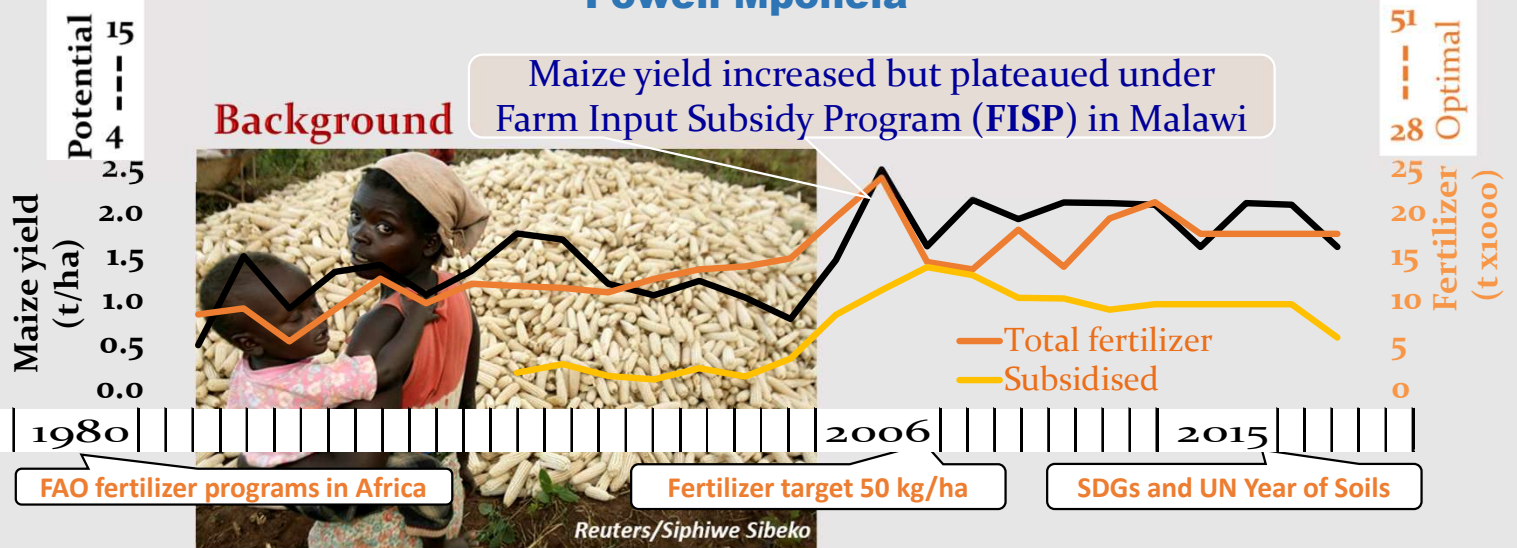




# MASSAI

**MULTI-AGENT SYSTEM FOR SUSTAINABLE AGRICULTURAL INTENSIFICATION**

**Powell Mponela**



## Research Questions

- ① **HOW** can sustainability of complex smallholder farming systems be analysed?
- ② **WHAT** are the anticipated sustainability outcomes **IF** supporting policies are changed?

## Methodology

- ❑ MASSAI-integrate Environmental Module with Behavioural Module & simulate system transition (2017-2037).
- ❑ Farmer behaviour, Crop yield & Soil nutrient balance *under* Subsidy regimes (*Current vs Universal vs Zero*)

## Key Results

- ① MASSAI Platform-: *intersectionality* among factors, *multi-stage* input-output & *spatio-temporal* feedback loops
- ② Subsidy induces *dependence*, *lower nutrient inputs* among resource-poor.
- ③ Projected to *decrease maize productivity*, induce nitrogen gain but phosphorus loss

