



CAMPAÑA GRUESA 2016-2017

1er CONGRESO DE PERSPECTIVAS AGRÍCOLAS DE LA BOLSA DE CEREALES
3ra CONFERENCIA INTERNACIONAL SOBRE PROYECCIONES
AGROINDUSTRIALES DE LA FUNDACIÓN INAI



Bolsa de Cereales





Food and Agriculture Organization
of the United Nations



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The Future of Food and Agriculture: Now's the Time for Change

Rob Vos

FAO

Director Agricultural Development Economics

Buenos Aires, 5 October 2016

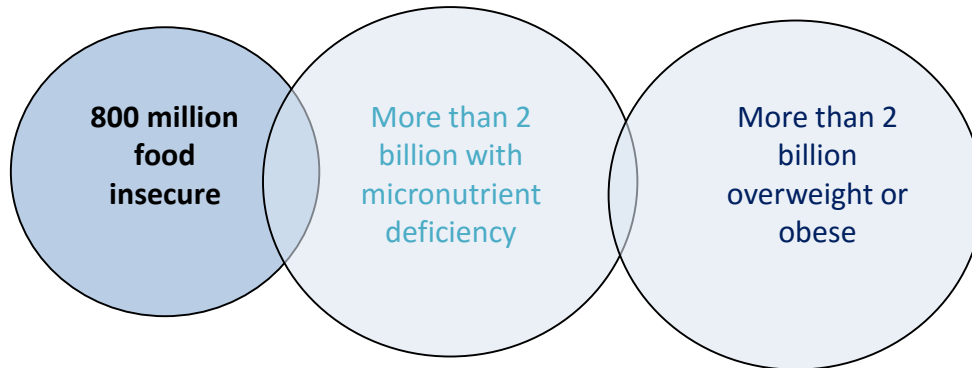


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Food insecurity and malnutrition

- ❖ We produce enough food in the world to feed everyone..
- ❖ ... yet about 1 billion continue to live in extreme poverty and 800 million people are food insecure
- ❖ ... another 2 billion suffer from micronutrient deficiencies and another 2 billion are “over nourished”



Food efficiency and sustainability

Food insecurity has declined in most countries...

YET

- ❖ Progress has been very uneven
- ❖ About 30% of all food gets lost or is wasted
- ❖ Progress has come at cost of natural resource degradation and a large ecological footprint

→ *Our food systems are highly inefficient, unequal, and unsustainable*

→ *Moving forward, business as usual is not an option: transformative change is needed*

Challenges to food stability and availability

1. Sustainably increasing agricultural productivity to meet increasing demand for food
2. Ensuring a sustainable natural resource base
3. Dealing with climate change and intensification of natural hazards
4. Preventing high impact transboundary agricultural and food system threats

Growing and shifting food demand

Population growth, income growth and urbanization will push up and change food demand

- Global food demand will increase by at least 50% by 2050
- Income growth and urbanization shift demand towards fruits, vegetables and meats
- Agricultural productivity growth on trend of 1 to 3% per year

➔ *Will we be able to feed the world?*

Challenges to food availability and stability

BUT:

- **Competition for land and water resources** is intensifying, exacerbating pressures on natural resources and ecosystems
- Climate change and **natural disaster risks** exacerbate constraints
- Agriculture is a main contributor to climate change and **food demand shifts** will exacerbate this (*see also below*)
- **Insufficient investment** in agriculture and R&D
- **Transboundary pests and diseases** threaten productivity growth

Food availability and stability

HENCE:

Business as usual is not an option

- *Rising food demand has to be met through yield increases*
- *A new, truly **Green Revolution** is needed through scaled up investments in sustainable intensification*

Challenges for food access and utilization

5. Addressing continuing poverty and increasing inequality
 6. Tackling the triple burden of malnutrition
 7. Addressing migration and employment challenges
 8. Building resilience to cope with and mitigate protracted crises and conflicts
-

Challenges to food access

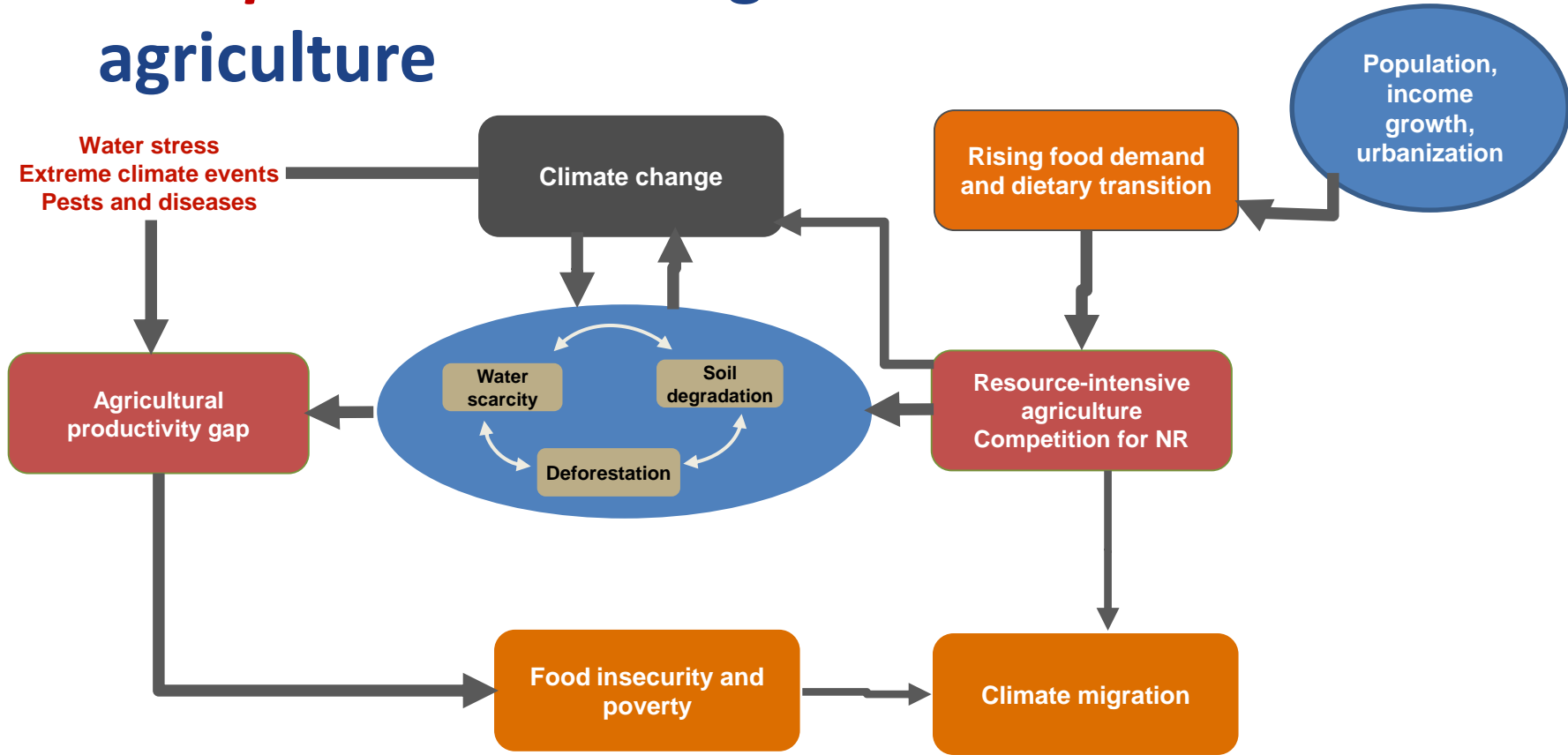
*Much progress in improving access to safe and nutritious food
.. but not enough to eradicate hunger and malnutrition by 2030*

- Resource constraints and climate variability may lead to higher food price levels and volatility
- Persistent (rural) poverty owing to employment deficits, low agricultural labour productivity, gender inequalities, and lack of access to resources and services
- Lack of (youth) employment opportunities and poverty fuel migration (and possibly conflict)

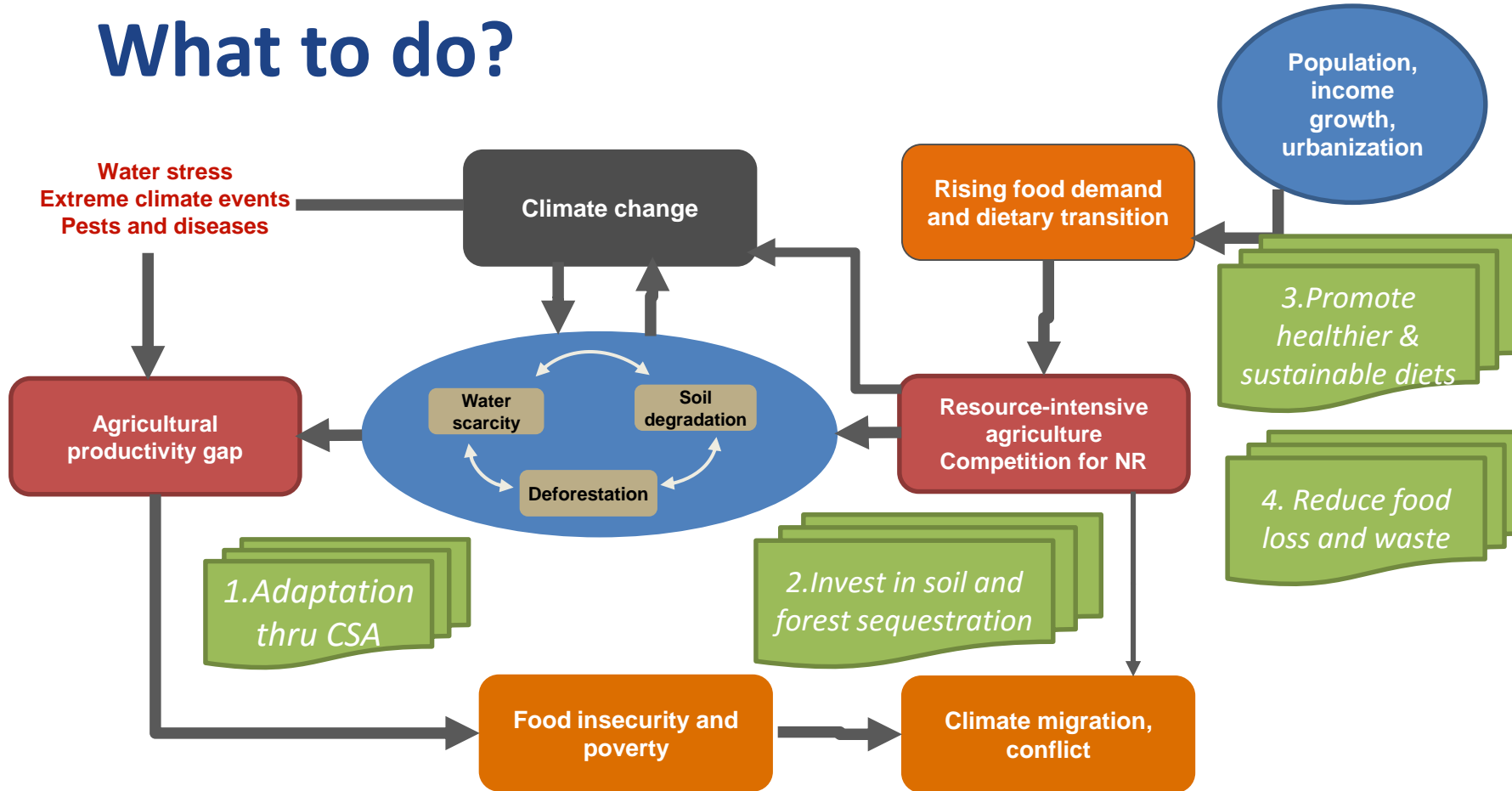
Challenges to food utilization/nutrition

- Dietary transition and changing food systems risk shift to **less healthy and less sustainable diets**
- **Climate change** may lower nutrient value of crops
- **Risks of food-borne diseases** compound food insecurity challenges

Recap: Climate change and sustainable agriculture



What to do?



Towards a green Green Revolution

- *1. Adaptation thru Climate Smart Agriculture*

- Adaptation strategies for smallholder farmers
 - **Sustainable intensification** (e.g. “[save and grow](#)”) – resilience and mitigation co-benefits
 - **Integrated, conservation farming** (e.g. agroforestry; sustainable livestock and crop farm systems)
- Need to overcome hurdles:
 - Access to resources to access to credits and technologies
 - Invest in innovation and adoption to local conditions
 - Facilitate **diversification strategies** (on and off-farm diversification; better risk management; social protection; migration)

Towards a “green” Green Revolution

2. Invest in soil improvement and forests

- Promote sustainable soil management through better agricultural practices
- Reducing emissions in livestock supply chains (e.g. better management of grazing lands, manure control)
- Reverse deforestation and invest in sustainable forest management

Towards a “green” Green Revolution

3. Promote healthier & sustainable diets

- Promote healthier and low-emission diets (e.g. nutrition education, price and subsidy policies; tighten standards to processed foods)

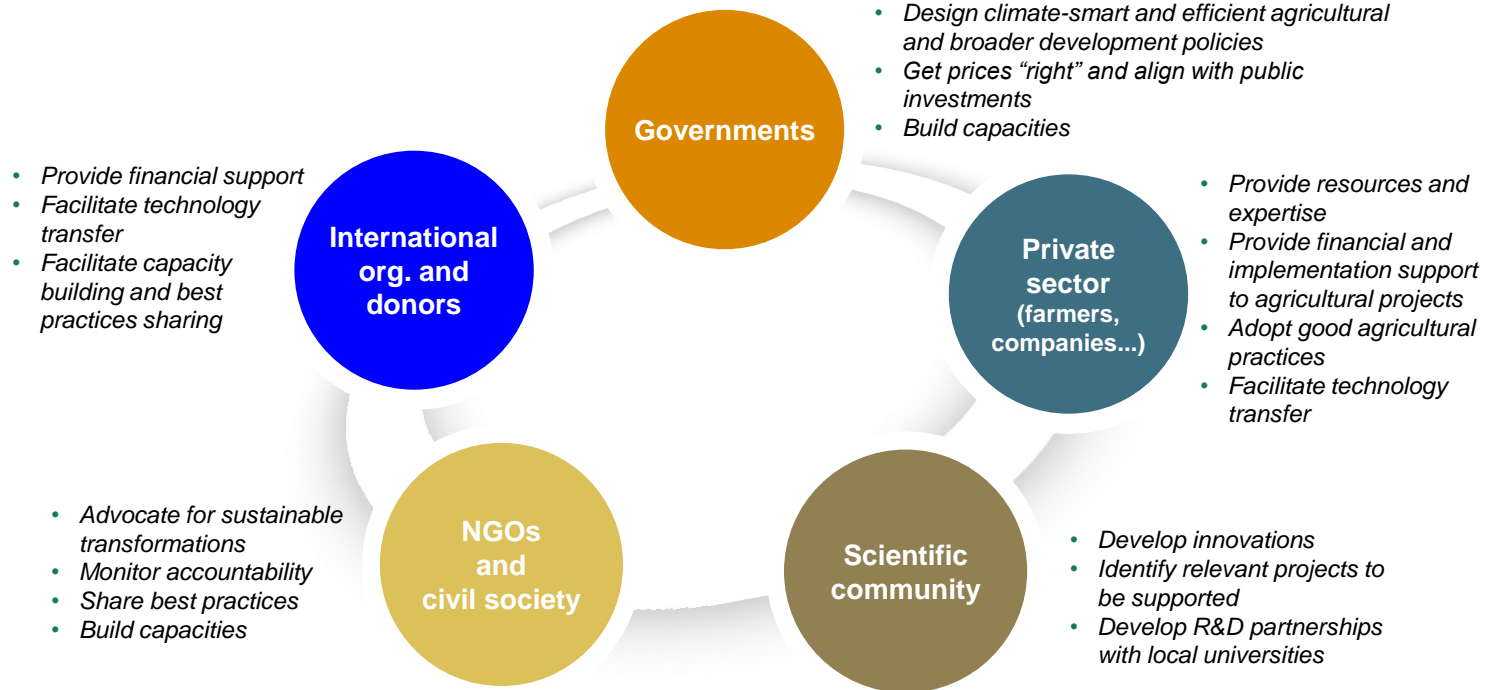
4. Reduce food loss and waste

- Reduce post-harvest food losses by investing in “middle” of food supply chain
- Reduce waste at consumption level

Policy challenges

- **Lack of policy coherence** across policy domains at global and national levels (approaches are sectoral).
 - E.g. agricultural price incentives are often **contradictory** and not aligned with climate and other sustainability goals
 - Public funding: insufficient priority for agriculture
- **Paris Agreement** and **SDG agenda** provide starting points for more integrated approaches, but intentions yet to become action.

Need engagement of all stakeholders



We **can** feed the world, but **not** if we fail to address key challenges ...

1. Sustainably increasing agricultural productivity to meet increasing demand for food
2. Ensuring a sustainable natural resource base
3. Dealing with climate change and intensification of natural hazards
4. Preventing high impact transboundary agricultural and food system threats
5. Addressing continuing poverty and increasing inequality
6. Tackling the triple burden of malnutrition
7. Addressing migration and employment challenges
8. Building resilience to cope with and mitigate protracted crises and conflicts
9. Ensuring more efficient, inclusive and resilient food systems
10. Addressing the needs of coherent national and international governance





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The Future of Food and Agriculture: Now's the Time for Change

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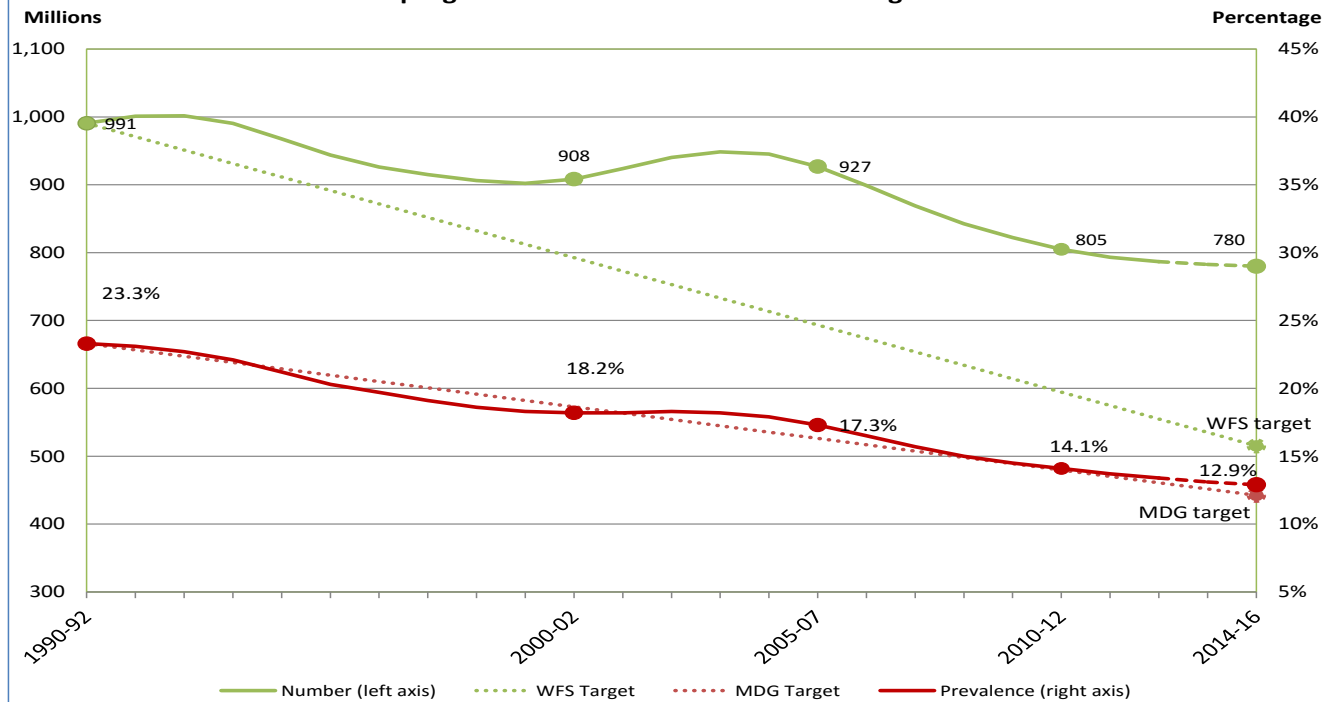


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Referenced graphs and tables

FIGURE 1
The trajectory of undernourishment in developing regions: actual and projected progress towards the MDG and WFS targets



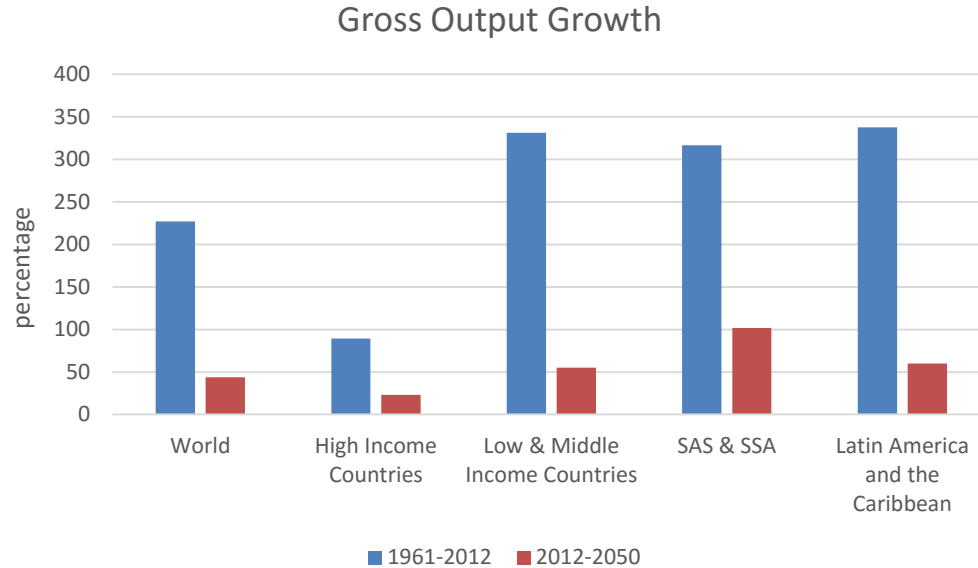
Note: Data for 2014–16 in all graphics refer to provisional estimates.
 Source: FAO



Gross agricultural output: past trends (1961-2012) and projections (2012-2050)

Gross agricultural output dramatically increased in the last fifty years.

Projected growth to 2050 is lower, however, 50% increase may be needed to satisfy growing global needs

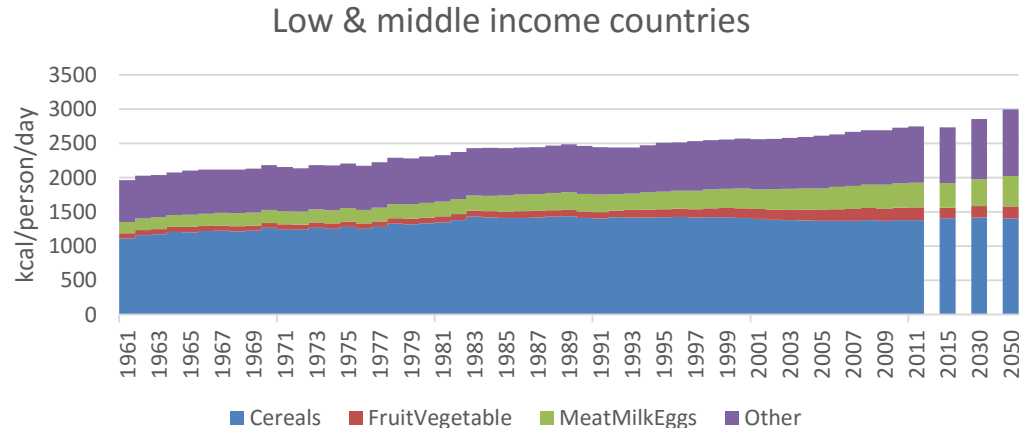
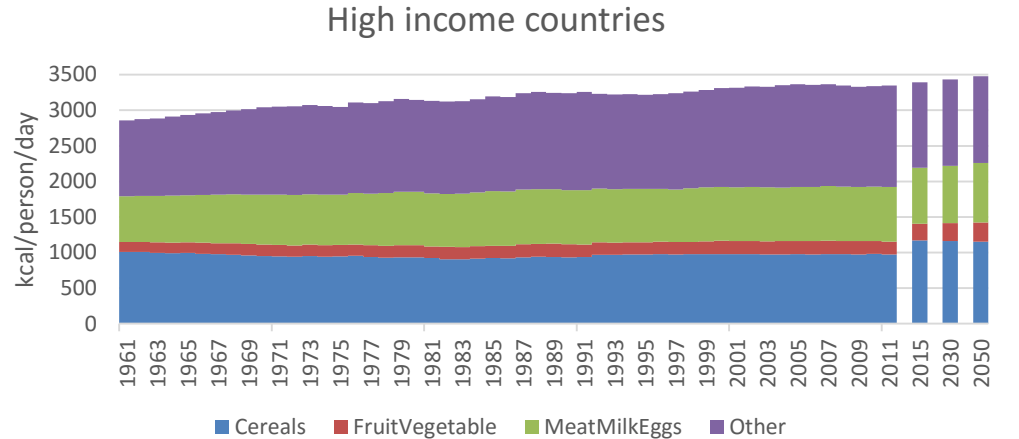


Source: FAO Global Perspectives Studies, based on FAOSTAT Food Balance Sheets (extraction 22 Sept 2016) for past trends and projections to 2050 based on AT2050 with revised population (Medium variant, 2015 UN DESA). Unpublished.

Dietary transitions: per capita Kcal by type of food

Diets in low and middle-income countries evolve:

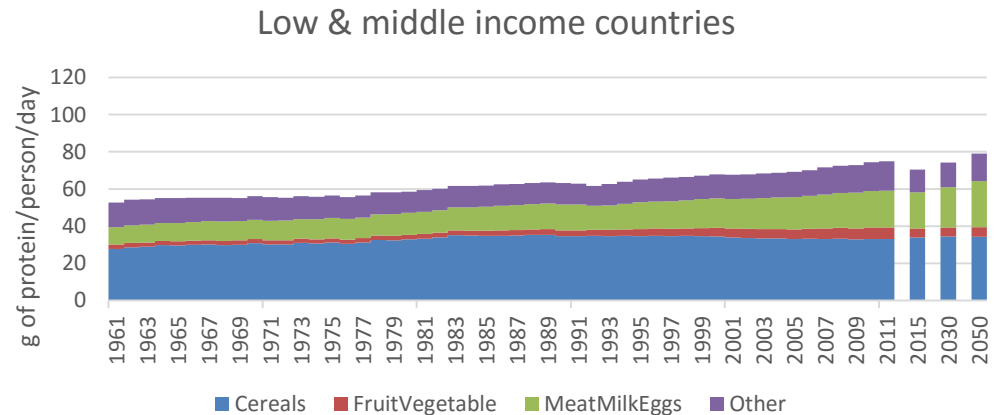
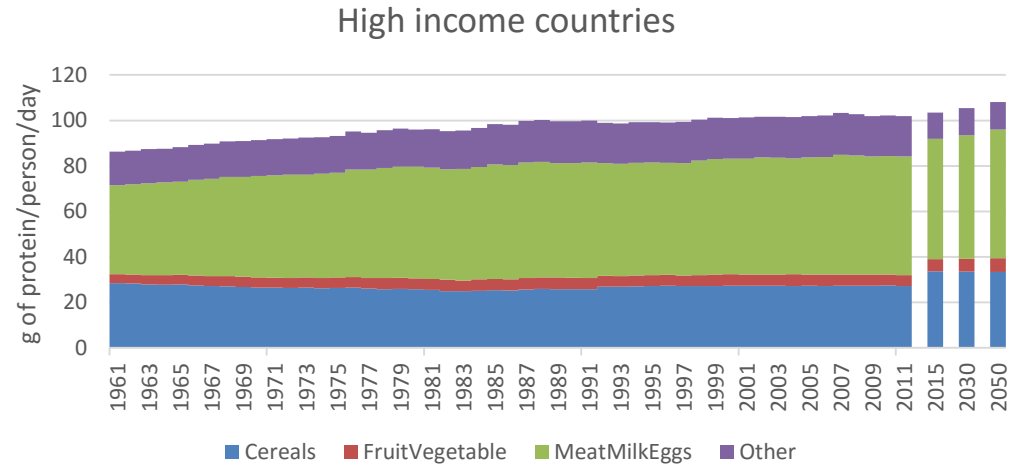
- P.c. consumption kilocalories increased
- The share of animal products and fruits and vegetables increased
- The average composition is converging for most food items to the diet of high-income countries
- Projections reinforce historical trends



Dietary transitions: p.c. proteins (gr) by type of food

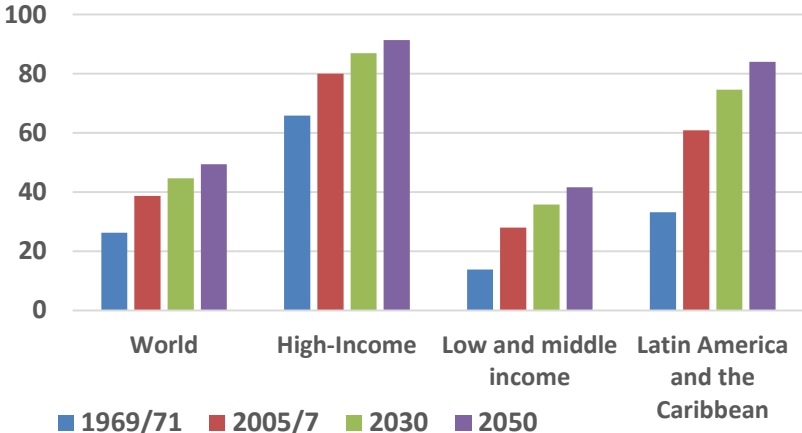
Diets in low and middle-income countries evolve:

- P.c. consumption proteins increasing
- The share of animal products and fruits and vegetables increased
- The average composition converged for most food items to the diet of high-income countries
- Projections reinforce historical trends (apart from fruits and vegetables)

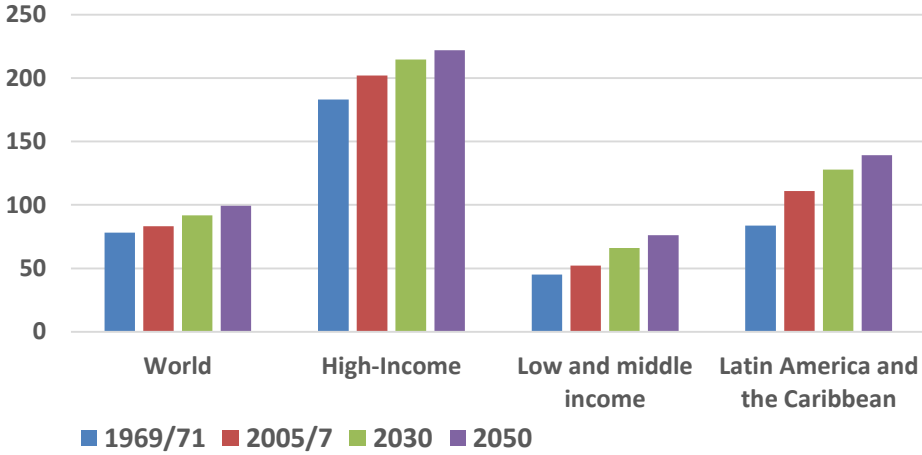


Dietary transition: growth of animal-sourced foods

Meat consumption, kg/person/year



Milk and Dairy consumption, kg/person/year

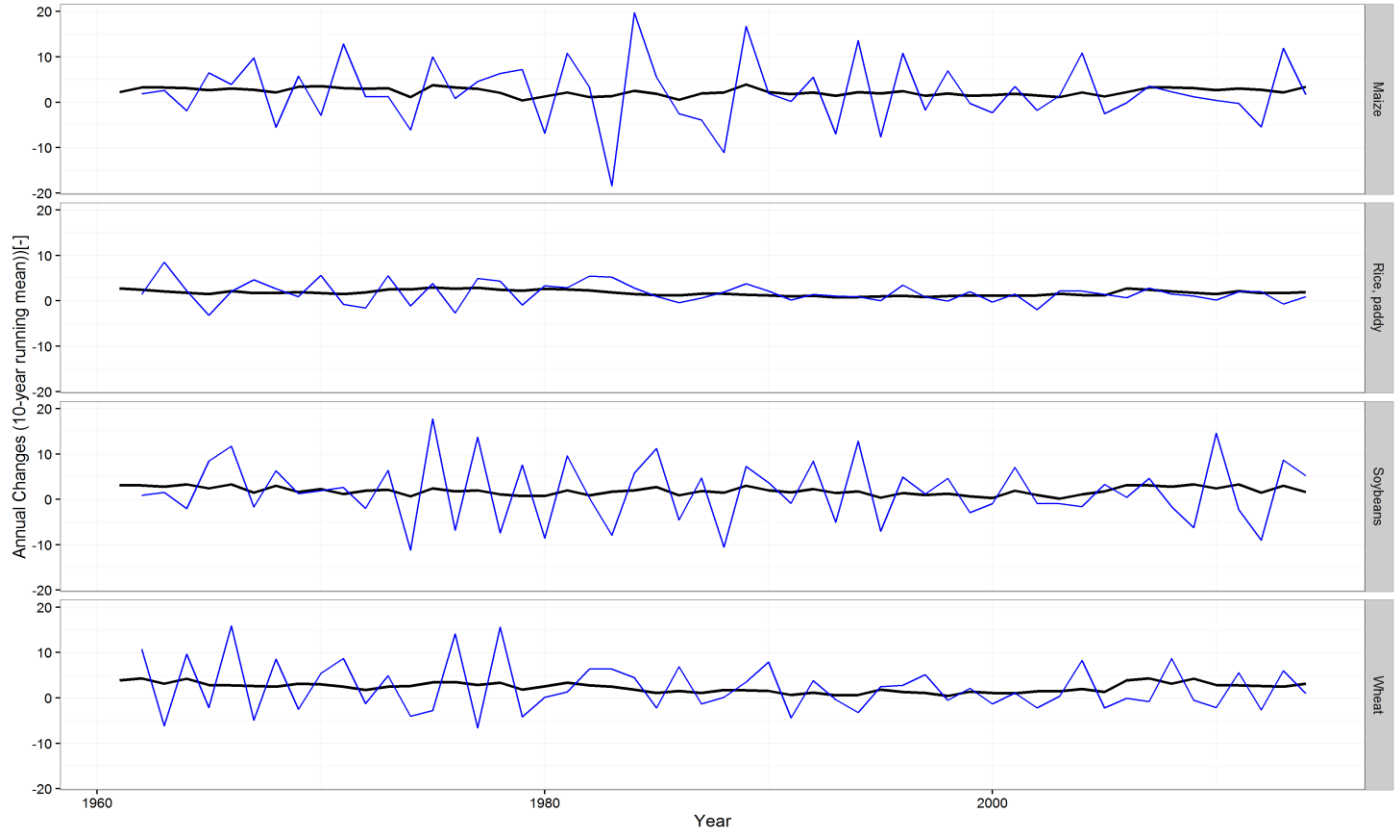


Source: FAO Global Perspectives Studies, AT2050

Yields: Historical trends for selected crops

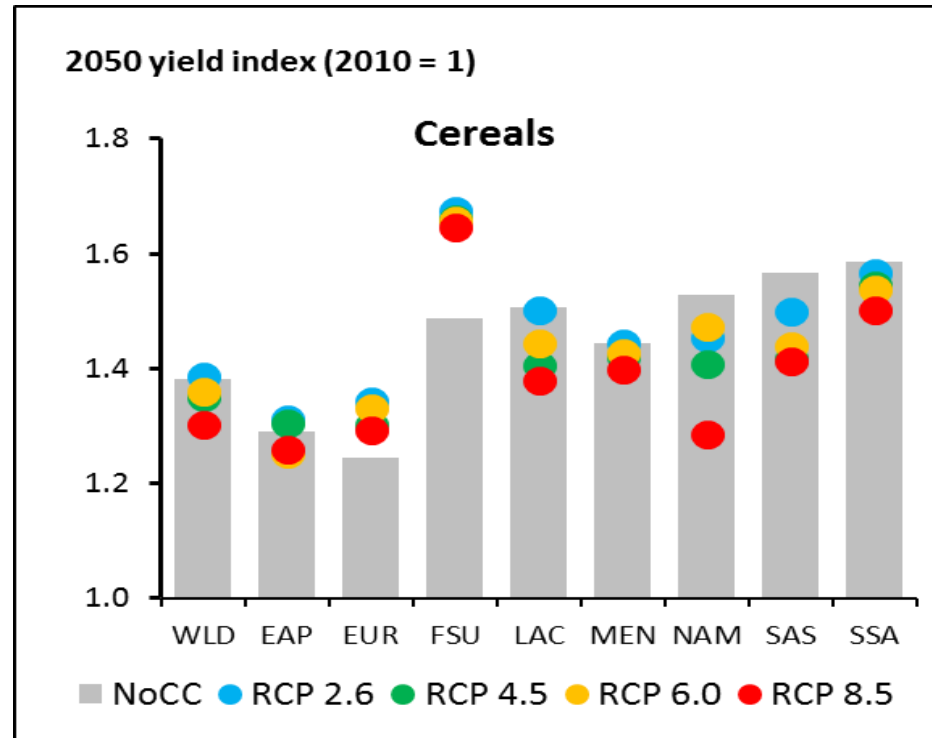
Yield trends: growth between 1% and 3% per annum for major crops, enough for 40% to 180% production increases between 2015 and 2050

Enough? No guarantee pace can be kept up in the future



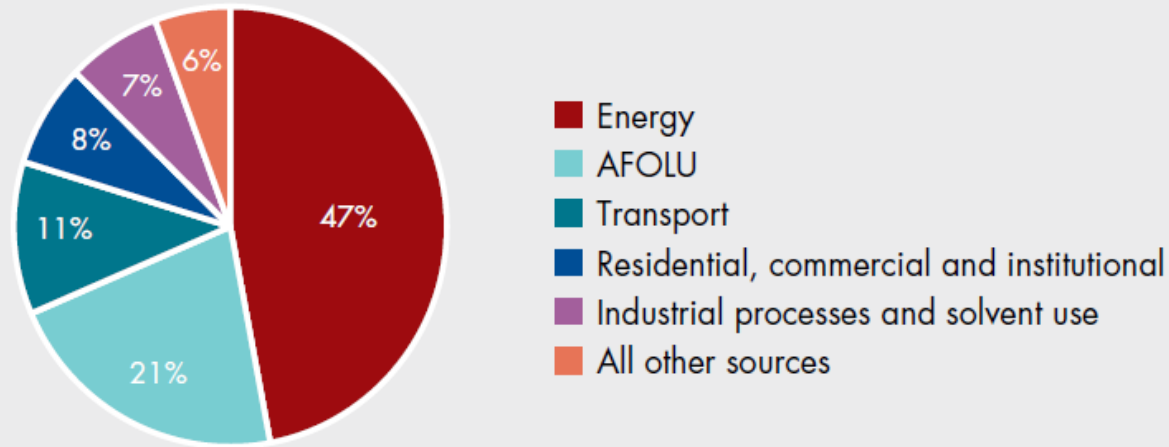
Source: FAOSTAT. Annual growth rates and ten-years moving average)

Climate change impacts on cereal yields by 2050



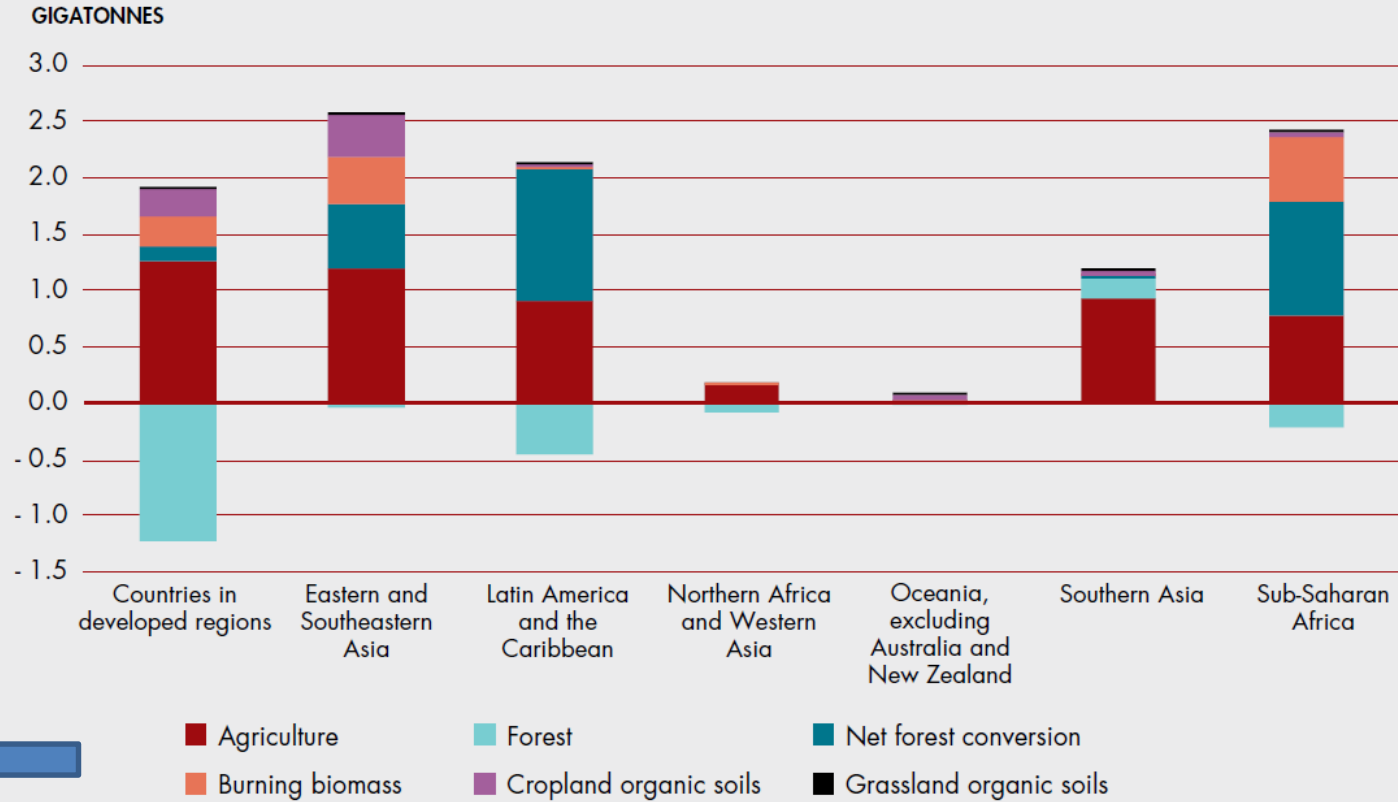
Source: FAO, The State of Food and Agriculture 2016 (forthcoming)

SHARES OF GREENHOUSE GAS EMISSIONS FROM ECONOMIC SECTORS IN 2014



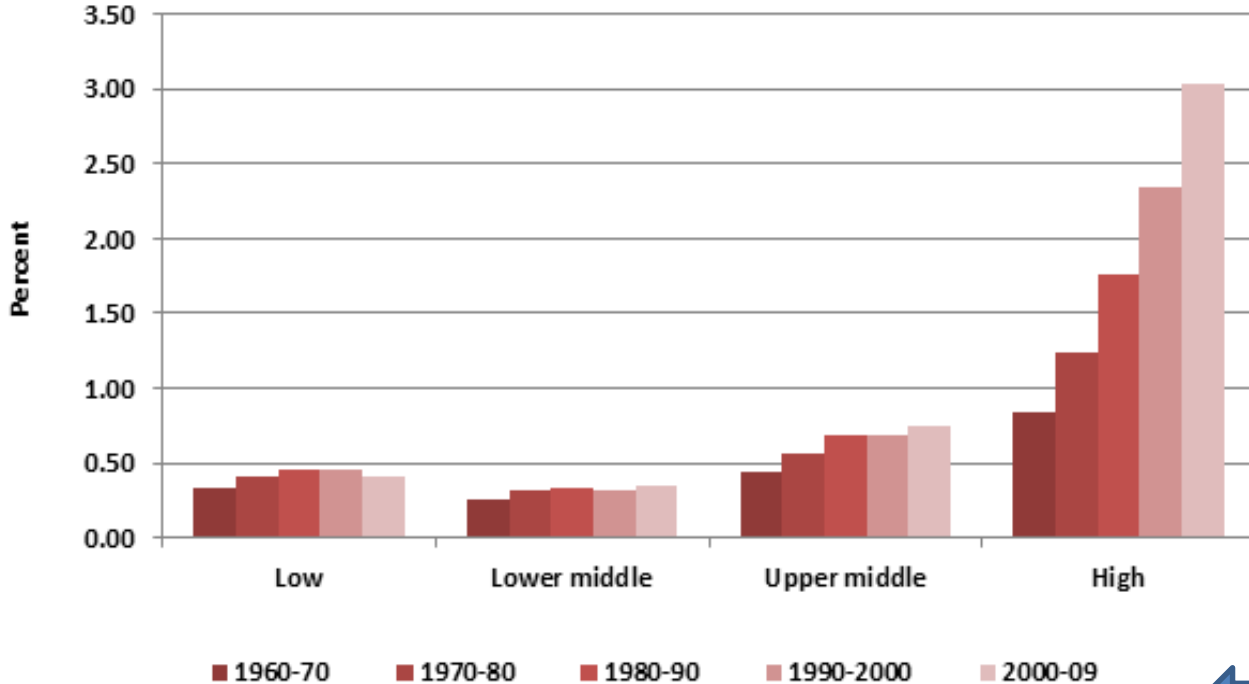
Source: FAO, The State of Food and Agriculture 2016 (forthcoming)

NET EMISSIONS/REMOVALS FROM AFOLU IN CO₂ EQUIVALENT IN 2014, BY REGION



Source: FAO, The State of Food and Agriculture 2016 (forthcoming)

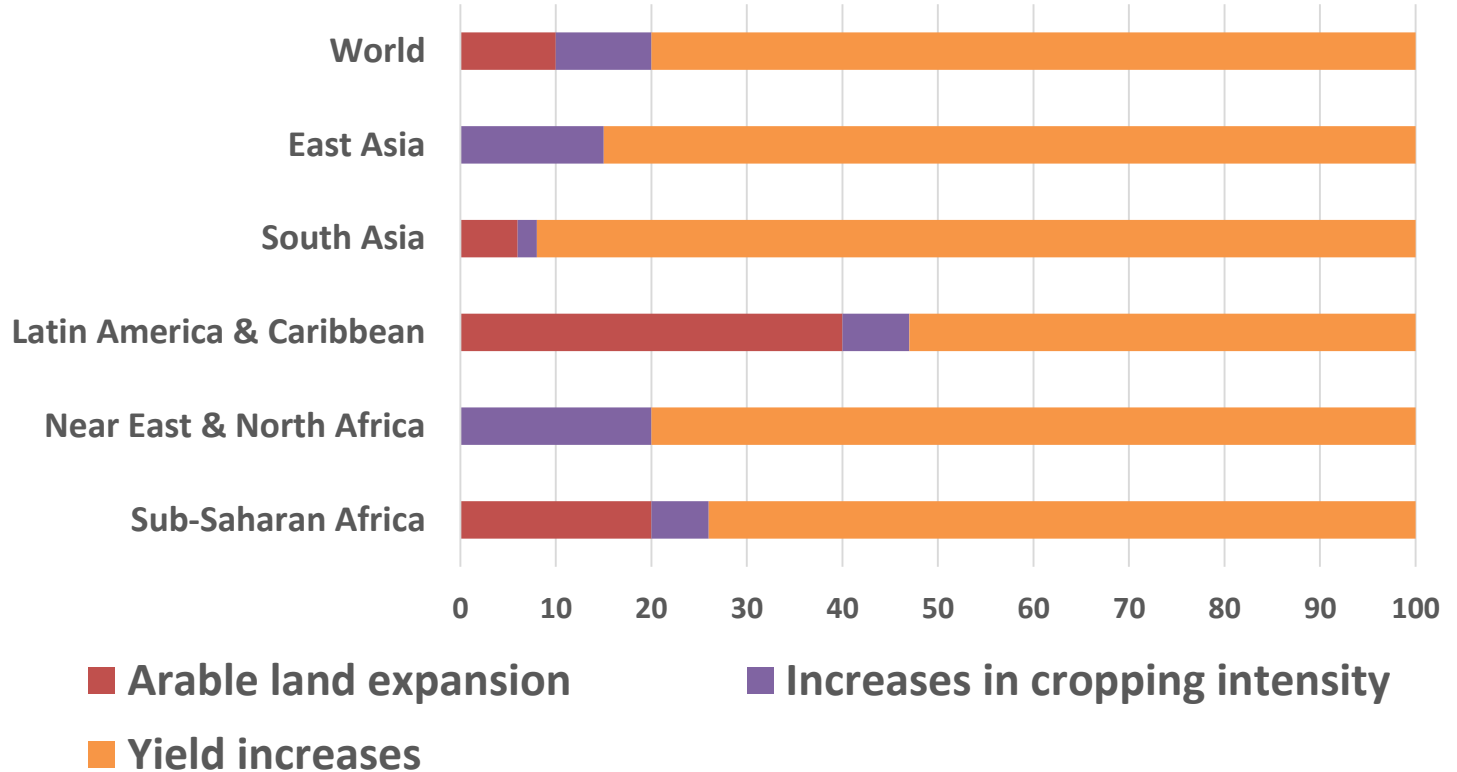
Agricultural Research Intensity (ARI)



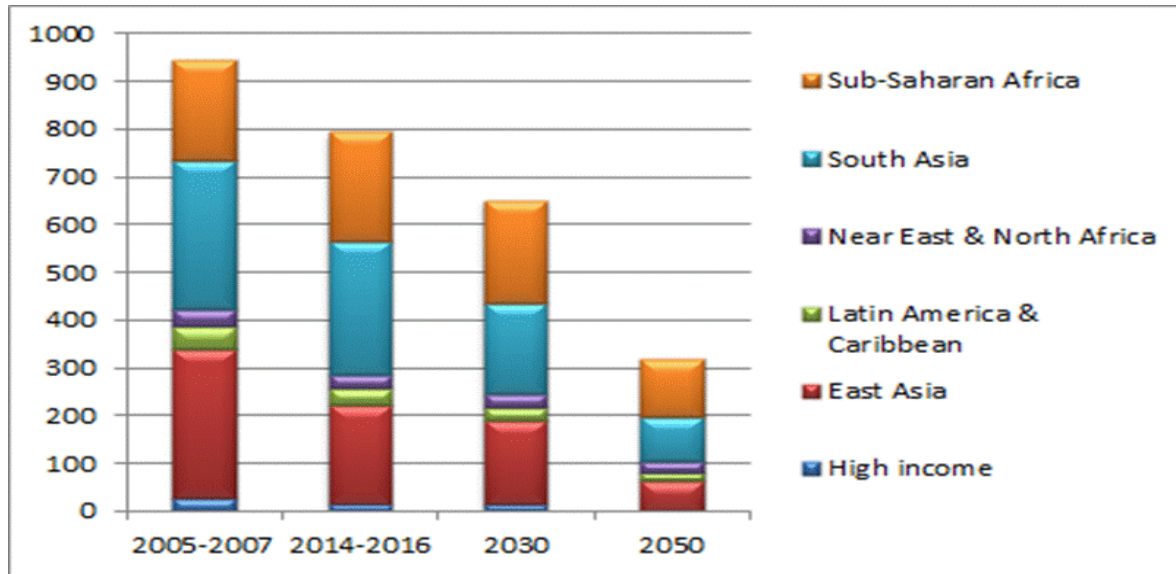
Source: Pardey, Chan-Kang and Dehmer, 2014. Note:
Simple average of annual agricultural research intensity.



Future sources of growth of crop production (2015-2050)



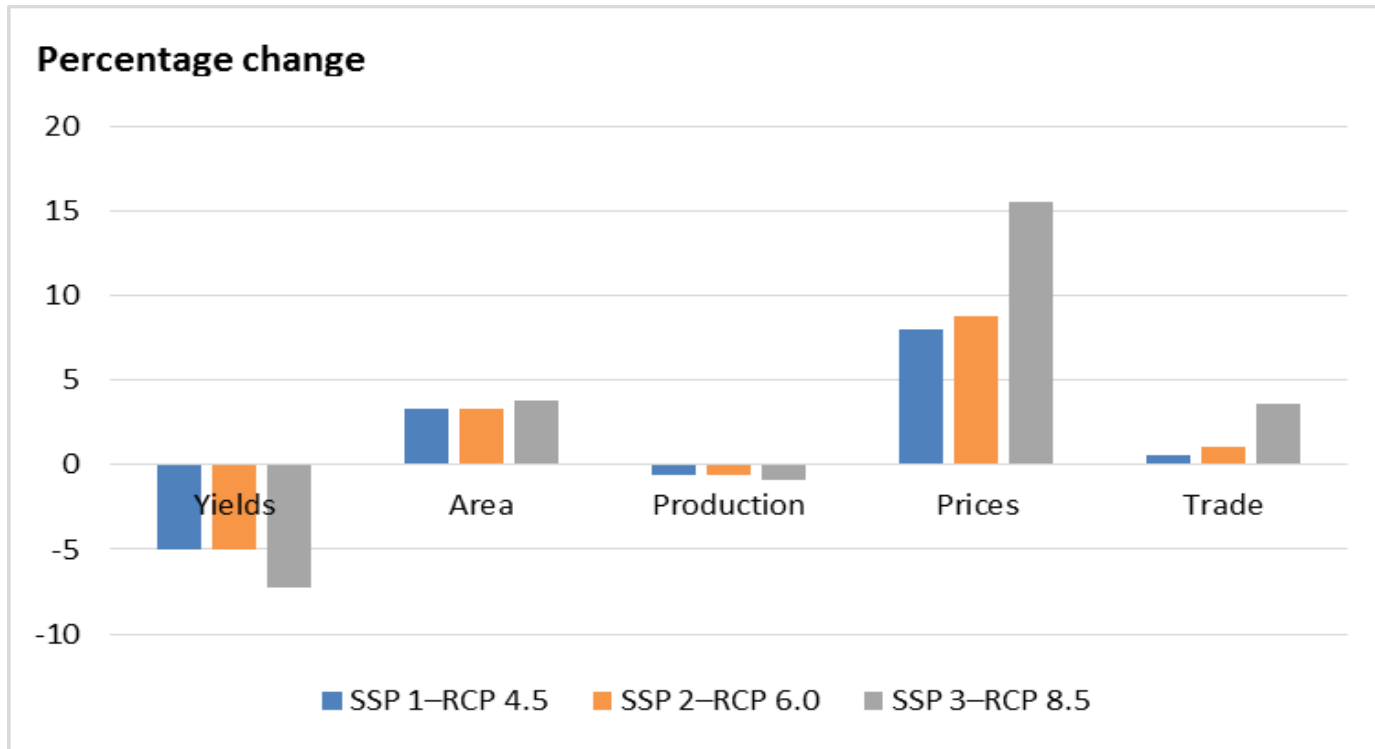
Undernourishment in a “Business as Usual” Scenario (million people)



Sources: Estimates for years 1990-92 and 2014-16 taken from FAO, IFAD, and WFP. *The State of Food Insecurity in the World 2015*. Rome (<http://www.fao.org/publications/sofi/2014/en/>); for the year 2030 from FAO, IFAD, and WFP. 2015. *Achieving Zero Hunger*. Rome: (<http://www.fao.org/3/a-i4951e.pdf>); and for 2050 from AT2050.



Global impacts of climate change on crop yields, area, agricultural production, prices and trade by 2050

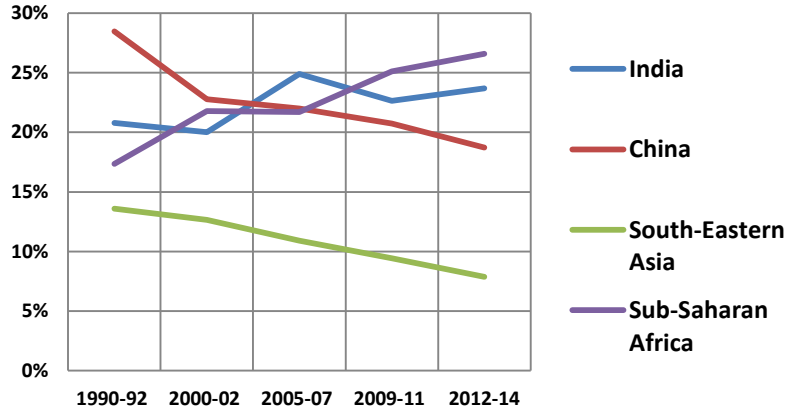


Source: FAO, The State of Food and Agriculture 2016 (forthcoming)

Uneven progress

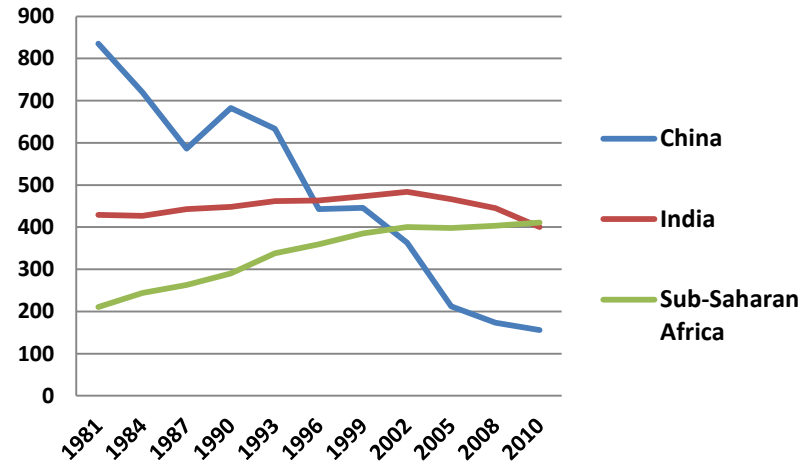
- Upward trend in the number of hungry in Africa

Number of people undernourished
% of World Total

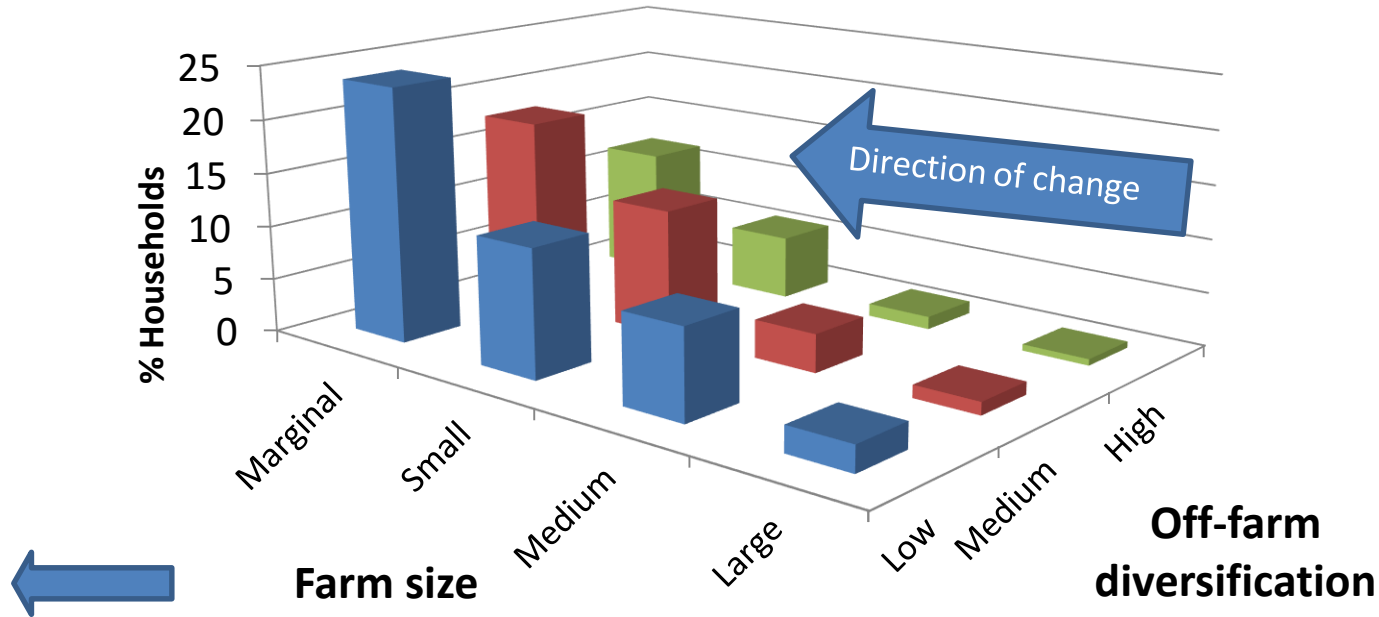


- Upward trend in absolute number of poor in Africa

Number of Poor by Region (millions)

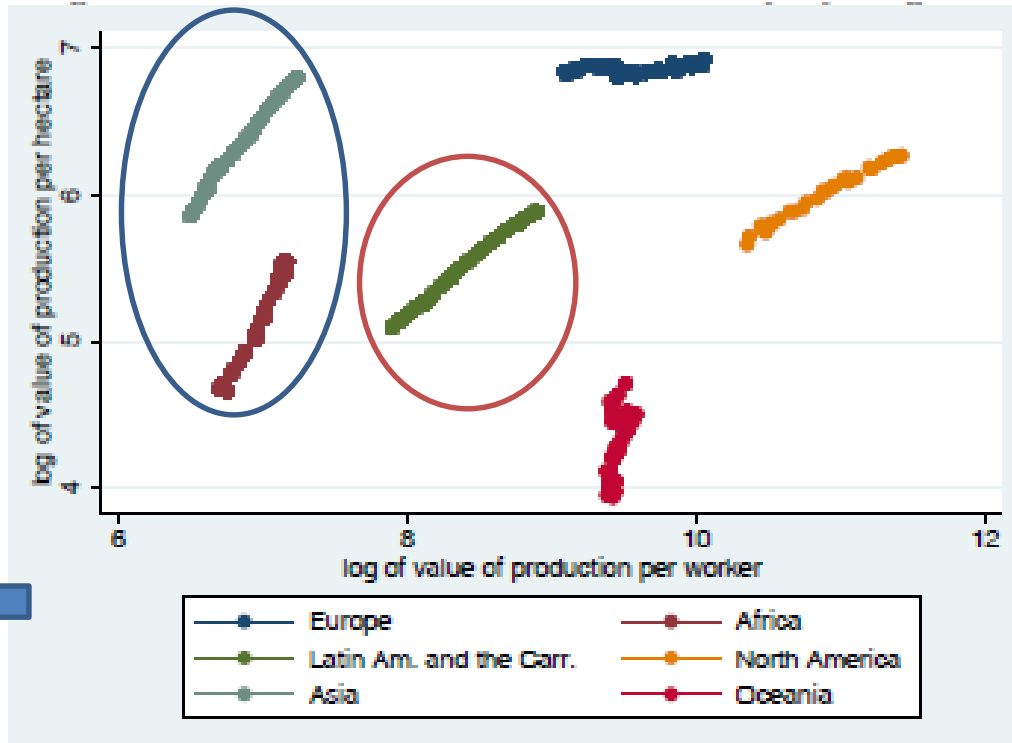


Reverse farm size transition

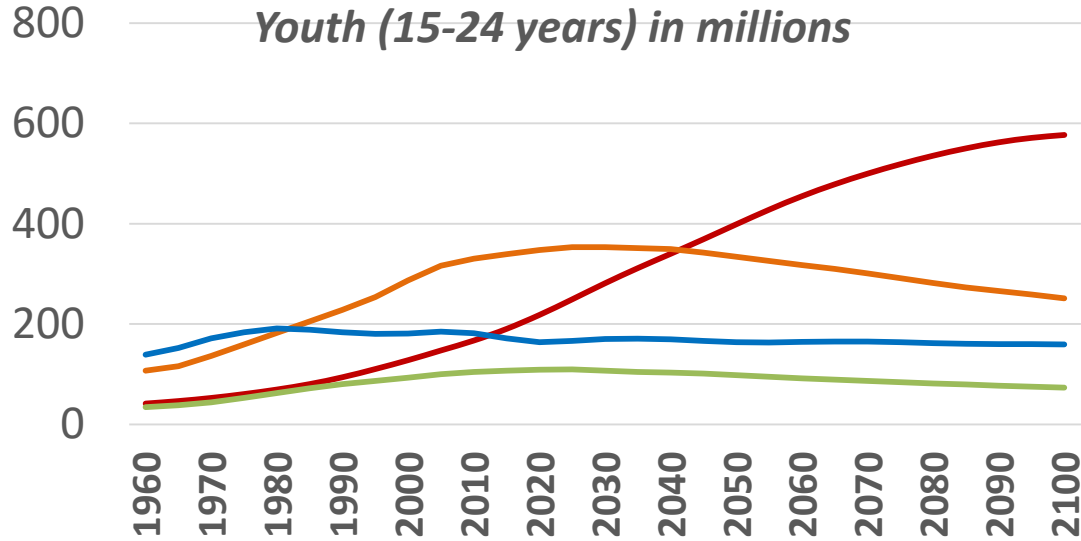


Source: Hazell (2013)

Agricultural land versus labour productivity

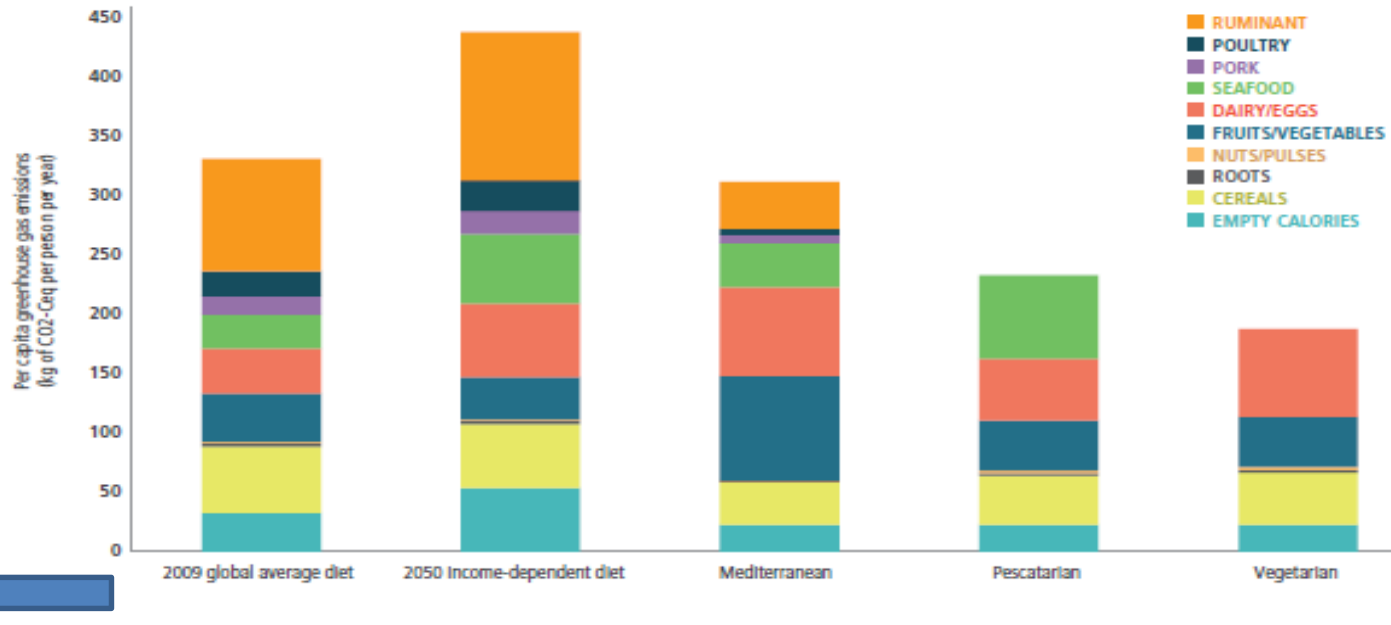


Youth Bulge in Africa till end of century



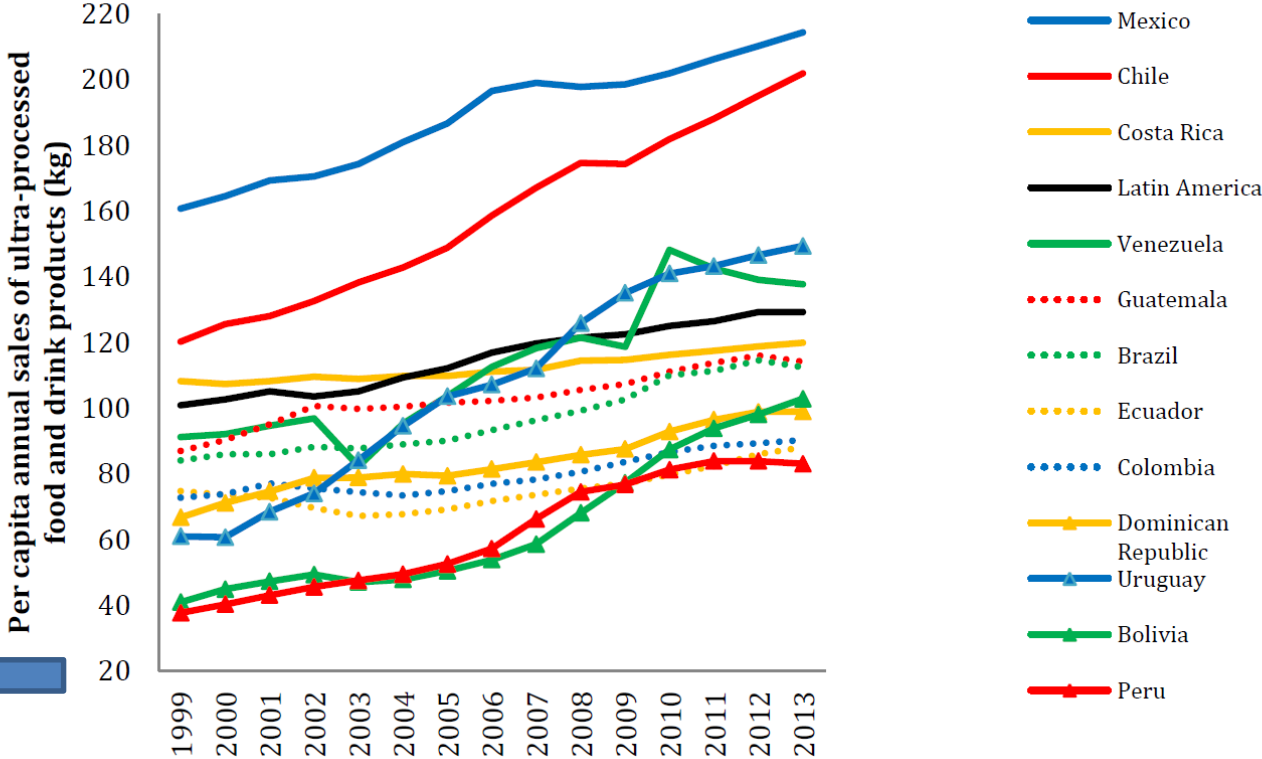
— Sub-Saharan Africa — South Asia
— Latin America — High-income countries

Effects of diet type on greenhouse gas emissions

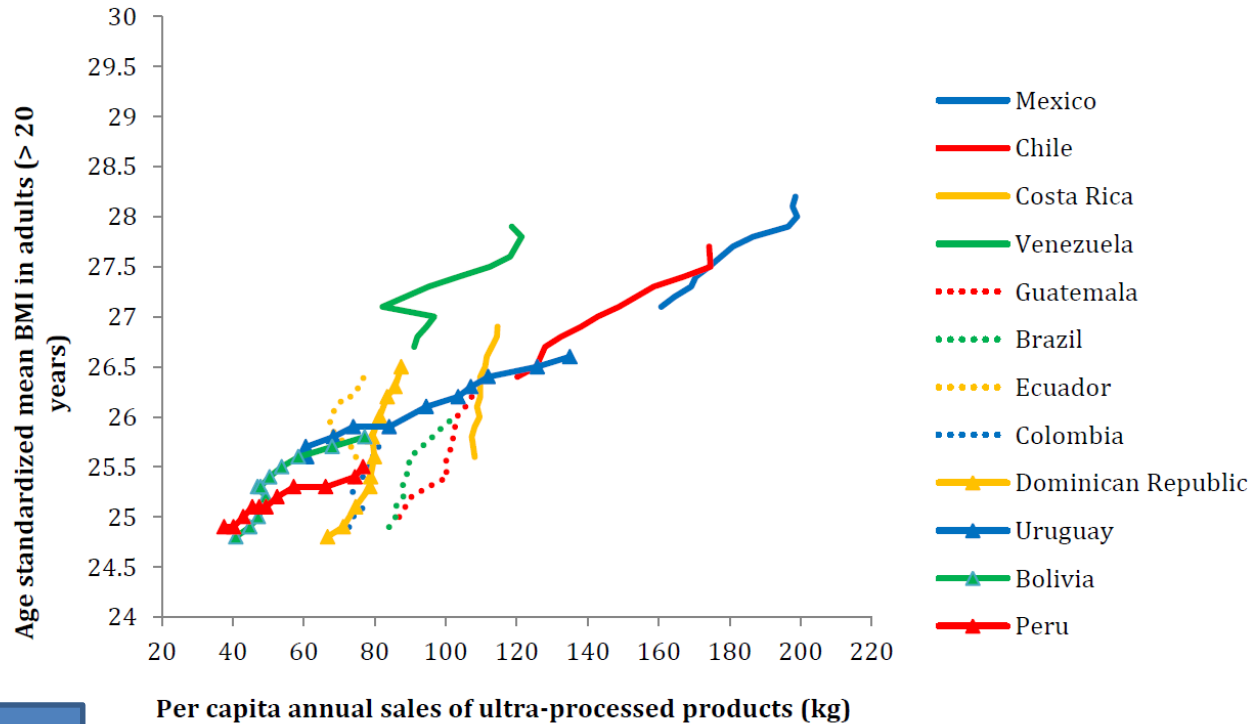


Source: International Food Policy Research Institute. 2015. Global Nutrition Report 2015

Annual per capita sales of ultra-processed food and drink products (kg)

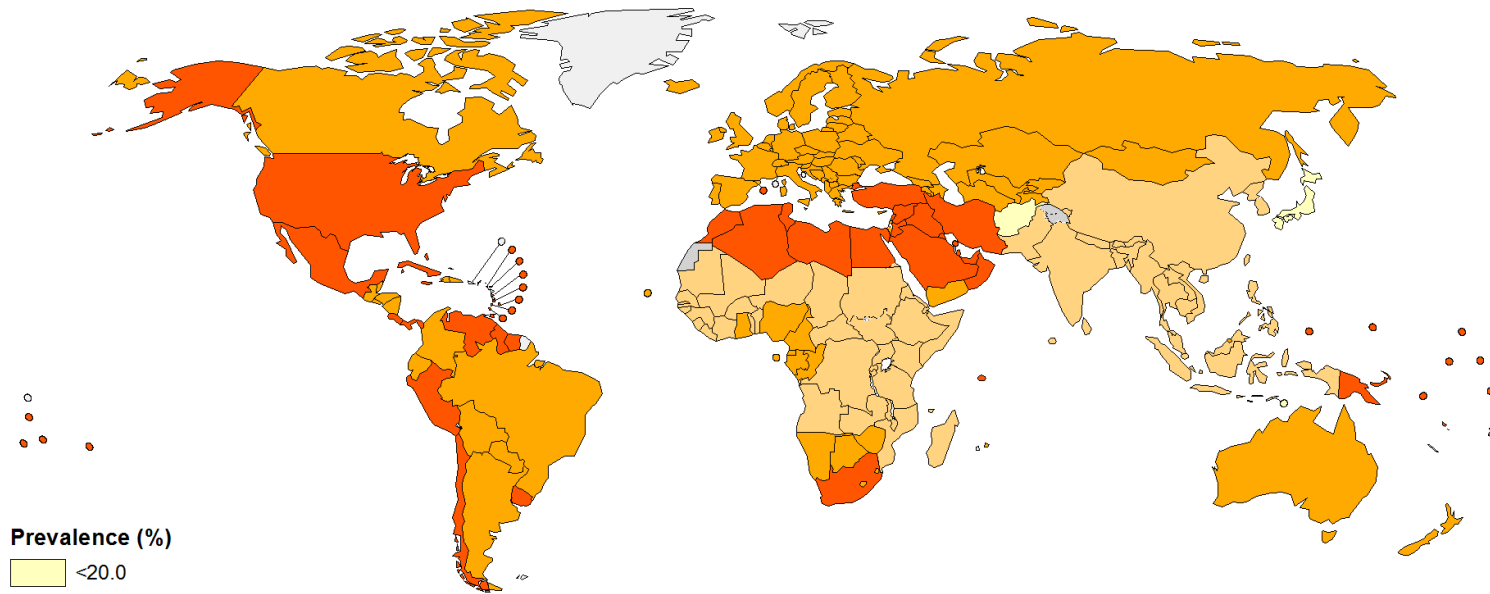


Age-standardized mean BMI in adults and sales of ultra-processed food and drink products

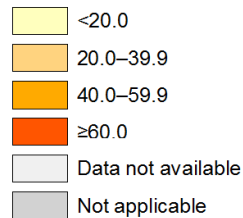


Source: PAHO/WHO (2015), *Fact Sheet: Consumption of ultra-processed food and drink products in Latin America: Trends, impact on obesity, and policy implications*, http://www.paho.org/hq/index.php?option=com_docman&task=doc_view&Itemid=270&gid=27544&lang=en

Prevalence of overweight*, ages 18+, 2014 (age standardized estimate)
Female

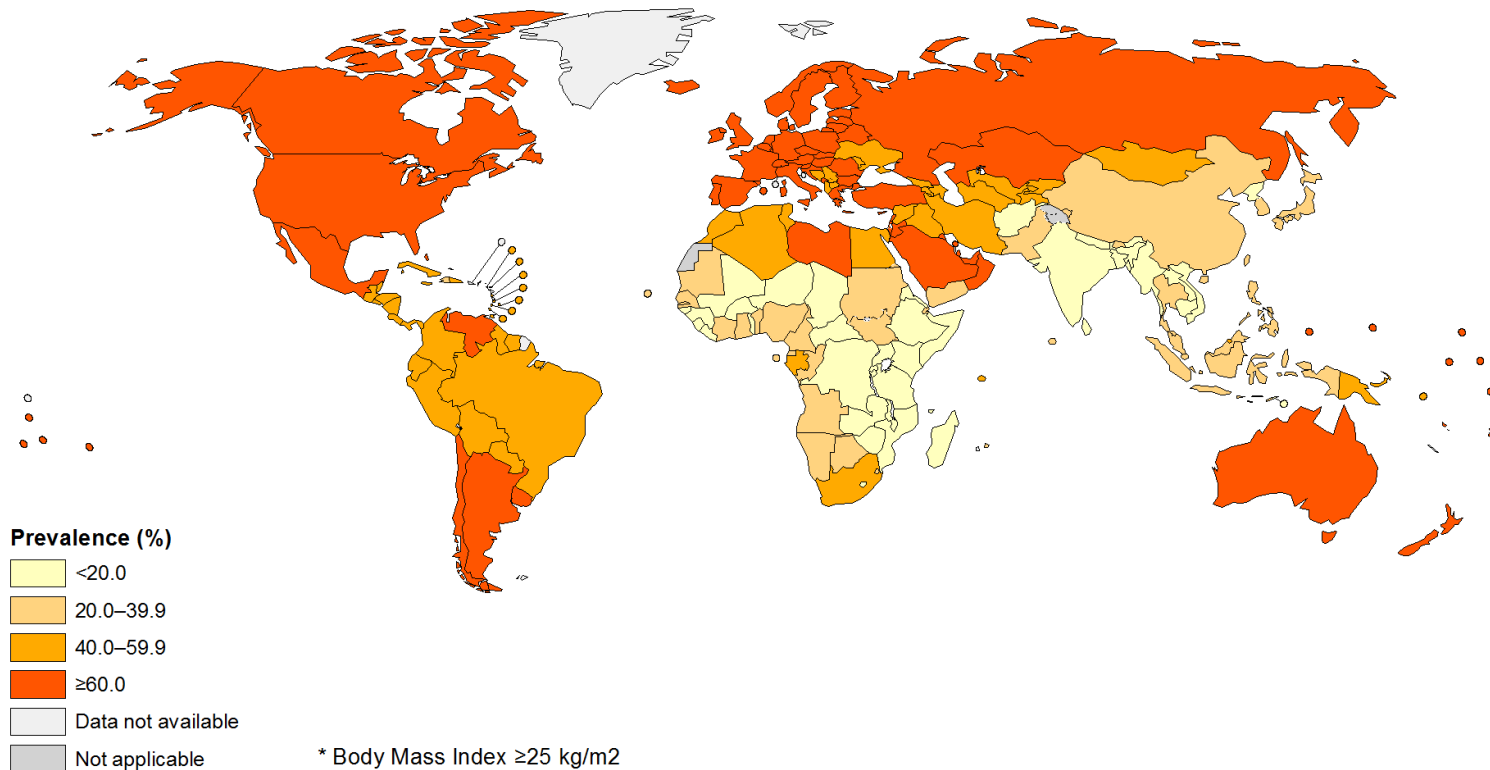


Prevalence (%)

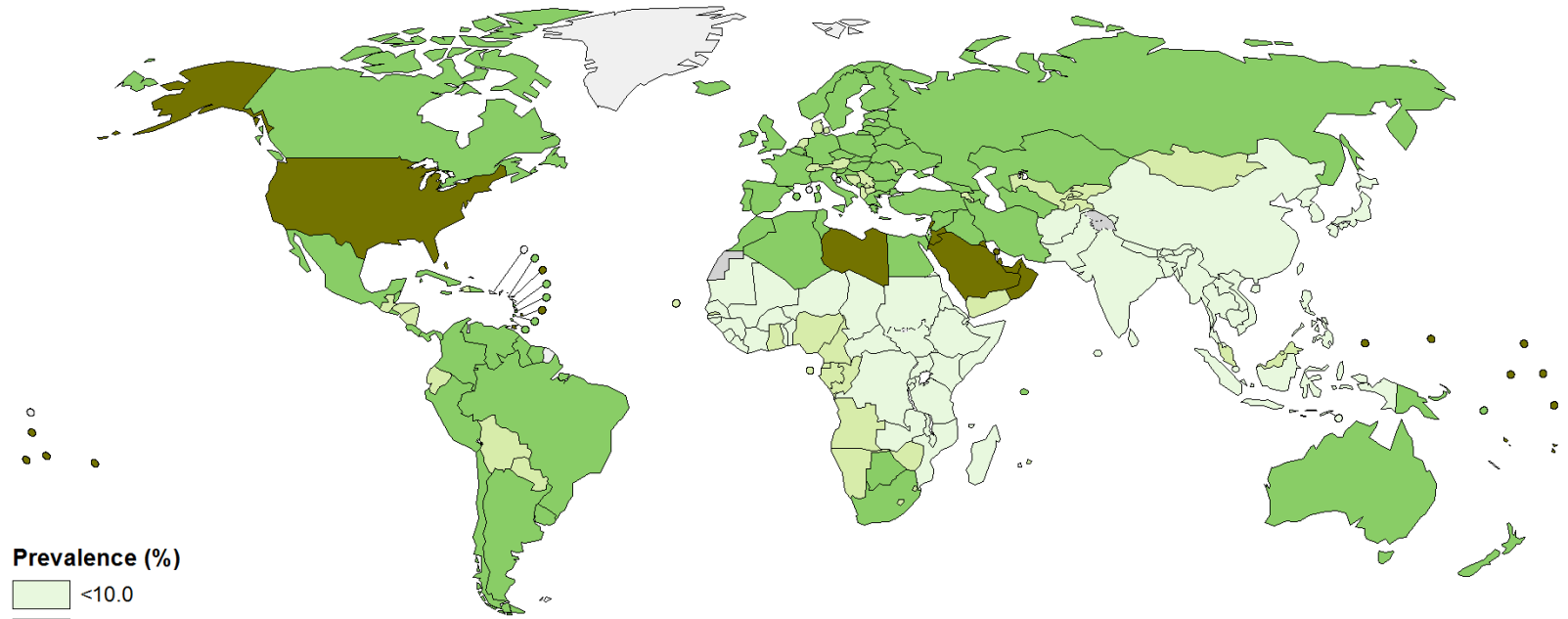


* Body Mass Index ≥ 25 kg/m²

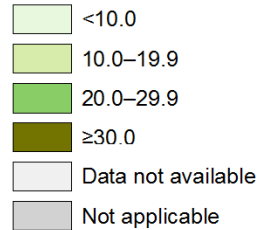
Prevalence of overweight*, ages 18+, 2014 (age standardized estimate)
Male



Prevalence of obesity*, ages 18+, 2014 (age standardized estimate)
Both sexes

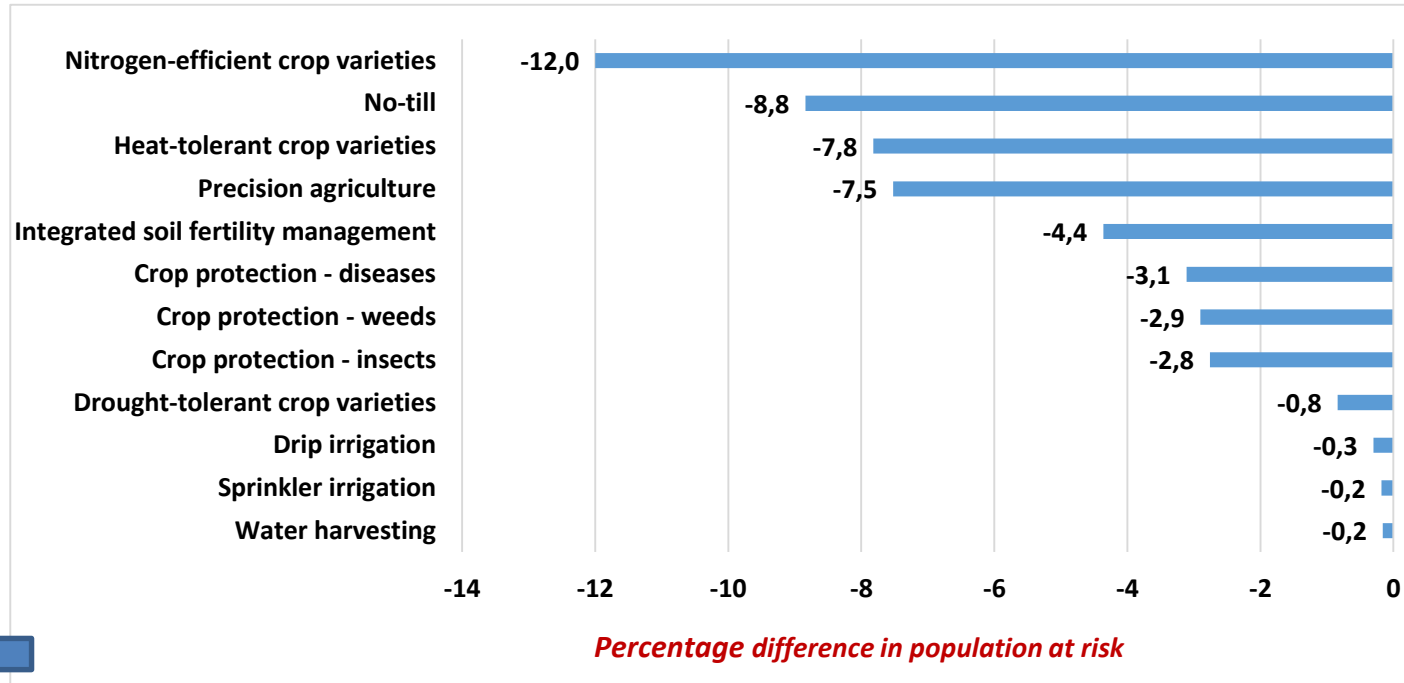


Prevalence (%)



* Body Mass Index ≥ 30 kg/m²

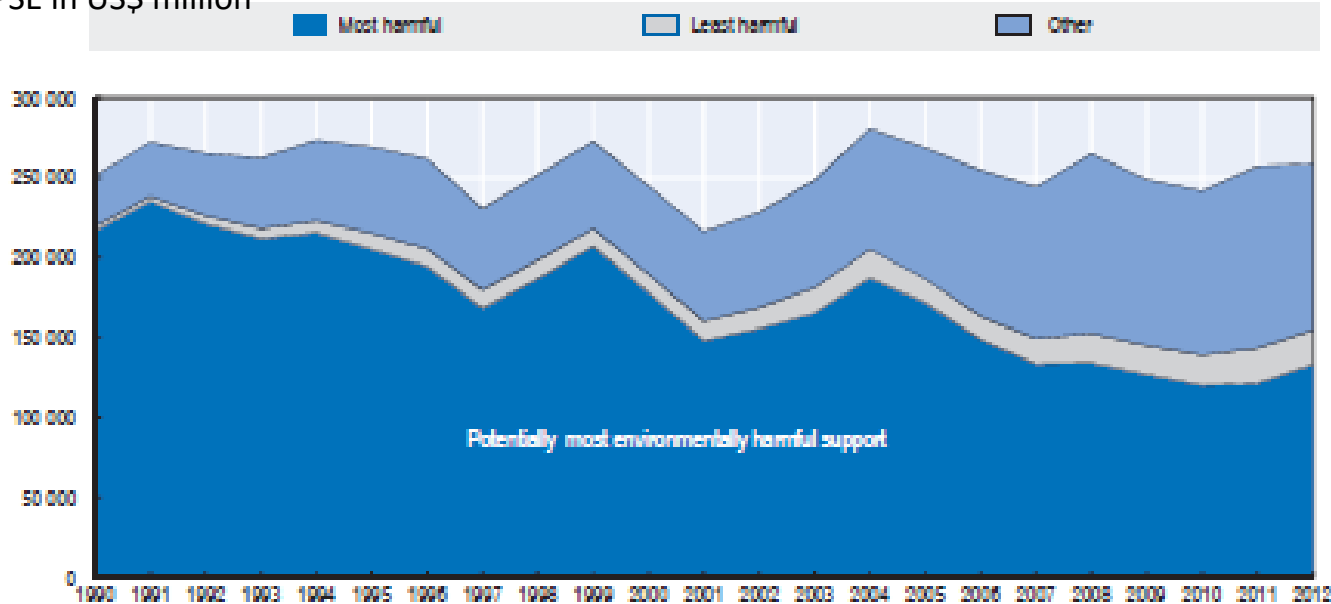
Potential food security impacts of “save and grow” technologies



Source: Rosegrant *et al.* (2014), based on simulations using IFPRI's IMPACT model.

Agriculture producer support mostly harmful in OECD countries, 1990-2012

PSE in US\$ million

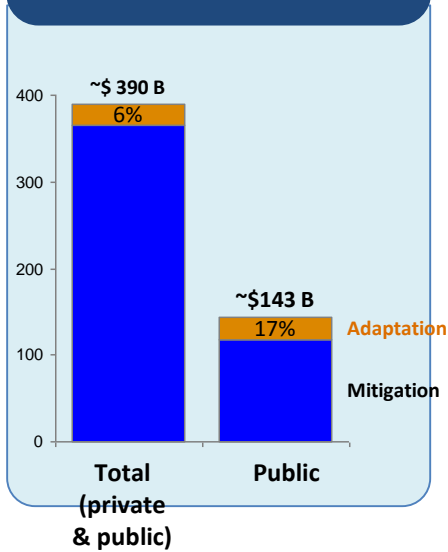


Source: OECD (2015), Aligning policies for a low-carbon economy.

Adaptation and Agriculture underrepresented in climate funds

Adaptation

6% of total climate funds
17% of public climate funds



Agriculture

4% of public climate funds

vs.

40% of worldwide jobs

