity for modelling and policy analysis in Mozambique

Increasing utilization of evidence-based policy options in Southern Africa is challenging. It requires decision makers to communicate their needs well enough for researchers to respond timely and appropriately. It was in recognition of this need, that the Bureau for Food and Agricultural Policy (BFAP) from the University of Pretoria, Food and Agricultural Policy Research Institute (FAPRI) from University of Missouri and The Research Centre for Agriculture Policies and Programs (CEPPAG) from Eduardo Mondlane University, co-organized a one week training in “agricultural sector partial equilibrium models and their use in policy analysis” in Maputo Mozambique.

Partial equilibrium modelling is a popular tool for policy analysis focused in a specific sector and has been applied successfully in the agricultural space globally for many years. Institutes such as FAPRI, the Organisation for Economic Cooperation and Development (OECD) and the Food and Agriculture Organisation of the United Nations (FAO) use these models on a continuous basis, generating an annual baseline outlook and conducting specific policy or market related scenario analysis to support decision-making. The Regional Network of Agricultural Policy Research Institutes (ReNAPRI) utilizes a partial equilibrium model to generate the regional outlook for staple food markets in Eastern and Southern Africa. In addition to the domestic audience, the outlook is presented at ReNAPRI’s annual stakeholder conference. BFAP and CEPPAG are both members of ReNAPRI.

The target audience for the training included not only researchers but also, and more importantly, representatives from CEPPAG partners institutions including the Ministry of Agriculture and Food Security, Ministry of Economics and Finance, Central Bank, Mozambique Commodity Exchange, Customs Authority. The training was deservedly opened by the Rector of Eduardo Mondlane University, in recognition of the importance of the initiative. All participants from Mozambique are now working to produce the first Agricultural Outlook for Mozambique.



Photo credit: CECOMA, Universidade Eduardo Mondlane

The training focused mainly on maize, introducing a single commodity partial equilibrium model based on theoretically consistent elasticity assumptions. The model is solved in Microsoft Excel, hence no additional software license is required to run it. Throughout the week, participants refined the commodity balance sheets included in the model, as well as model parameters. Rice was included as a second commodity towards the end of the week. Key concepts were illustrated through practical scenarios, with participants generating a baseline and several scenarios using different model structures and closure techniques (Figure 1 and Figure 2). The team from FAPRI and BFAP further provided insights into their own policy analysis experiences, including strategies for dissemination of results. The model can be used for policy recommendation to deal with, for example, expected increased prices in coming years. CEPPAG expects to use the partial equilibrium model to generate the Agricultural Outlook for Mozambique.

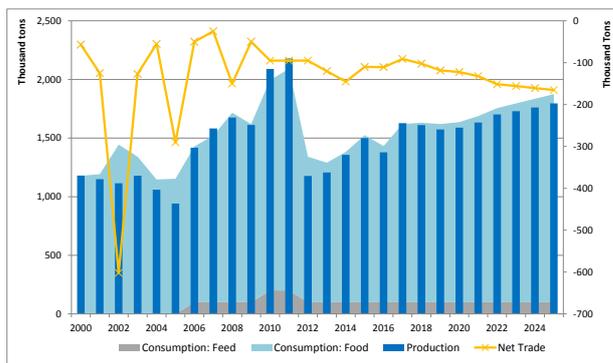


Figure 1: Maize baseline projection

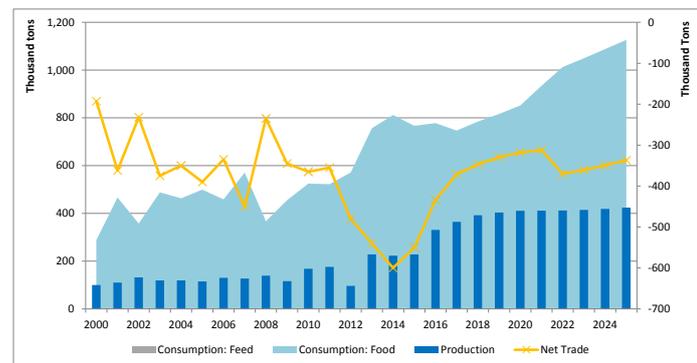


Figure 2: Rice baseline projection

Following the conclusion of the training week, participants have been working together in preparing the Mozambique’s Maize and Rice Outlook under the leadership of CEPPAG. The draft of the outlook, which includes a section on policy responses to extreme weather events, inspired by recent experience with El-Niño, will be presented in the Conselho Coordenador do MASA, the highest decision body of the Ministry of Agriculture and Food security of Mozambique, presided by the Minister himself.

Two different models are considered in the outlook. In model 1, supply and demand for rice and maize are simultaneously determined, with both food crops treated as competitive. The rationale behind model 1 is supported by the fact of rice is an important substitute for maize in Mozambique (FEWSNET, 2014). In model 2, maize flour price is treated as a driver for local supply and demand for maize grain. This reflects the fact that maize imported from South Africa is not sold as grain but as maize flour. South Africa is bigger market than Mozambique, and leads price discovery of Maize.

The baseline scenario is then be utilized to simulate several potential shocks, particularly the effect of the expected La Niña. Results from simulating La Niña suggest that maize prices increase considerable (Figure 3). Maize consumption is expected to decrease in the short-run, while rice consumption grows at lower rates. Current financial woes are also likely to influence domestic prices for both crops.

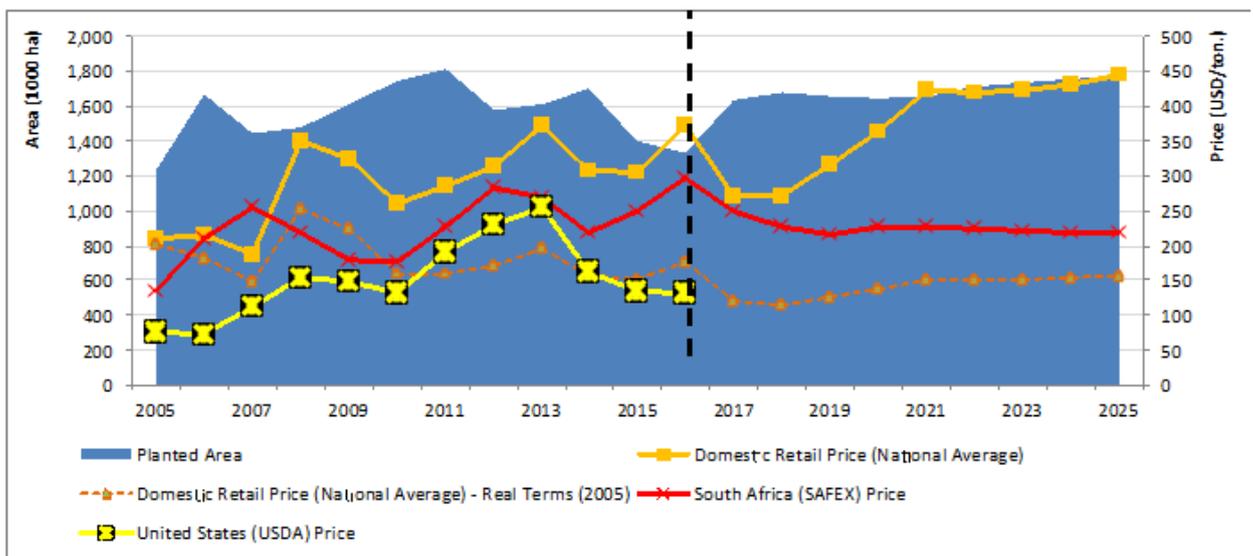


Figure 3: Outlook for maize prices and production areas in presence of La Niña in 2017

**References**

FEWSNET. (2014). Boletim de Preço de Moçambique [Press release].

**ANNEX**

List of participants:

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