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Poverty, Malnutrition and Environmental Degradation: Towards Solutions-Oriented Research

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Reducing poverty/hunger & conserving natural resources (biodiversity, forests, soils, marine resources, water, wildlife) and mitigating climate change are inter-linked moral/economic challenges of the highest order.



Ultra-poverty: Expenditure per capita < \$0.95/day

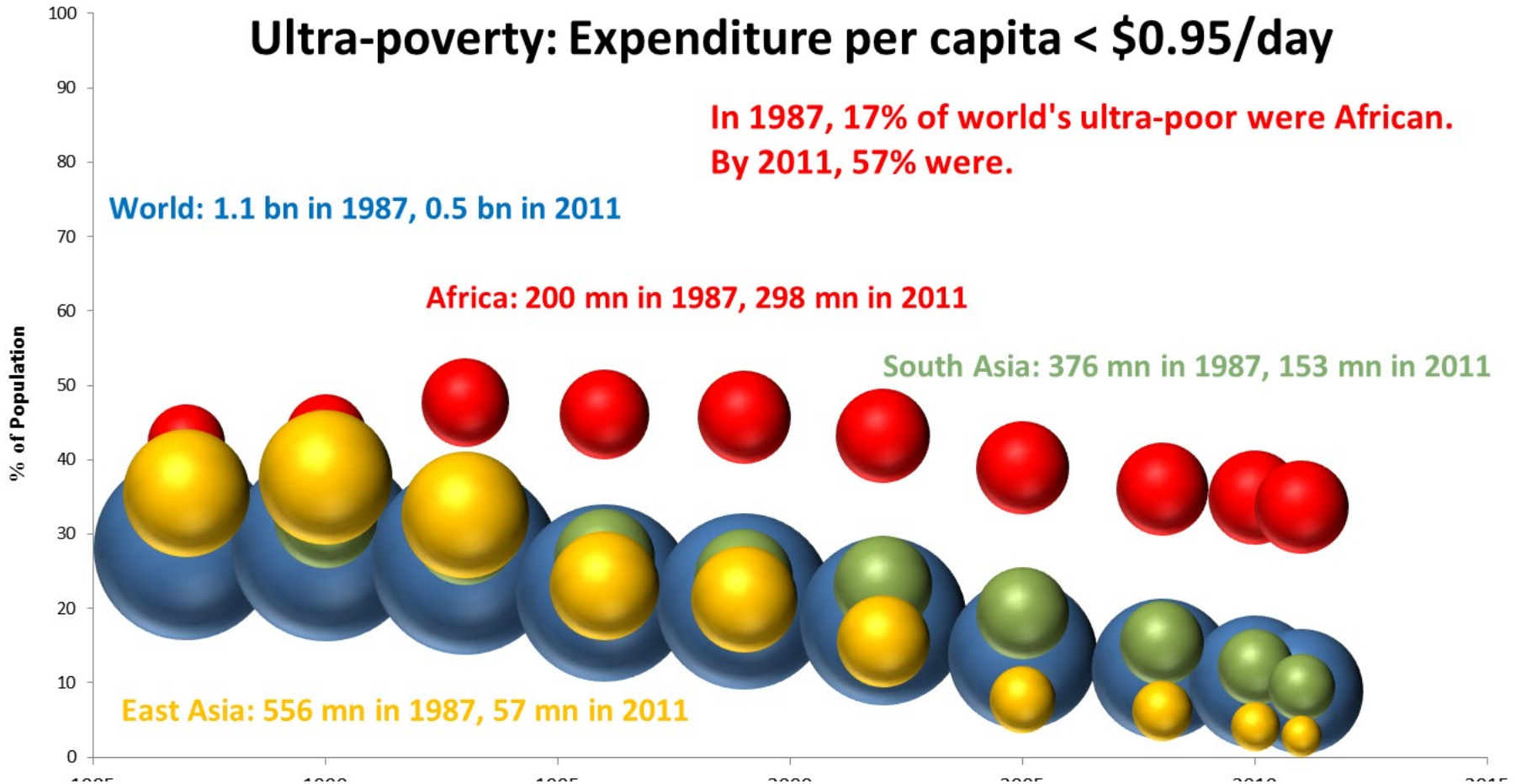
In 1987, 17% of world's ultra-poor were African.
By 2011, 57% were.

World: 1.1 bn in 1987, 0.5 bn in 2011

Africa: 200 mn in 1987, 298 mn in 2011

South Asia: 376 mn in 1987, 153 mn in 2011

East Asia: 556 mn in 1987, 57 mn in 2011



Daunting challenges are manageable, as east Asia has demonstrated. Today's challenges are increasingly concentrated in Africa.



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**These challenges are intrinsically linked:
Most (esp. extreme/chronic) poverty/hunger is
rural, with bidirectional causality, and mutual
causation by broader political economy forces.**



**Yet most policy/research focuses on just one
or the other of these at a time.**



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Ex: food security challenge over 21st century





Food Demand Growth Is Unavoidable (Desirable!)

A more populous, urban, and wealthier world is inevitable and will demand 70-100% more food by 2050 than today.

Why?

- **Population growth** to ~11 bn (± 1 bn) people
- Population will **urbanize**, up from ~50% to >70%
- **Income growth:** Faster growth in Africa/Asia and higher food demand growth among poor.

**Result: >80% of demand growth will be in Africa/Asia
And that is something to celebrate!**

Cannot reduce demand growth significantly

Reduced food waste reduction, over-consumption, food/feed/
biofuel competition, or dietary change away from ASFs

... Demand-side adjustment offers only modest gains



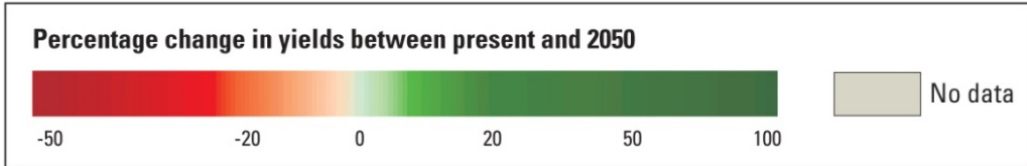
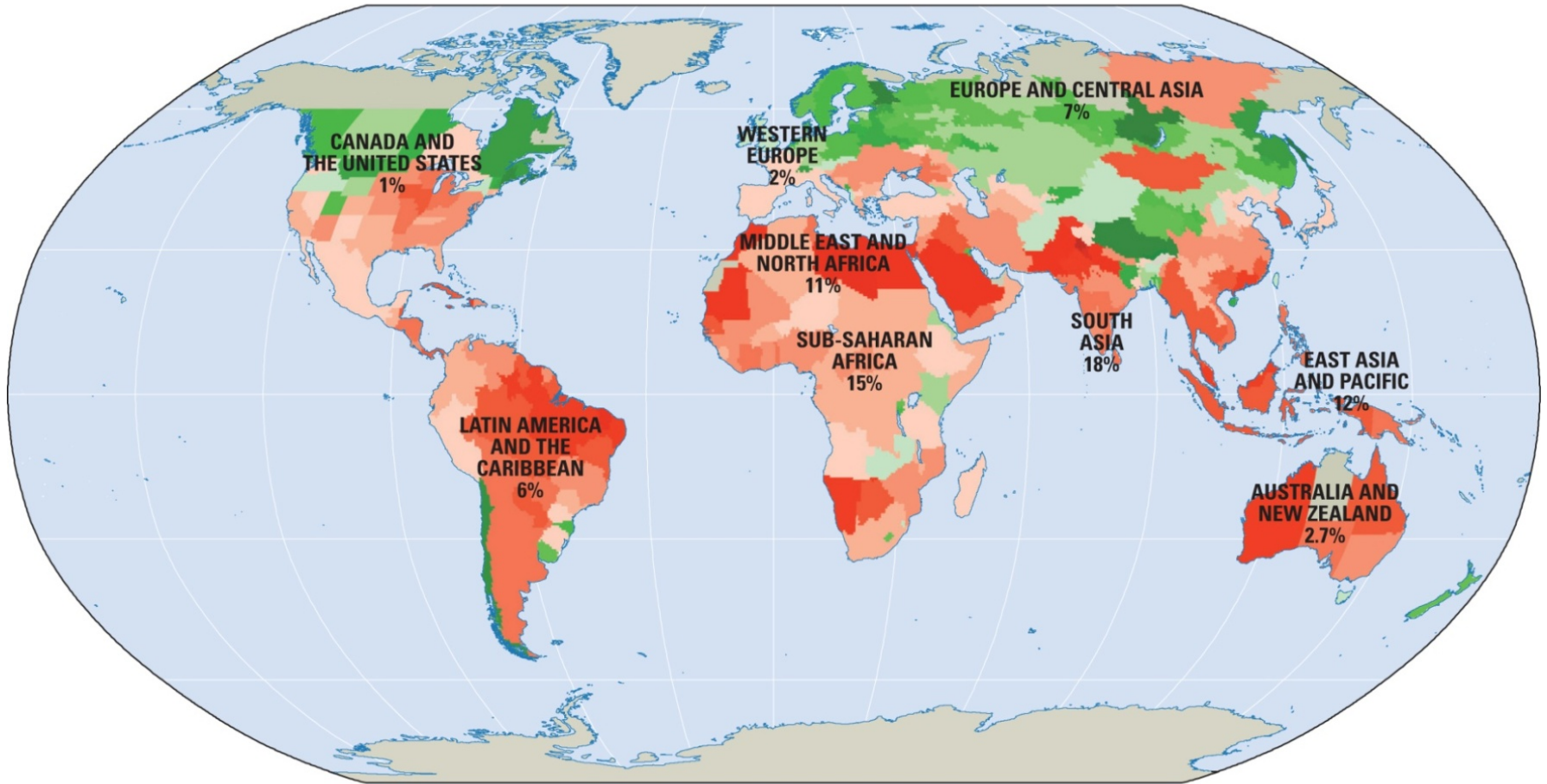
Must grow/diversify food supply :

But extensification unlikely b/c

- Arable land essentially fixed without ecologically risky conversion of forest, wetlands, or drylands ... + growing competition from urban expansion and protected areas
- Ag already accounts for ~70% of human water usage, > 80% in Africa and Asia
- Climate change will aggravate water shortages in critical regions, esp. in tropics with fastest demand growth
- Marine capture fisheries stable or declining



Adverse expected yield change in 11 key crops due to climate change



Source: World Bank
WDR 2010



Need technology-driven intensification. But ...

- Challenge of widespread opposition to GMOs
- IP regimes and associated ‘gene grabs’
- Site specificity due to agroecological heterogeneity
- Africa/Asia ag R&D capacity very limited
- Technological advance requires major investment ... must rely heavily on the private sector.
- Need more focus on quality (micronutrient content, ‘biofortification’) not just on yields

The ‘technocratic paradigm’ is necessary ...



Increasing food *availability* is only necessary, not sufficient, to improve food security..

Improved *access is key* and depends mainly on poverty reduction and improved *social protection* measures to ensure that ample food gets distributed equitably.

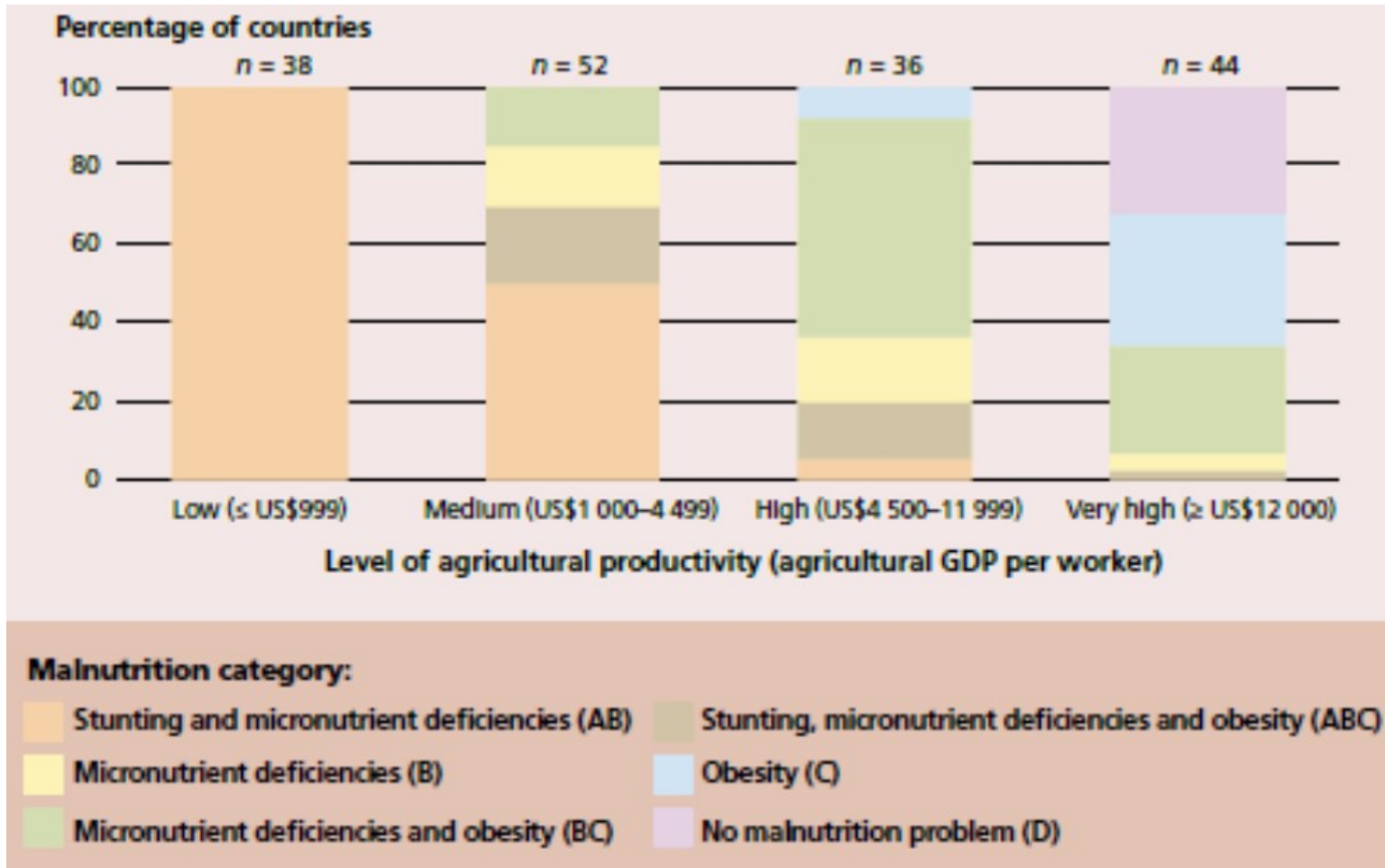
Need to be alert to the *triple burden of malnutrition*.

Focus beyond cereals and staple crops ... pay more attention to *fruits, vegetables and animal source foods*





Triple burden of malnutrition over the development trajectory



Countries by malnutrition problem and ag productivity (SOFA 2013)



So what should a Catholic research university do?

1. Teaching

- Students need cultural, moral and technical skills
- Experiential learning is key ... place matters
- Many parts of one body ... everyone has a role

2. Research

- multidisciplinary problems require flexible teams
- help build/sustain partners' capacity

3. Public engagement

- 'design thinking' ... let the poor direct the research



Give to charities. But ignore the slick marketing and seek solid evidence of impact:

- Child sponsorship (see Bruce Wydick's *CT* columns)
- Clean water, bed nets, early childhood health
- “Graduation model” (cash, training, health care, productive asset ... address complex problems)

Make personal contact with children. Never underestimate the power of hope!



**Thank you for your
time and interest!**

