



Cornell
SC Johnson College of Business

Engaging Higher Education Disciplinary Expertise and Businesses in Systems Approaches to Tackle Agri-food and Health Challenges

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Development Is a Systems Challenge

Advances in agri-food and health systems involve complex feedback and interdependence among:

- Agriculture
- Non-farm businesses
- Energy, transport and communications infrastructure
- Governance and social protection systems – formal/informal
- Natural systems (water, soils, forests, wildlife, climate, etc.)



Two Essential Elements

Progress turns fundamentally on:

- Innovation (in technologies, practices, policies, institutions)
- Investment (in human, physical, natural, social capital)

Effective innovation and investment both require:

- right incentives (to attract attention of most skilled)
- rigorous M&E (most good ideas fail; support ones that work)
- oversight/regulation (to address unanticipated consequences)



**ODA ~\$142bn/yr (and overstated due to “tying”)
<US20¢/d pc <WB LMI poverty line (\$3.20/d)**

**ODA + private grants <20% of external financial flows to DCs.
Dwarfed by private flows: remittances and investment ... each
~35% (source: OECD)**

**The BIGGEST benefits come from new technologies, remittances,
private investment, better institutions ... mostly from private
enterprise and individuals**

Businesses and higher ed have a central role to play



For more information visit www.ilri.org/ibli/



Index-based livestock insurance to protect vs. drought

- CU/ILRI discovery based on remotely sensed NDVI (NOAA product)
- Individuals buy commercial policies to protect their herds
- Private underwriters, global reinsurers, researcher design/M&E
- Commercial pilot in 2010; worked in 2011, 2015, 2017 droughts
- Scaled out to Ethiopia and nationally in Kenya; Takaful version
- Major, positive effects in both countries: 12-20x the marginal benefit/cost of cash transfer programs; reduced adverse coping.



Cell phones, internet, mobile money improving lives:

- Improved early warning systems, delivery of emergency aid
- Small farmers/traders can find best prices: ECX
- Agricultural extension/health message delivery
- Call centers and back office data entry
- “the spread of mobile money helped raise at least 194,000 households out of extreme poverty, and induced 185,000 women to switch into business or retail as their main occupation.” – Suri & Jack 2016 *Science*





Energy availability is low and unreliable, costs high:

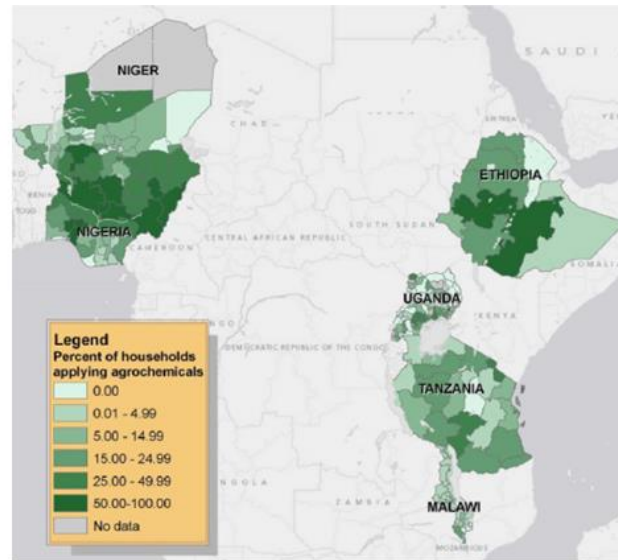
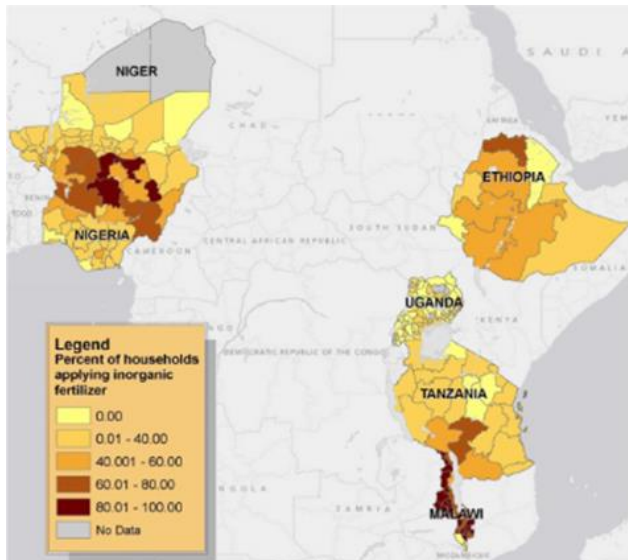
- Solar especially valuable for schools
- Village-scale pyrolysis for local bio-fuels
- Food and agro-input prices heavily affected by fuel costs: e.g., maize prices @ inland markets in ESA respond faster and more to global oil price shocks than to global maize price shocks (Dillon & Barrett *AJAE* 2015)





Commercialization of food value chains is beginning to transform parts of rural Africa:

- Contract farming and retail revolution ... rise of value addition and spread of higher-value commodities
- Rapid spread of modern inputs
- Domestic mkts: >85% food produced/consumed domestically



Source: Sheahan and Barrett *Food Policy* 2017

“Most of the people in the world are poor, so if we knew the economics of being poor we would know much of the economics that really matters. Most of the world’s poor people earn their living from agriculture, so if we knew the economics of agriculture we would know much of the economics of being poor.”

- Theodore W. Schultz

Opening sentences of 1979 Nobel Prize in Economics lecture



Agriculture is ultimate private sector activity. Ag-led dev't main poverty reducer/health promoter globally.



**Need to engage business and higher ed partners
for essential innovation and investment to
address complex agri-food/health challenges**

Thank you for your time, interest and comments

