

Climate Smart Agriculture (CSA) Modeling



System Dynamics for Data-Driven
Decision-Making in Africa

*OCP Group
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Agriculture is a Critical Sector for Growth in Africa



Growth in the agricultural sector is vital for economic growth and development in Africa. Agriculture makes an important contribution to GDP and employment across the African continent.



Food availability will need to grow in coming decades with a rising population and demand for affordable, domestically produced food.

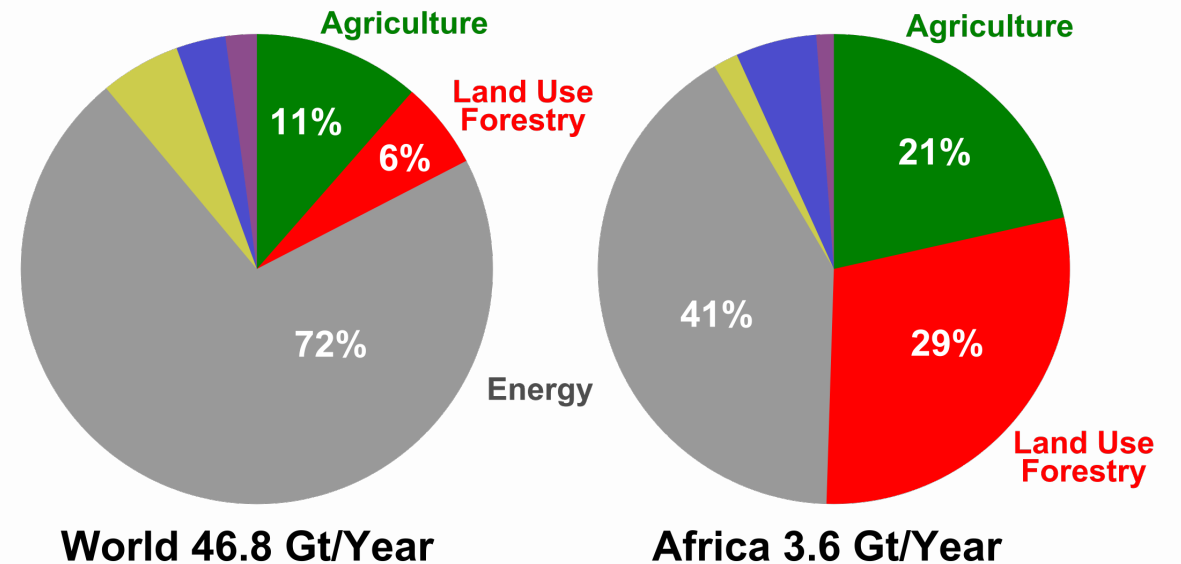


African leaders face a challenge in identifying ways that a country can fulfill its food needs while meeting its emissions goals.

The Distribution of Emissions by Sector in Africa are Different than Global Averages

Although Africa accounts for just 7.7% of global emissions, the distribution of emissions by sector is dramatically different than the global averages.

Climate-Smart Agriculture stands to make a significant contribution to achieving emissions goals in Africa through reductions in agricultural and land use emissions.



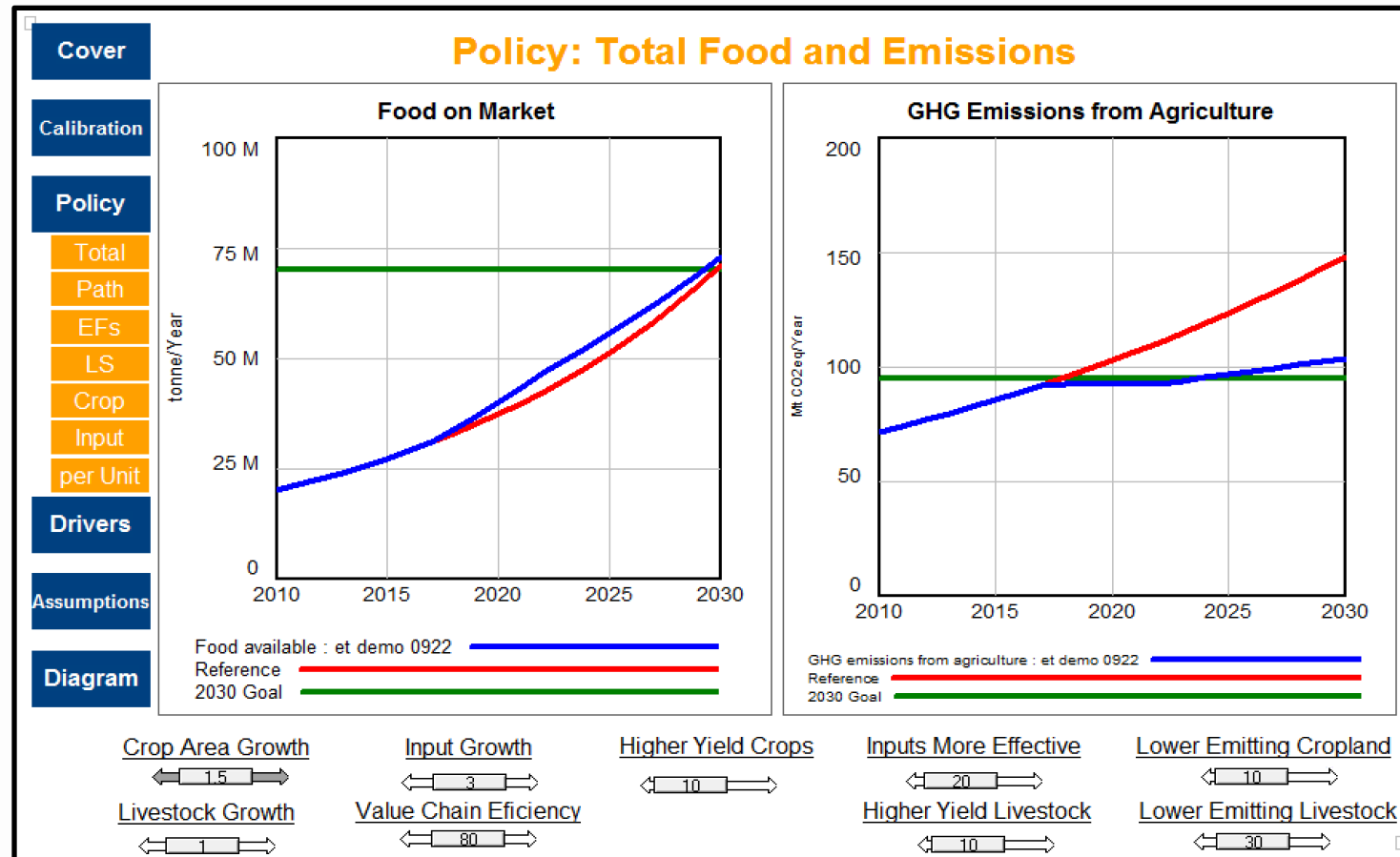
How to Meet the Dual Goals of Food Security and Reduced Emissions?

There is a need for a tool that can inform Climate-Smart Agriculture policy discussions by:

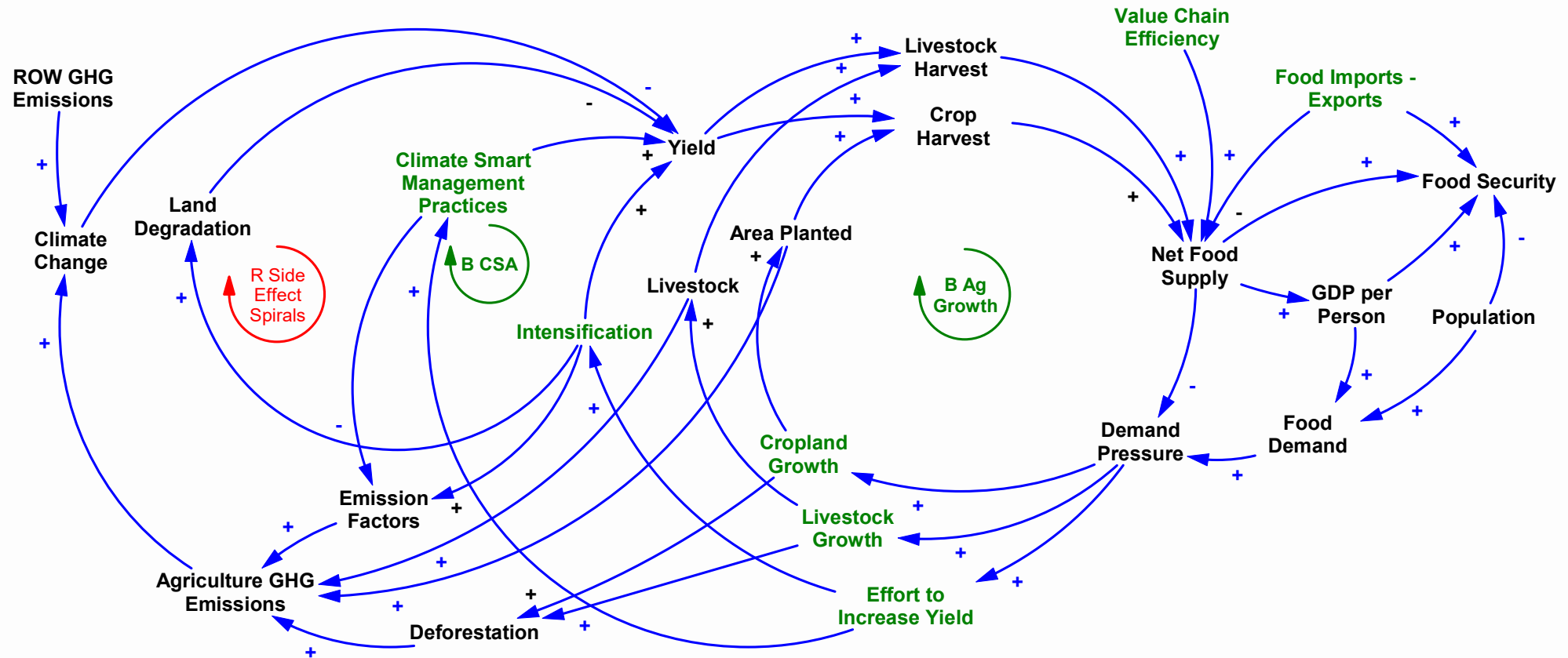
- Using empirical data to set goals and identify gaps for food security and emissions
- Allowing participants to visualize nationally-set targets in an easily digestible format
- Incorporating differences in the local context

Undertaken with the objective of expanding the capacity of African decision-makers in order to determine the smartest trajectory for growing food availability and reducing emissions.

Using Data to Project Scenarios for Food Security and GHG Emissions



Informed by a System Thinking Approach to Climate-Smart Agriculture



Current Progress

In consultation with local experts, we have used publicly available data to develop an initial demonstration model based on the Ethiopian context.

- Referring to Ethiopia's Communication to the UNFCCC and the Climate-Resilient Green Economy Strategy, Climate Interactive built a model based on nationally-determined goals and proposed policy changes.

A second demonstration model is now being built based on the Green Morocco Plan.

Since the CSA project was launched in May 2016, Climate Interactive, OCP Africa and University Mohammed VI Polytechnique (UM6P) have conducted twelve climate-smart agriculture workshops in Morocco, Ethiopia, Ghana, Nigeria and Cote d'Ivoire, reaching over 500 people directly to build capacity for climate-smart agriculture policies.

At COP22, the demonstration model will be presented to demonstrate its policy relevance and the project's longer-term vision. Following COP22, the demonstration model will be further refined, adding details and structure.

4.3.1.1. Soil Mitigation Options

The introduction of lower-emitting techniques, such as conservation agriculture, watershed management, and nutrient and crop management, could reduce emissions by 27,799.967 Gg CO₂e in 2030 from their 2013 level. Agricultural intensification and the capture of new agricultural land in arid areas through irrigation and the introduction of new techniques of crop production will help to increase the abatement potential from saved forests. The possible initiatives in soil mitigation include:

4.3.1.1. Livestock Mitigation Options

There is the potential to increase the efficiency of the cattle value chain via higher productivity of cattle (for both meat and milk) and an increased off-take rate (decreasing the age at which livestock are sold). Several initiatives would fall underneath this umbrella, including improving the market infrastructure, health facilities and feeding for livestock. These steps could reduce emissions by

Partnering for Progress

We welcome cooperation with African partners to build a more robust model based on stronger data sets and country experience.

- Ambitious goals for expansion and refining the model to reflect local experiences, including data on land stocks, technology adoption rates, nutrient management, conservation management, and more.

UM6P and Climate Interactive will continue to engage stakeholders, across Africa and global researchers, to build interest in the project.

- We will be reaching out to other identified CSA initiatives as part of a broader movement to integrate the contributions that agriculture can make to emissions reductions in Africa.

Thank you

*For additional information, please contact
csa@ocpresearch.com*

