Agriculture and climate change

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You can’t see vulnerability from space...

* In Africa, 95% of all food consumed is grown on the continent

* Variability in growing conditions results in widespread reduction in crop production

* Vulnerability to food insecurity results from
  * **Economic context** in which reductions in production occur
  * **Livelihood strategy** and income level of farmers
  * **Political and governmental effectiveness** in providing market and economic stability

* Access to food is the primary cause of food security crises today, not food availability
Agriculture and Climate Change

- Population expansion is likely to peak in 2050
- ‘Business as usual’ CO2 emissions is likely to result in a 4°degree + warming
- Global agriculture is likely to experience declining yields, even with technological advances
- Warming will result in large local production declines in tropical African arid and semi-arid agricultural regions (1 of every 2 yrs harvest failure in Southern Africa (Thornton et al 2011))

Drought stress on rice paddy
Markets may not deliver...

- Market solutions to redistribute excess food will not be reliable if yields decline globally - leading to greater access problems than exist today

- Adaptive capacity of food systems in Africa is low -
  - Food aid as a long term strategy is not effective
  - Response of national governments to protect markets can backfire
  - ‘Farmers will not grow crops or raise livestock that they do know, are not able to sell and are not used to eating’
Social Sources of Vulnerability

- Transforming global food system to respond to increasing demand
- Simultaneous climate change—reductions in yields and global population expansion
- Increases in commodity prices reduce the ability of the world’s poorest to access food from the global market
- Local food production will remain central to food security in Africa for decades—thus the local government’s ability to foster security, access to markets, and political effectiveness is critical