



COVID-19 edition

# Global challenges to food security and poverty alleviation

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Master CLUES, Université Paris-Saclay, November 2020





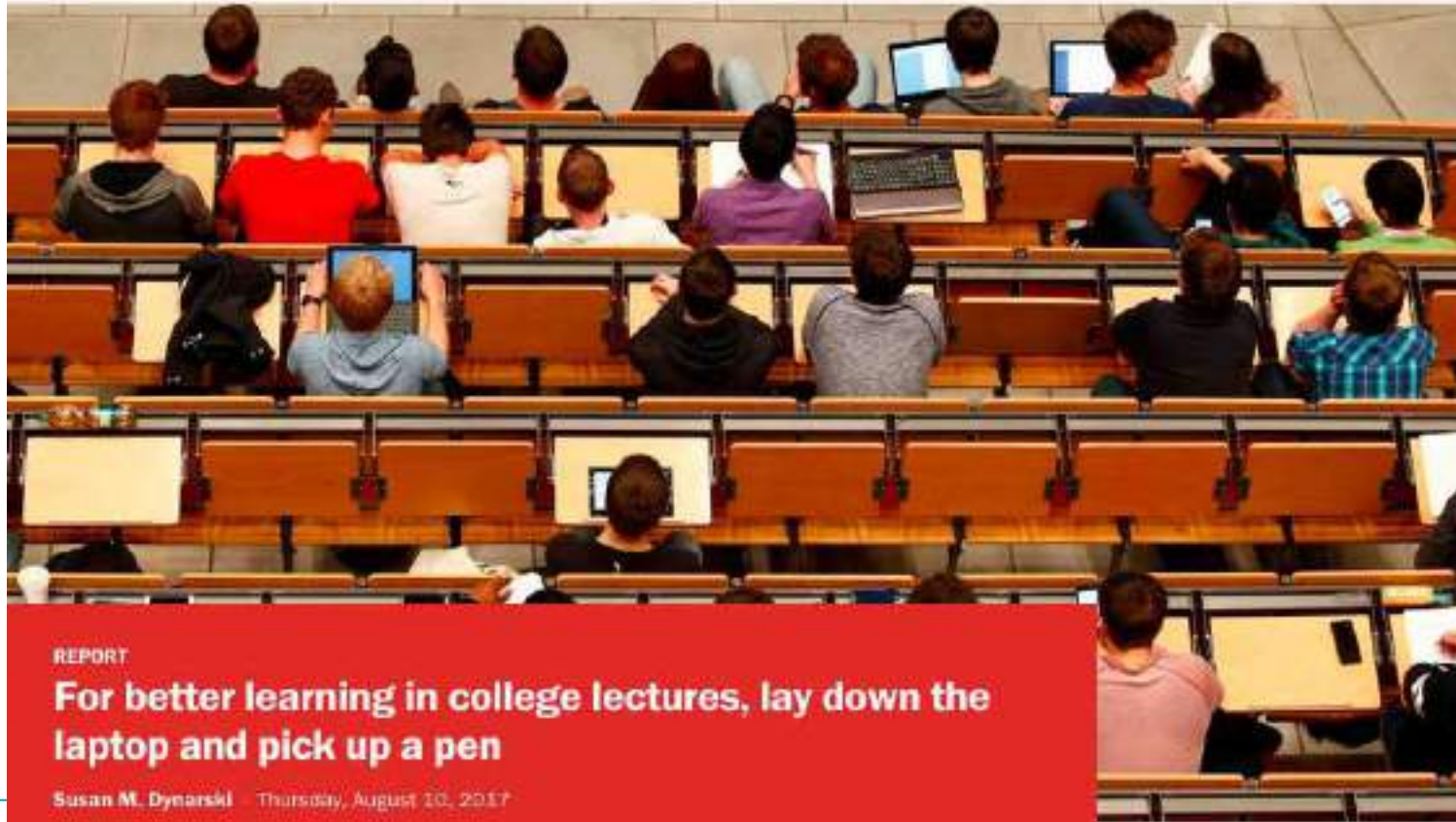
A little round of introduction...

## A small quizz...

- How many extremely poor ( $< 1.6$  €/day) on our planet ? How many poor ( $< 4.7$  €/day) ?
- In which environment do the extremely poor live ?
- How many overweight ? How many suffering from obesity?
- One child dies from undernourishment every 5 hours ? 5 minutes ? 5 seconds ?
- One adult dies from obesity every 10 hours ? 10 minutes ? 10 seconds ?



SERIES: Evidence Speaks



REPORT

## For better learning in college lectures, lay down the laptop and pick up a pen

Susan M. Dynarski Thursday, August 10, 2017

# Global challenges to food security and poverty alleviation



- A global food and nutrition crisis
- Food (and nutrition) security needs more than increased productivity
- Received wisdom vs. facts on rural poverty
- 2 examples in Africa and Asia



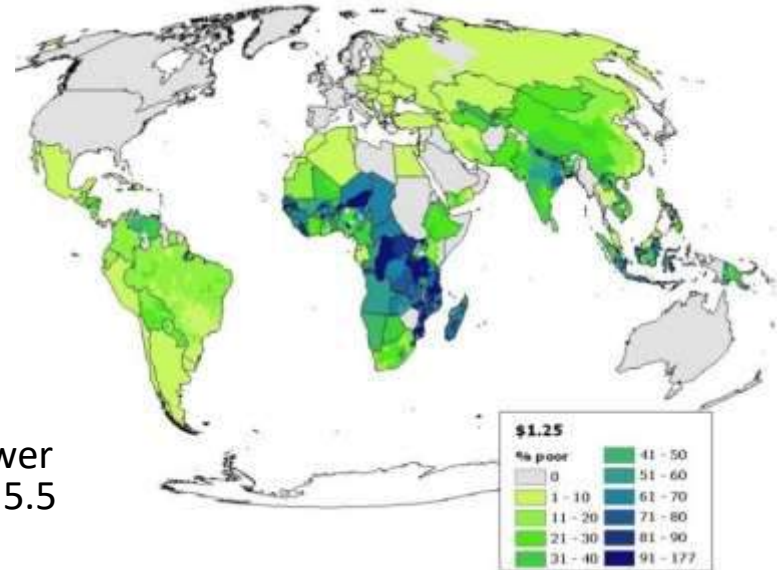


A global food and nutrition crisis

# A food crisis in the developing world

- 3.2 billion poor < 4.7 €/day\*
- 0.7 billion extremely poor < 1.6 €/day\*
- 820 million undernourished
  - Mostly in Africa and South Asia
  - 80% are rural poor
  - Combating hunger starts with reducing rural poverty

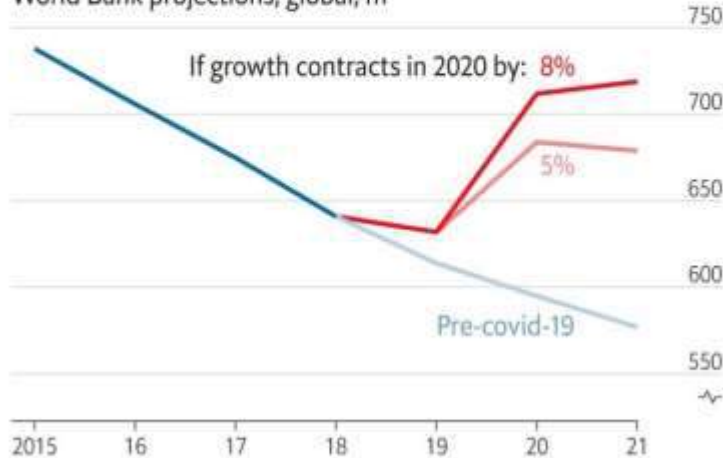
\* World Bank, 2017 - WB poverty lines: 1.9 US\$/day (lower income countries), 3.2 US\$/day (lower-middle income), 5.5 US\$/day (upper-middle-income)



# COVID-19 is making things worse...

## The pandemic has reversed years of progress in reducing extreme poverty

People in extreme poverty  
World Bank projections, global, m



Source: World Bank

The Economist

Not only in the Lower Income Countries...

“The new poor” probably will

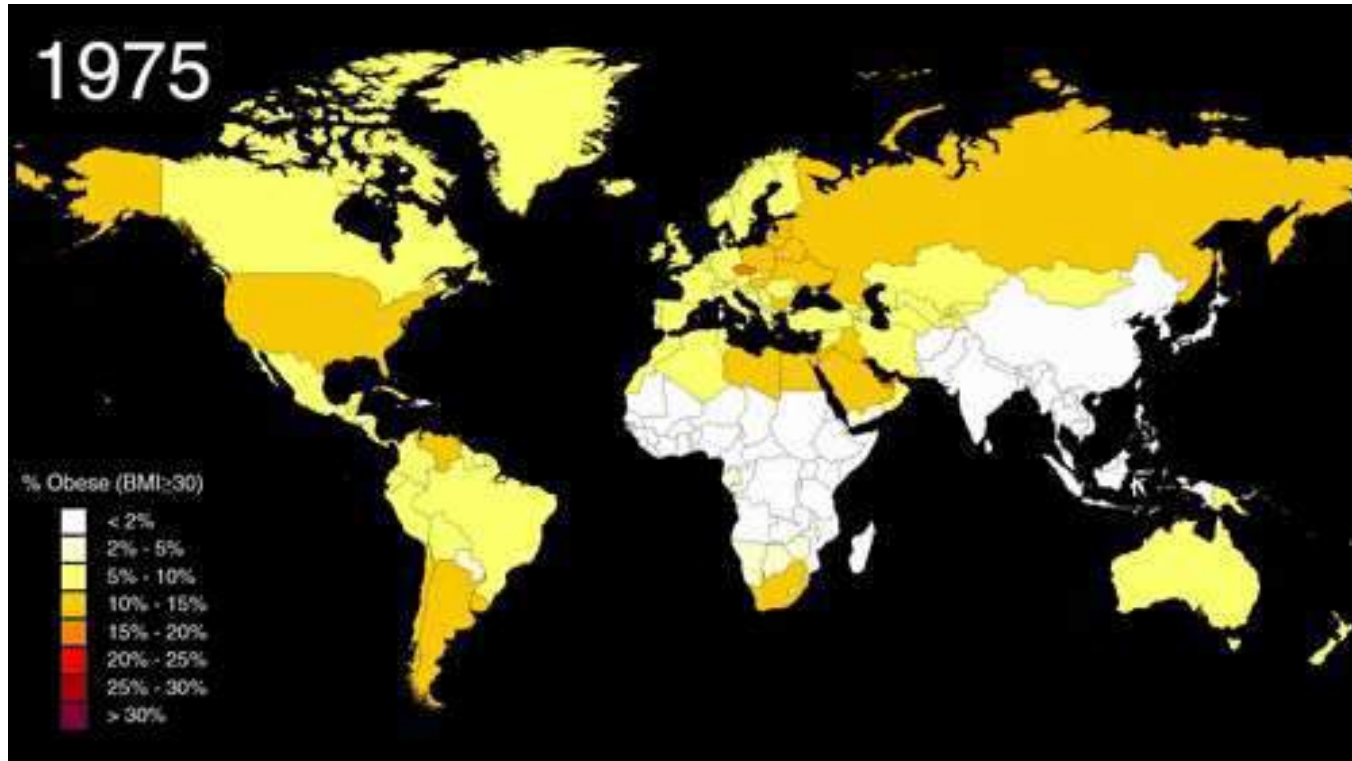
- Be more urban than the chronic poor
- Be more engaged in informal services & manufacturing and less in agriculture
- Live in middle-income countries (82%)
- Live in congested urban settings and work in the sectors most affected by lockdowns and mobility restrictions



# A nutrition crisis... now global



# Overweight and obesity: Recent and neglected



# The nutritional crisis, unexpected consequence of the food crisis

www.agroparistech.fr

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**Food security**

## Global food crisis triggered cultural shift towards junk food, say researchers

Poor countries urged to act over widespread adoption of fast food diets caused by 2008 price spikes, which made many staples unaffordable

John Vidal

Friday 9 September 2010 14:59 BST

574

Save for later



A homeless child eats food on a street in Kuala Lumpur. A report by Clafani and the Institute for Development has identified a global trend towards fast food. Photograph: Mohd Saifiah/AFP/Getty Images

Millions of people who struggled to pay for traditional staple foods like maize, rice and wheat when global food prices dramatically rose between 2007-2011 have switched to western-style processed "junk-food" alternatives that are high in sugars, fats and salt, a four-year study across 10 countries has found.

**Most popular**

- Florida man shot dead after asking if bulletproof vest 'still worked'
- Hillary Clinton cancels California trip after pneumonia forces 9/11 ceremony departure
- Girls' quality of life shows huge variation in England and Wales
- JD Wetherspoon to offer staff chance to escape from zero-hours contracts
- Police appeal for owner of bag-strap found near



# Food (and nutrition) security

*Food security "exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious\* food to meet their dietary needs and food preferences for an active and healthy life"*

(UN World Food Summit, 1996)

\* nutrition security refers to essential vitamins and minerals required for a healthy development, esp. of children

# The causes of the global food crisis

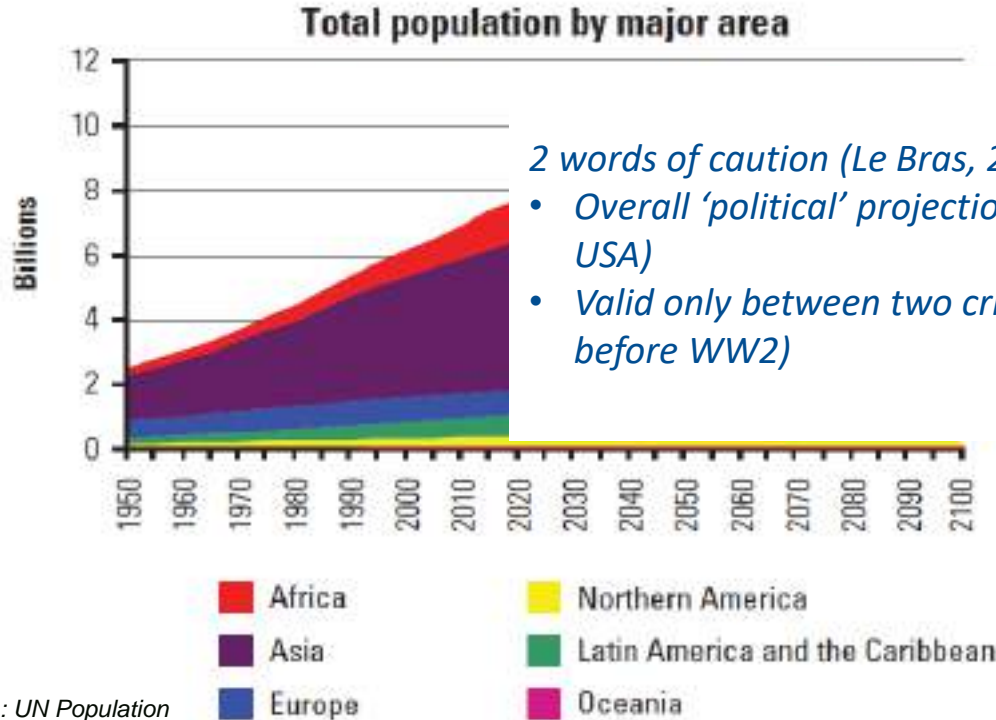
- Long term trends...
  - Increasing demand – Increasing incomes and shifts in diets, globalization and urbanization
  - Decreasing supply – Insufficient growth of crop yields, low stocks, shocks on food products supply, climate change, high energy costs
- ...combined with emerging short-term effects that exacerbate long term trends
  - Speculation and biofuels production hit the poorest disproportionately
  - Uncertainties due to economic instability
  - And of course... COVID-19 disrupting food value chains, esp. in cities



A few critical drivers



# Demography is the main driver



Source : UN Population

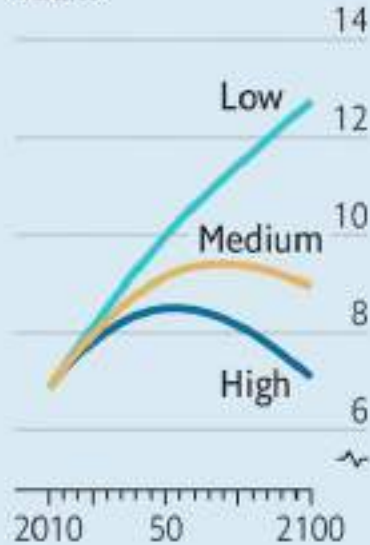
# Demography... a 2 billion error?

## Class divide

World population forecasts, bn

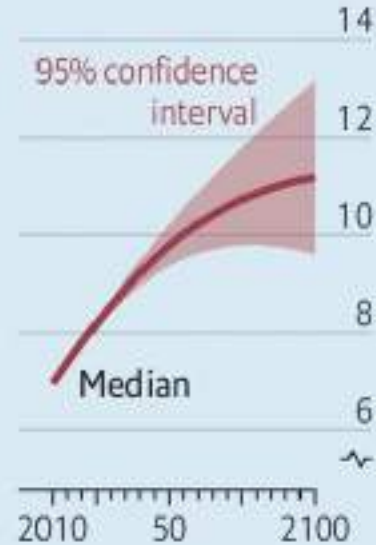
### Wittgenstein Centre

By stock of educated  
adults



### United Nations

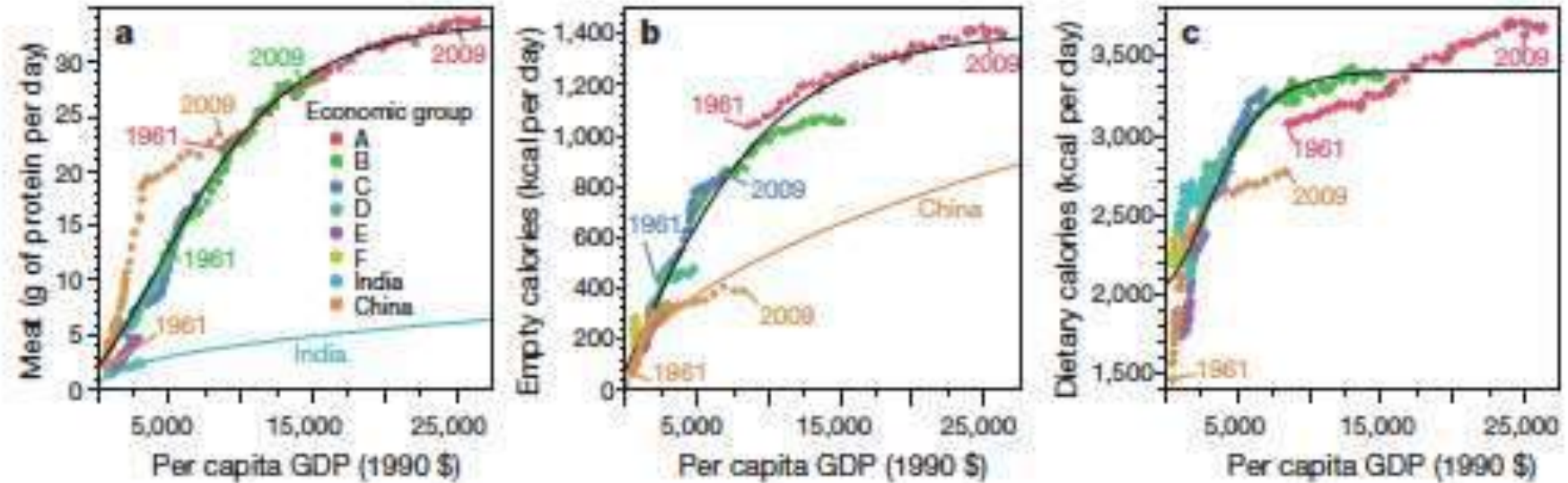
Medium variant



Sources: Wittgenstein Centre; UN population division

The Economist

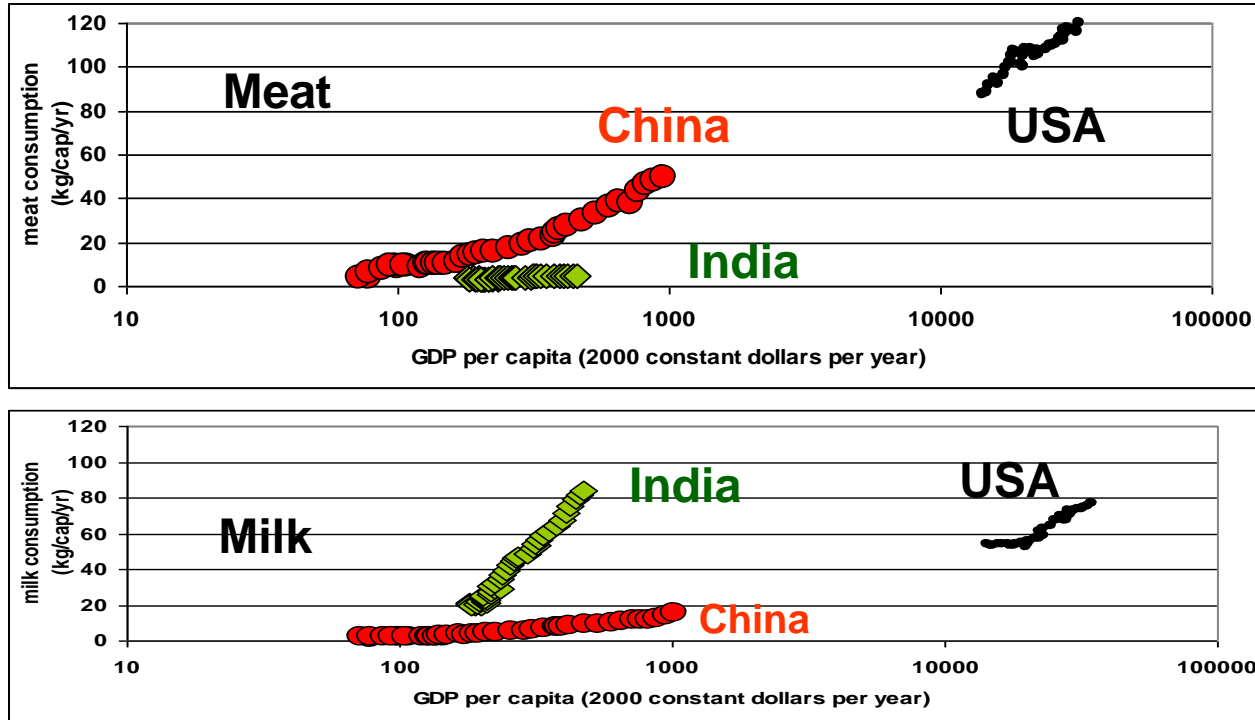
# Food demand should double by 2050... or not!



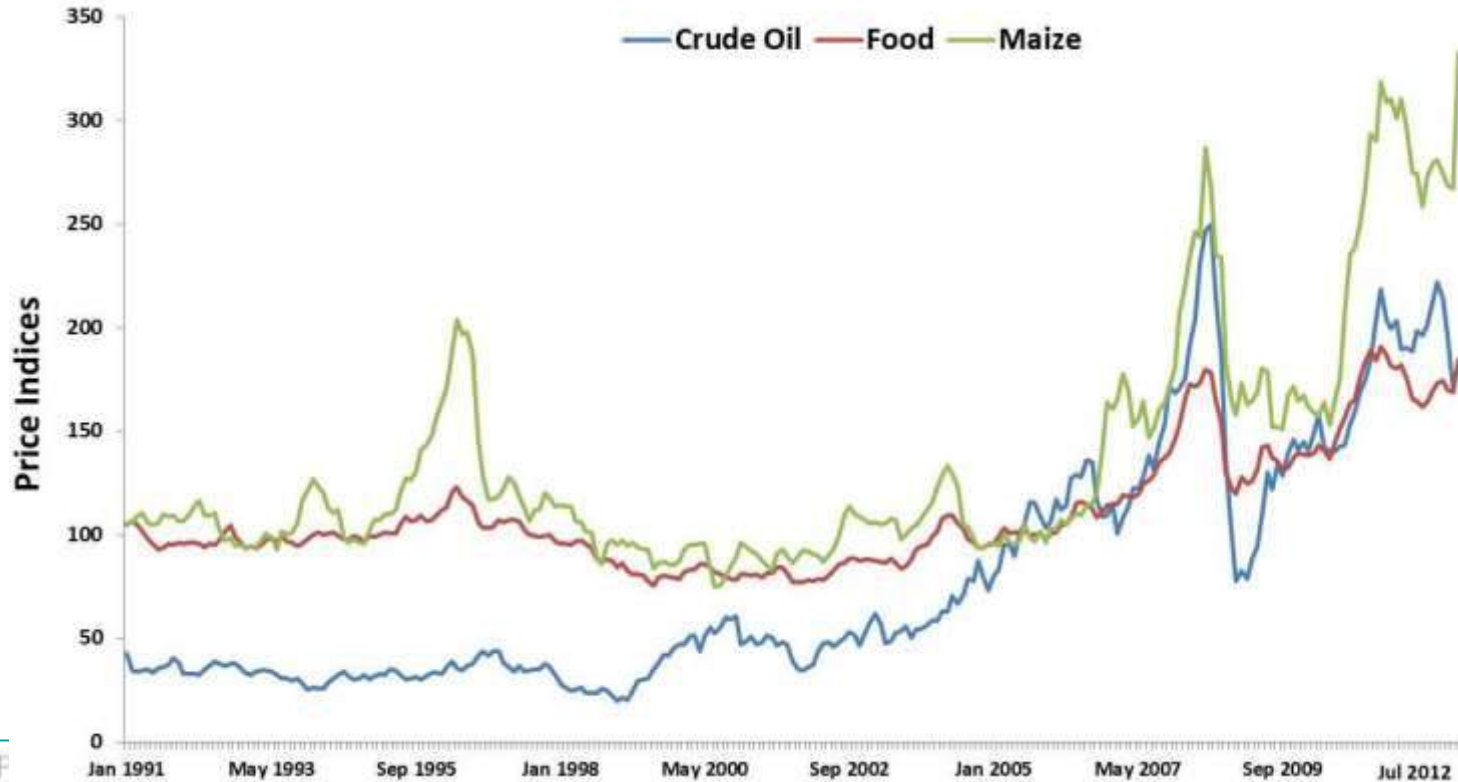
Tilman & Clark, 2014



# More meat in China, more dairy in India

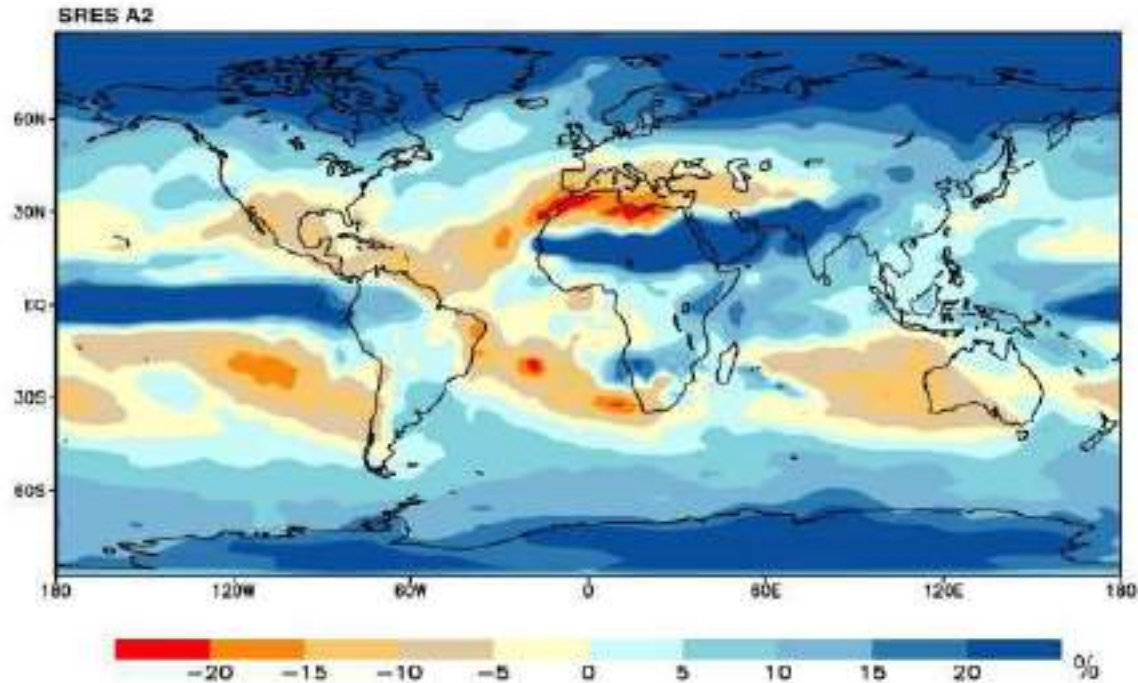


# Short time variations of food prices



# Mid-term effects of climate change

Evolution of rainfall from 1990 to 2070-2100



# Climate variability will impact on food production

## Effects of Climate Change on Global Food Production

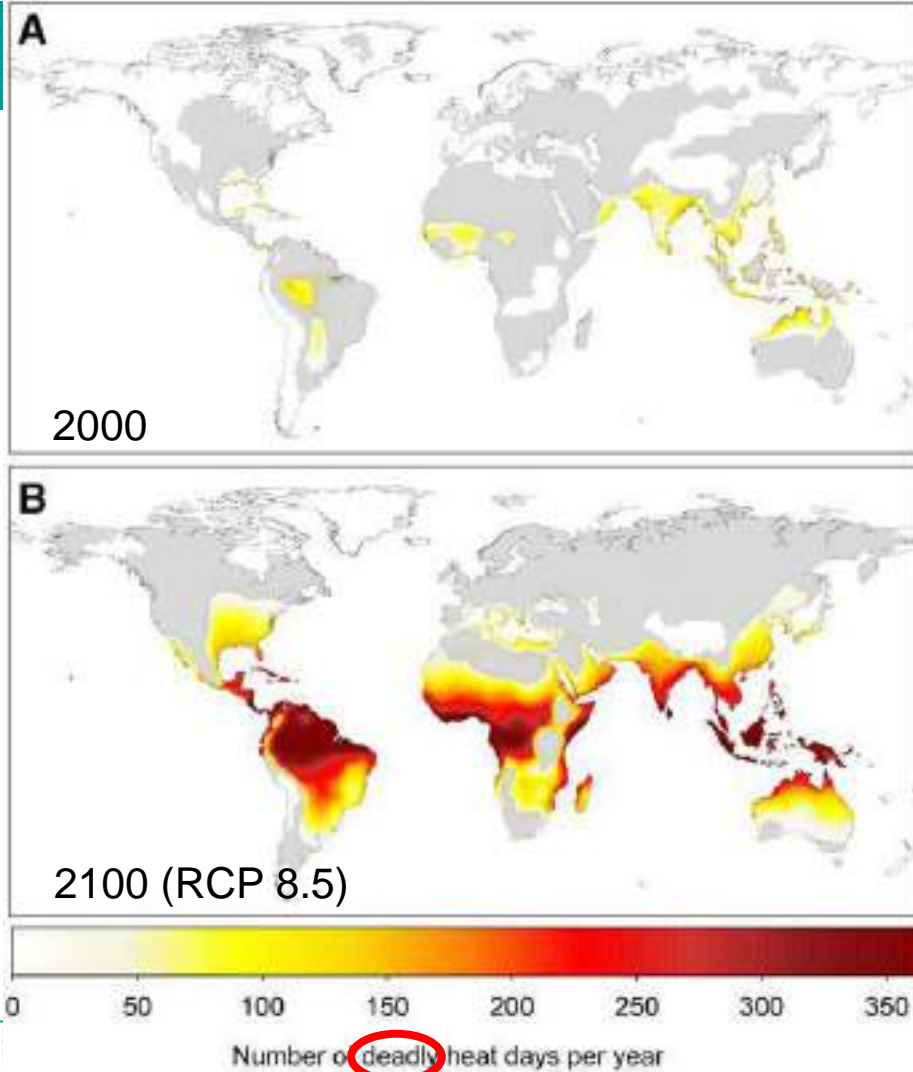


Crop yields drop by 2050 under BAU

- Maize 16%
- Rice 21%
- Wheat 42%
- Average - 5% per 1°C increase

Source: Socioeconomic Data and Applications Center (SEDAC)



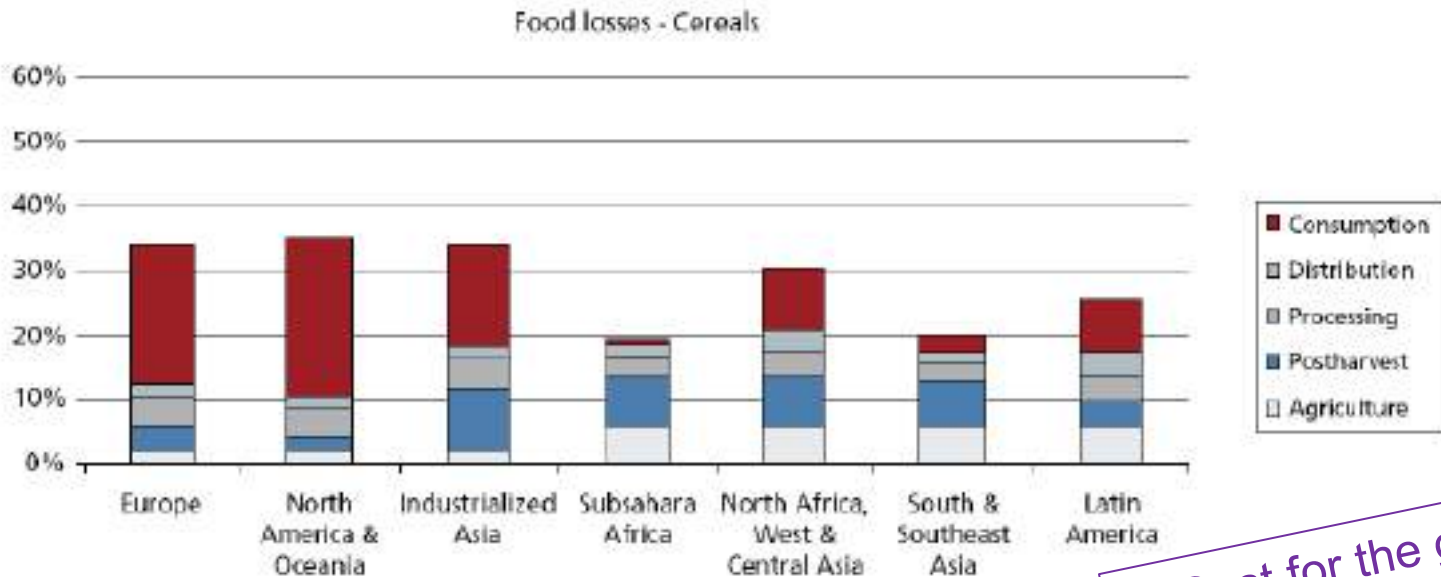


Work force reduction especially

- For the most vulnerable
- In agriculture

Mora et al., 2017

# 30 to 40% of our food is lost or wasted !



Source: Global Food Losses and Waste, FAO, 2011

Cost for the global economy  
2.6 trillion US\$ (FAO)



Food (and nutrition) security needs more  
than increased productivity

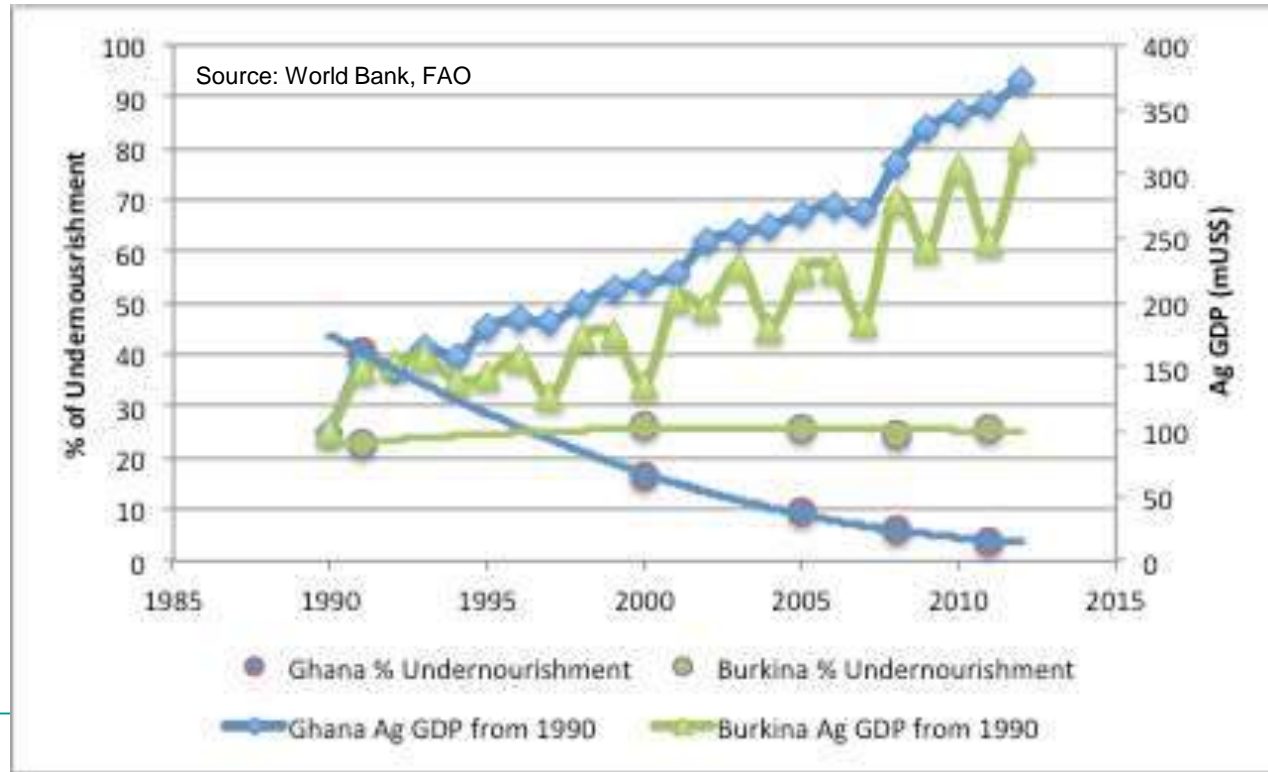
« To achieve food security...  
...let's produce more »

- A simple (yet simplistic) received wisdom, still dominating an 'engineering' supply vision of the world
- Once the response of agribusiness during the 2007 food crisis, and again this year with COVID-19





# Productivity alone is not sufficient to ensure food security



# An evolving discourse, yet intertwined with the 'old' one

- « *Achieving food security requires adequate food availability, access, and use* »
- « *Access to water and irrigation is a major determinant of land productivity and the stability of yields* »

World Bank World Development Report, 2008

- « *New systems must be built for growing and urbanizing populations, changing consumption and income patterns, and food and energy security demands* »

World Bank Paper on Investing in Water Infrastructures, 2012



Let's pause and  
reenergize!

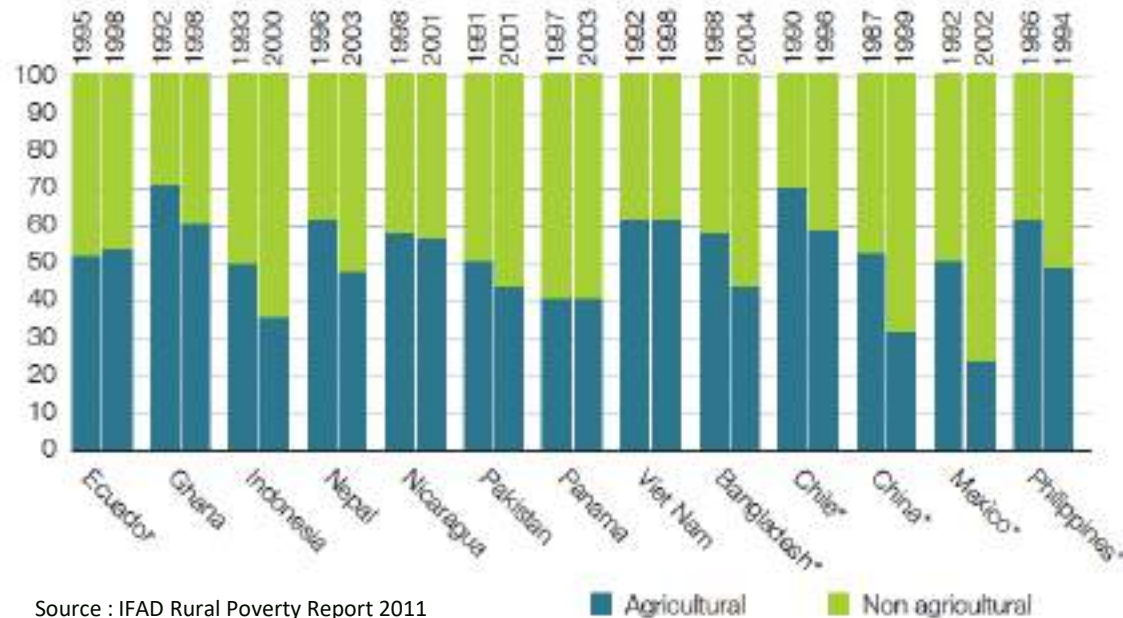
A woman with a bindi on her forehead, wearing a vibrant yellow, red, and black patterned sari over a green top, is captured in the act of pouring water from a red plastic bucket. She is standing outdoors in a lush, green rural environment with large trees and foliage in the background. Her expression is one of concentration or perhaps a hint of weariness. The scene is brightly lit, suggesting daylight. The text 'Received wisdom vs. facts on rural poverty' is overlaid in white at the bottom right of the image.

Received wisdom vs. facts  
on rural poverty



# Alleviating rural poverty starts with increasing / securing yields

- **Not always true** - farming is ever less the main source of income, around 50%



Source : IFAD Rural Poverty Report 2011

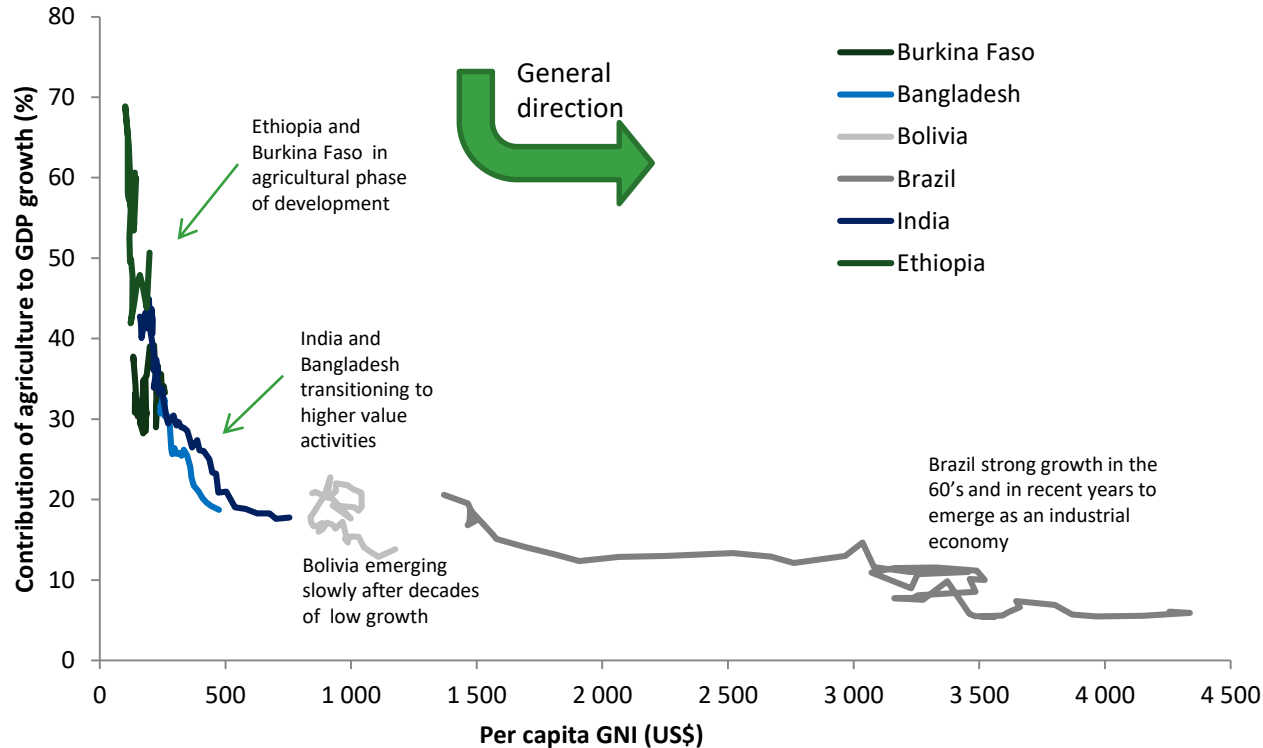
# The rural poor produce enough to feed their family

- **False** - A majority of the rural poor are not net sellers of tradable food staples (but are buyers or self-sufficient)

	Bolivia 2002	Ethiopia 2000	Bangladesh 2001	Zambia 1998	Cambodia 1999	Madagascar 2001	Vietnam 1998
Share of internationally traded staples in food consumption of the poor (%)	25.5	24.1	41.2	40.4	56.3	62.7	64.4
Distribution of poor (%)							
Urban (buyers)	50.9	22.3	14.9	30.0	8.4	17.9	6.1
Rural landless (buyers)	7.2	—	53.3	7.4	11.5	14.8	5.8
Smallholders net buyers	29.1	30.1	18.8	28.8	25.8	18.9	35.1
Smallholders self-sufficient	7.1	39.5	4.6	20.8	18.0	27.3	19.4
Smallholders net sellers	5.6	8.0	8.4	13.0	36.3	21.1	33.6
	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Share of net purchase/sale of staples by specific groups of the poor (% of the total expenditures of the specific groups)							
Purchase per net urban buyer	12.0	9.4	22.7	11.5	5.9	4.8	13.1
Purchase per net rural buyer	12.9	28.4	27.3	18.9	20.8	10.7	19.9
Sales per net seller	37.6	35.1	39.7	21.0	39.0	70.3	37.4
Share of net purchase/sale of staple aggregated across all the poor (% of the total expenditure of all poor)							
Purchase by all poor net buyers	11.3	10.2	22.0	10.3	8.1	3.6	8.8
Sales by all poor net sellers	1.4	2.8	4.0	2.3	14.4	18.4	12.5

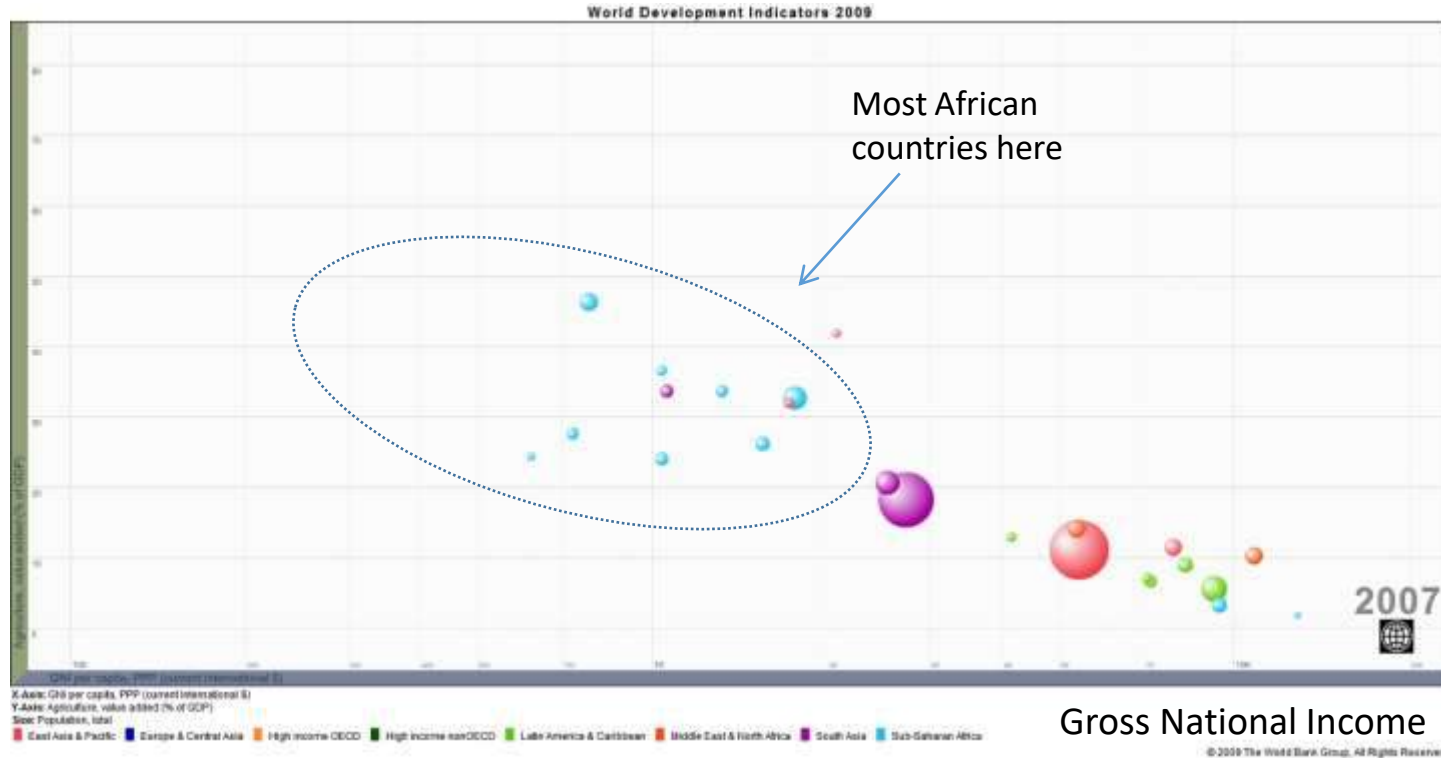
Source : World Bank Development Report 2008

# Rural poverty and development trajectories



Agriculture  
contribution to GDP (%)

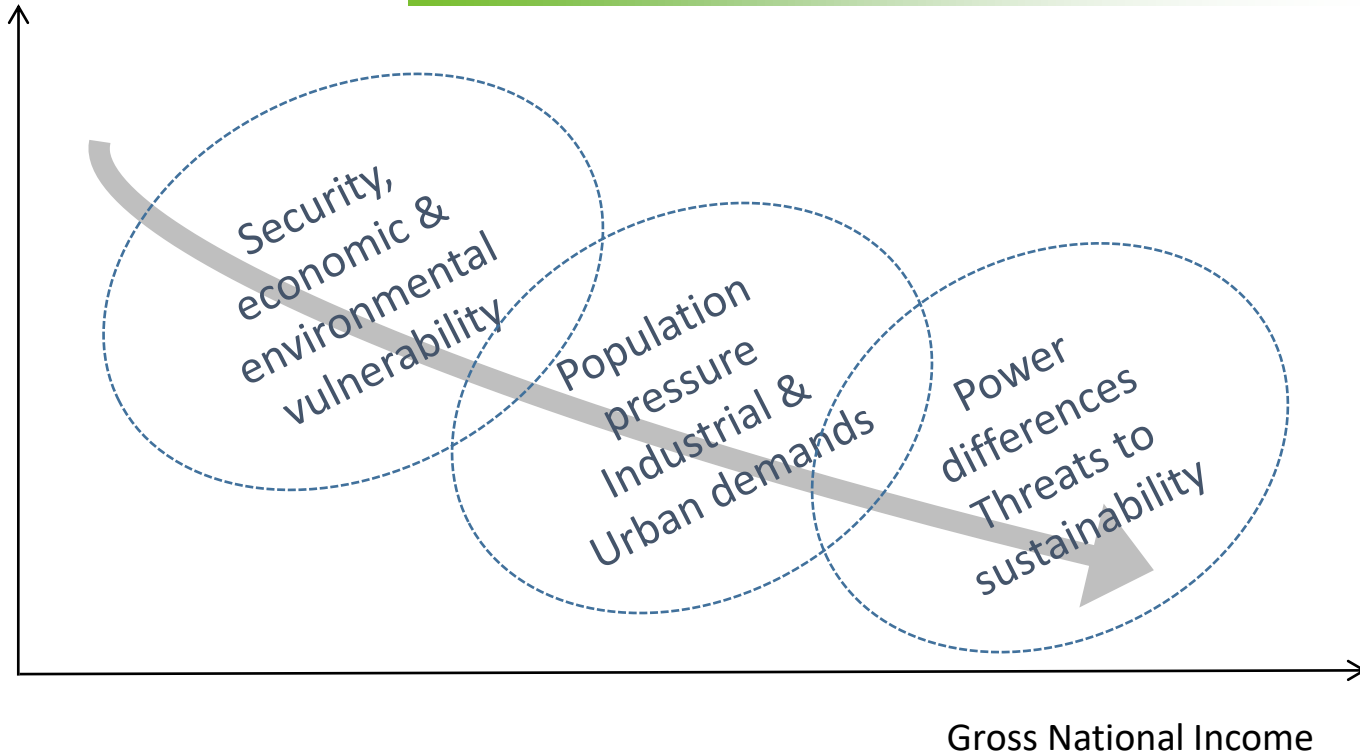
# Evolving economies



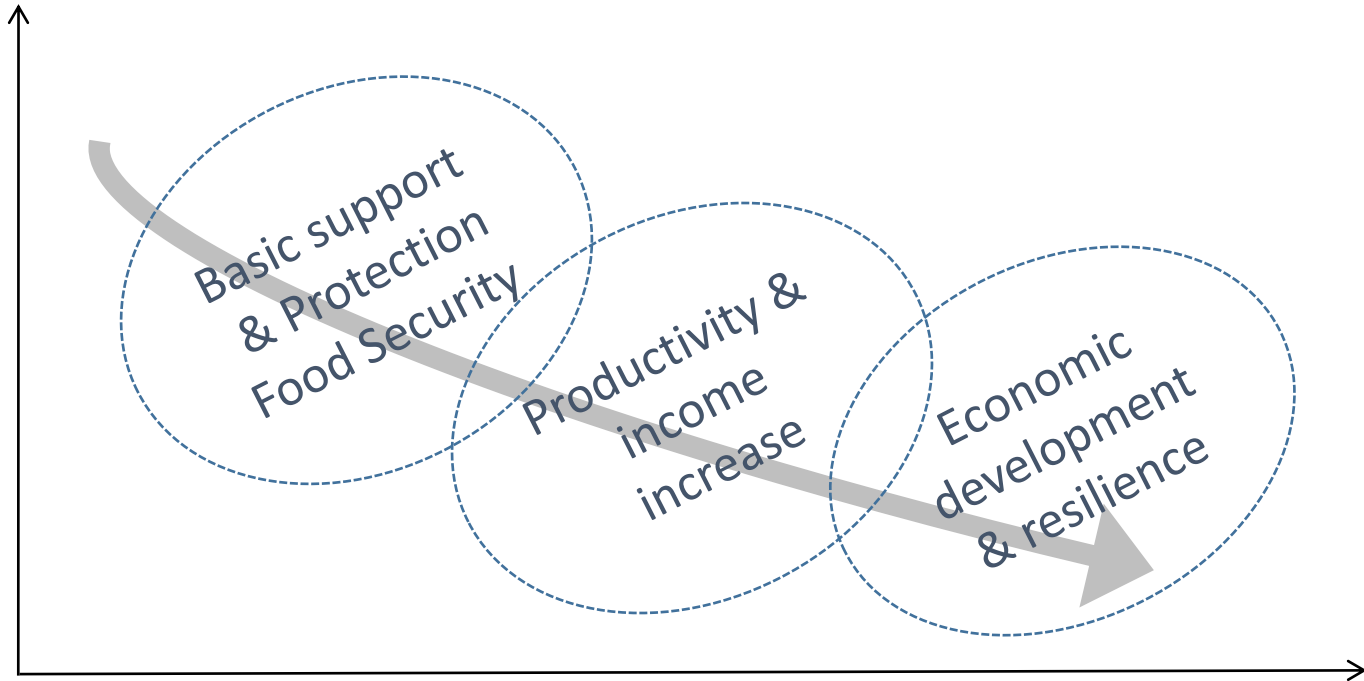


Agriculture  
contribution to GDP (%)

...with specific problems...



## ...and dedicated solutions



**GANGES**



**LIMPOPO**



Addressing food security and poverty  
Two examples



Livestock – securing and leveraging  
development in Southern Africa



# Innovation platforms in Zimbabwe create local markets for goats

- Established around local specific production and marketing systems (auctions)
- Markets raise the value of one goat from US\$10 to \$60
- Virtuous circle where more money flows to the producer - an incentive for growing stock feed and improving rangeland management



*"Everyone seems to be operating under the assumption that increasing production will increase profitability, but the reverse is actually true. If you increase profitability, then production will go up." (BMGF report on Innovation Platforms)*

# A virtuous circle that triggers change to a more resilient state



**Improved livestock:**  
US\$ 50 per goat  
Goat mortality down to 10%



**Local markets**  
Producers self-esteem  
Improved rangeland production replacing  
US\$15 / goat of stock feed value



Recurrent droughts,  
increasing climate  
variability, poor  
connection to markets

**Rainfed maize cropping: US\$16/ha**  
**Livestock: US\$10 per goat**





Sea-level rise : an opportunity  
for the poor of the Ganges Delta ?



# Among the world's poorest



Poverty, food insecurity, vulnerability

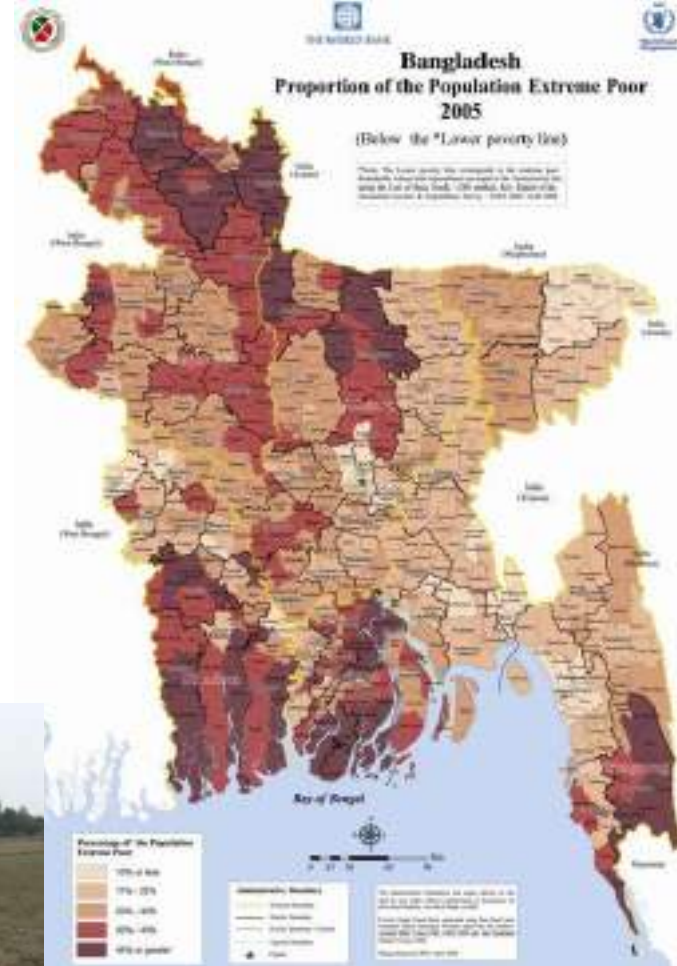
- 75% of households (HH) with 0.2-0.6 ha
- HH income US\$700/year
- 80% of population below national poverty line



Too much water in rainy season



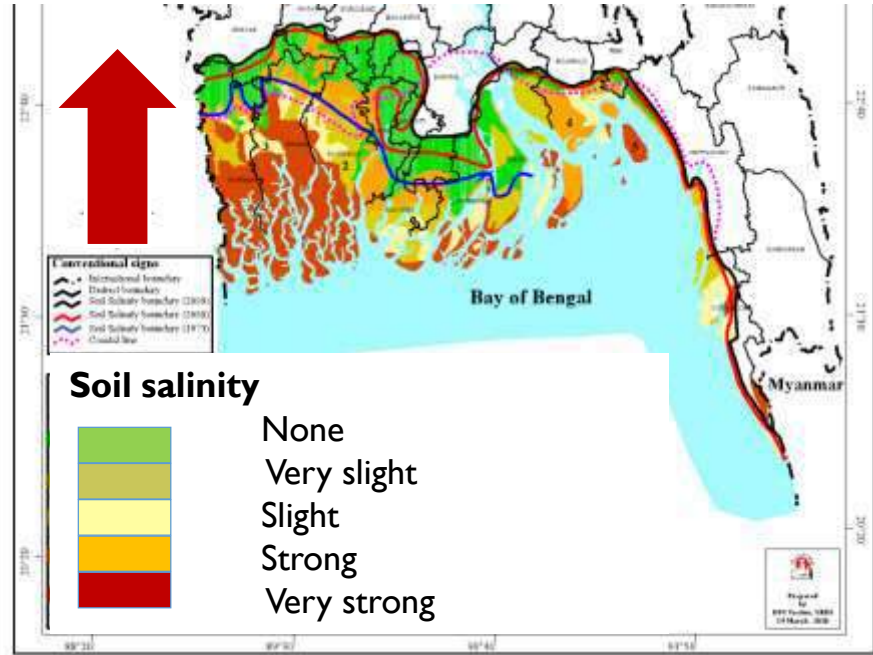
Salinity and lack of fresh water in dry season



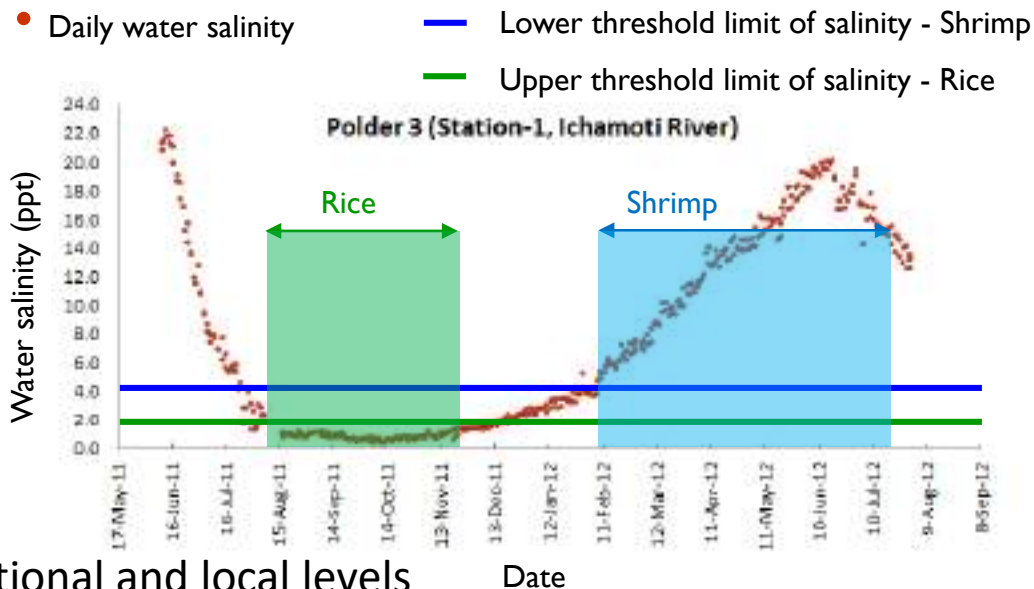


# Untapped potential but growing pressure from salinity

- Huge potential to improve food security and livelihoods
- Salinity not a constraint everywhere – even an opportunity if water properly controlled



# Sustainable intensification of polders: technical and institutional challenges



Lots of viable cropping systems possible with crop diversification, fish and shrimp

Need for political changes at national and local levels

Canal maintenance and management

Shifting from rice monoculture → rebalancing powers



A few messages

# Know whom you work for



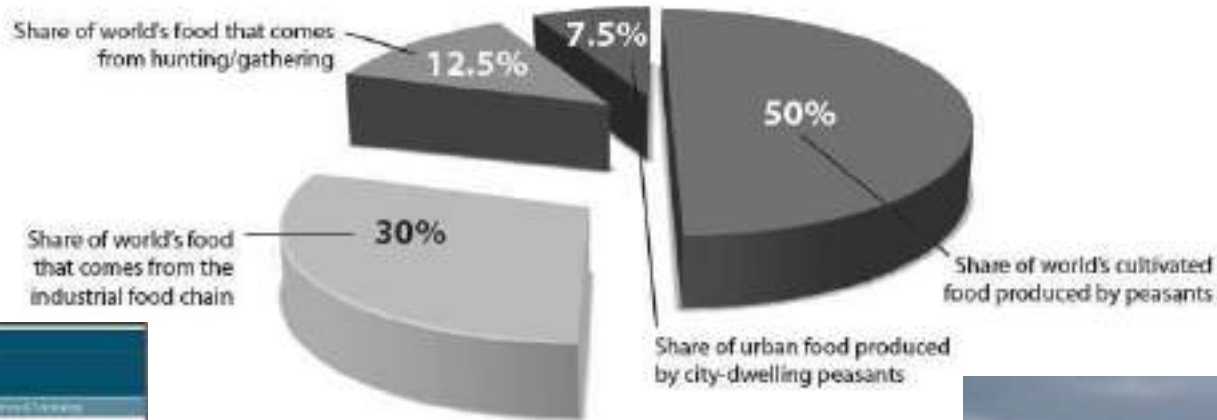
Source: FAO

- Responding to the specific needs of various farmers categories
  - Investment capacity
  - Access to information, inputs, technology, knowledge, finance
  - Policy influence
- Privilege inclusive approaches ⚠



# Don't content yourself with simple solutions when facing a complex problem...

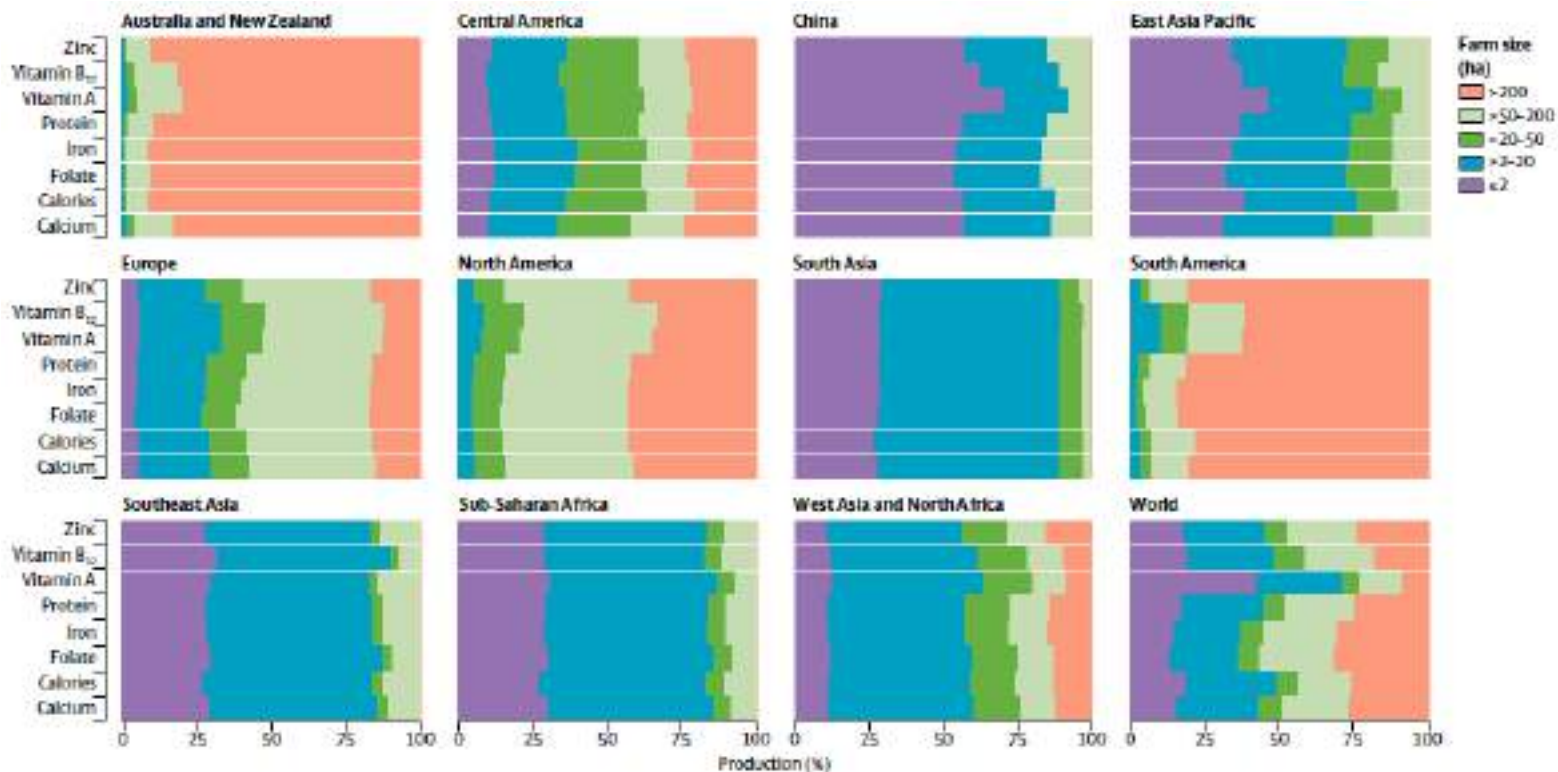
## Peasants Feed at Least 70% of the World's Population



From an activist discourse (ETC, 2009) to a more commonly accepted reality (FAO, 2016)



... and keep an eye on science that moves more quickly nowadays





Thank you

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[www.slideshare.net/alainjbvidal](http://www.slideshare.net/alainjbvidal)

# References and links

- CGIAR Challenge Program on Water and Food (CPWF)
  - [waterandfood.cgiar.org](http://waterandfood.cgiar.org)
- International Food Policy Research Institute (IFPRI)
  - [www.ifpri.org](http://www.ifpri.org)
  - Global Nutrition Report (yearly) <https://globalnutritionreport.org/>
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  - [www.worldbank.org/en/topic/poverty](http://www.worldbank.org/en/topic/poverty)
  - World Development Report 2008 on Agriculture
- Food and Agriculture Organization of the UN (FAO)
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- International Fund for Agriculture Development (IFAD)
  - [www.ifad.org](http://www.ifad.org)
  - Rural Poverty Reports 2011 and 2016



# Photo credits

- CGIAR
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