

# 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' CO<sub>2</sub> 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 reduces 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