

AgMIP, opportunities and challenges of a global framework in regional southern Africa



Olivier Crespo*, Patricia Masikati, Yacob Beletse



*Corresponding author: olivier@csag.uct.ac.za

Motivation

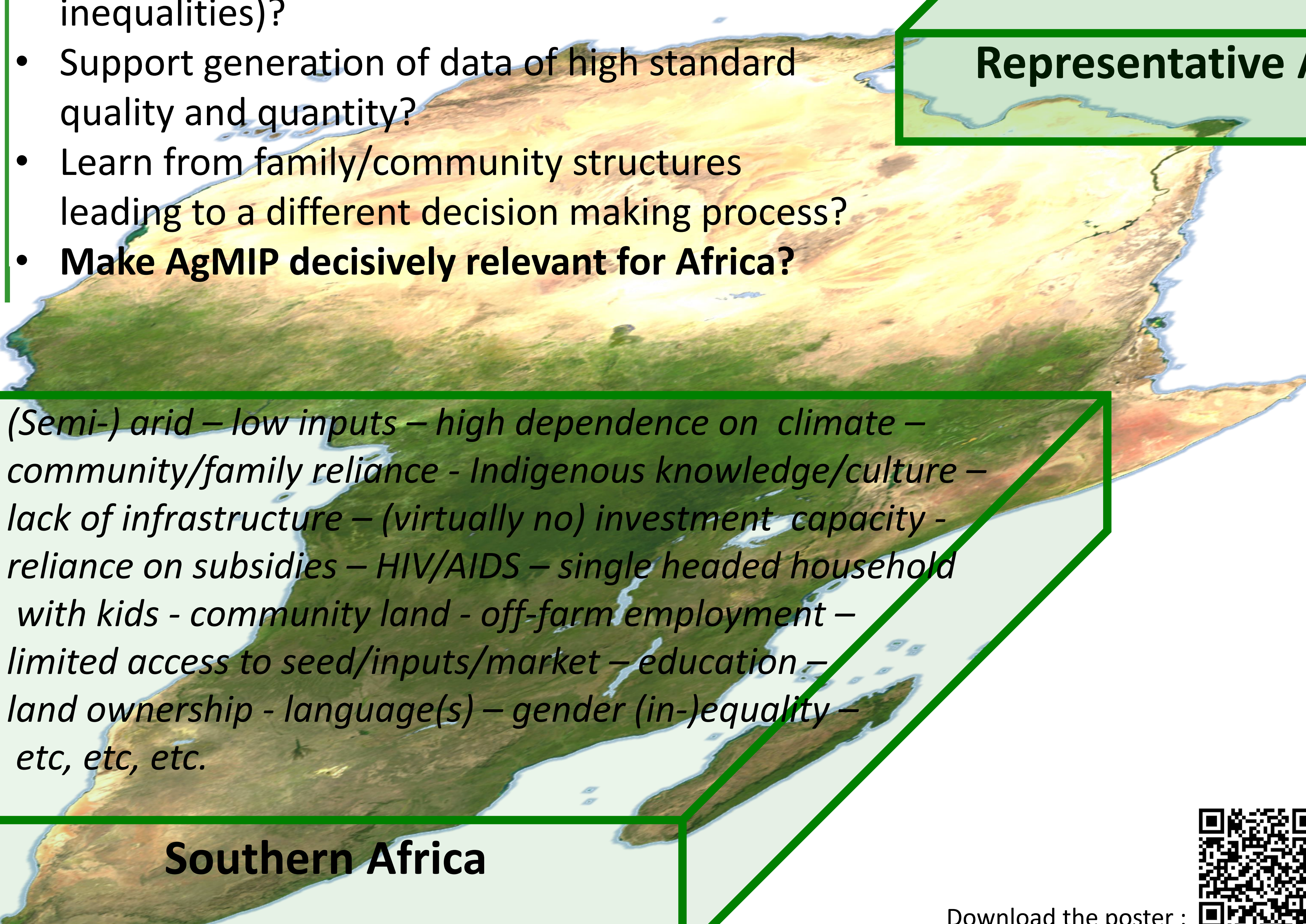
AgMIP framework provides a consistent approach to connect climates, crop models and socio-economic conditions, hence enabling national, regional and global impacts integrated assessments.

This consistent framework is providing **an unprecedented platform for comparison and improvement** of the (climate and crop) models. It offers as well increased confidence relying on open data and runs of a range of conditions, where common traits can be compared across space and time.

This consistency comes **with high model and data demands**, which are not met consistently across regions. (southern) Africa is such a region with (very) limited data and unique conditions which sometimes question the extent of possible comparisons.

How can we ...

- Compare management techniques in connection to their availability/applicability?
- Model subsistence farming, which aims at saving subsidy money for school?
- Build pathways integrating land ownership challenges (redistribution or gender inequalities)?
- Support generation of data of high standard quality and quantity?
- Learn from family/community structures leading to a different decision making process?
- **Make AgMIP decisively relevant for Africa?**



Southern Africa



Download the poster : <http://hail.csag.uct.ac.za/crespo/Publications/ASA-oCrespo.pdf>

with all of CLIP and SAAMIIP members



The best available historical records of 1980-2010 were gathered and used in combination with gridded data where needed. The future climate projections reflect 20 existing GCMs, 5 have been used in southern Africa at this stage.

Climate projections

AgMIP has linked with 19 crop models, the DSSAT and APSIM crop models have been used at this stage.

Maize and sugarcane were modelled in South Africa, mixed crop-livestock systems in Zimbabwe, and subsets of those in the other countries (e.g. Bot, Les, Mal, Moz, Nam, Swa)

Crop Simulations

The agricultural systems are simulated under different adaptation conditions in order to assess the independent and combined socio-economic impacts. At this stage 3 questions were addressed:

- (i) what is the sensitivity of current agricultural systems to climate change,
 - (ii) what is the impact of future agricultural systems to climate change and
 - (iii) what benefits adaptation could bring?
- (for the answers, see same session posters #100, #104, #114, #201)

Representative Agricultural Pathways



Possible ways forward

AgMIP is a solid base for comparison and offers the opportunity to advance toward high standard of African climate , crop and socio-economic integrated modelling and data. AgMIP engagement with stakeholders brought up a number of locally relevant and applicable ways to progress, amongst which the regionally appropriate consideration of access to market/inputs, custom/cultural background, community/family farming, subsistence/commercial farming, HIV/AIDS , tailored information production/dissemination, community/gender land ownership, etc.

Let us improve models to **better represent** locally available and applicable strategies , of today's lesser represented systems yes, but of systems with tomorrow's highest potential for improvement. **Africa can and needs to increase its food production in an African manner.**



Y. Beletse *et al.*, Projected Impacts of Climate-change Scenarios on the Production of Maize in Southern Africa: An Integrated-assessment Case Study of the Bethlehem District, Central Free State, South Africa. Chapter 4 in coming AgMIP book.
 P. Masikati *et al.*, Crop-Livestock Intensification in the Face of Climate Change: Exploring Opportunities to Reduce Risk and Increase Resilience in Southern Africa by Using an Integrated Multi-modeling Approach. Chapter 5 in coming AgMIP book.