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Primary Industries Climate Challenges Centre

Can we achieve net reductions in
greenhouse gas emissions and meet
global food demand?



Primary Industries Climate Challenges Centre

A joint venture between the University of Melbourne and
the Victorian Department of Primary Industries



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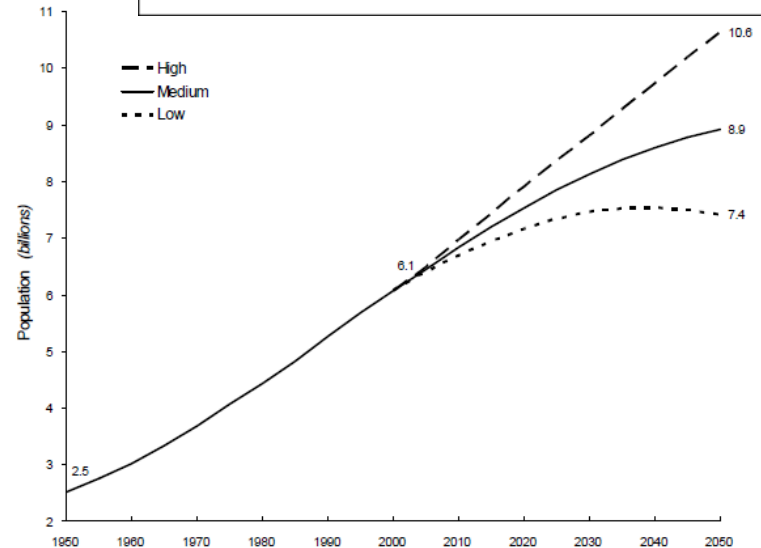
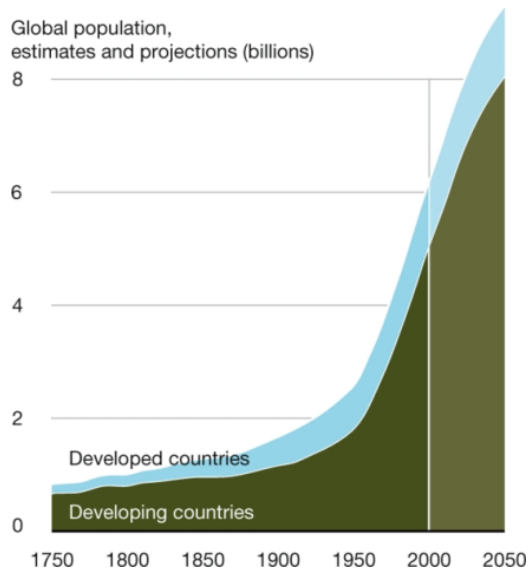
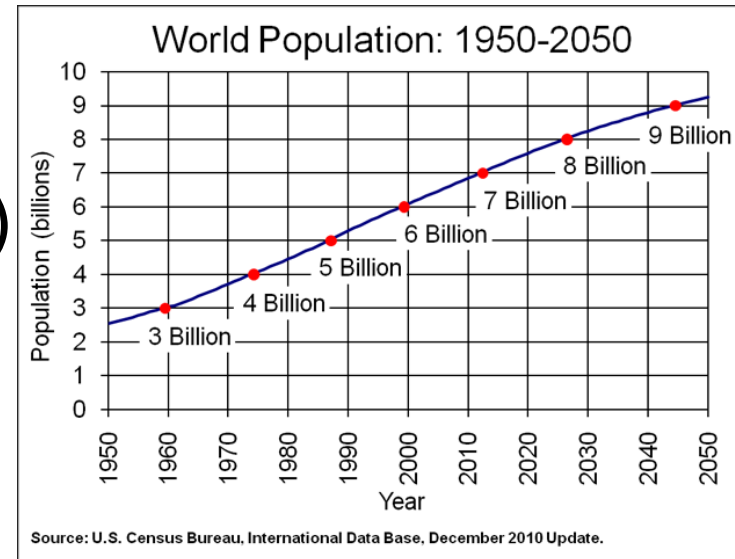


State Government

Department of
Primary Industries

World Population by 2050

- 6.1 B in 2000
- 9.1 B by 2050 (mid scenario)
 - Developing world ~ 54%
 - Developed world ~ 7%

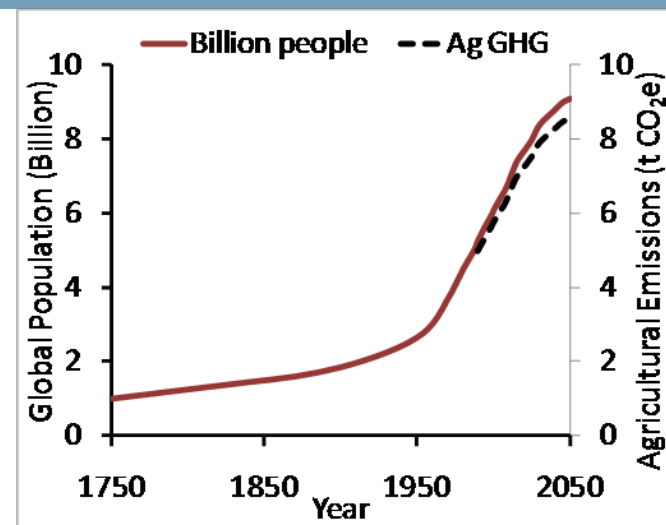


- Additional 3B people
 - Global food production increase 70%
- Developed countries
 - Mostly high value food



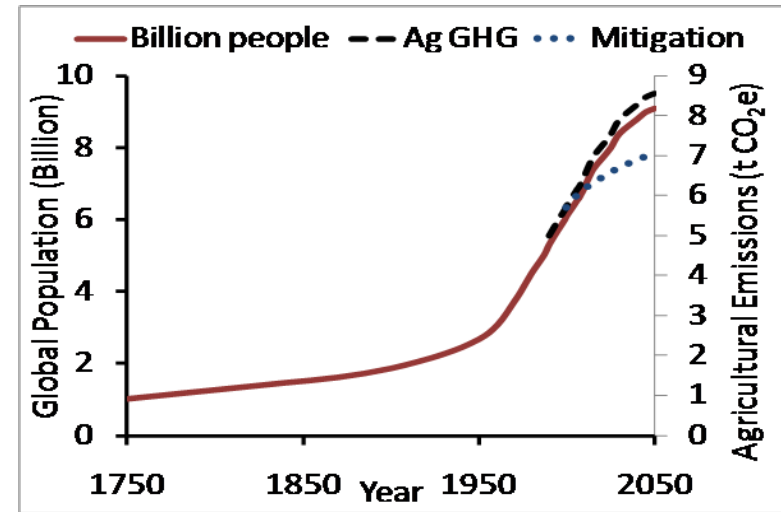
The additional food required will need to be produced locally in developing countries, where research has historically not been as well resourced and communicated as in developed countries

- 1990 to 2005
 - 5.2 to 6.1 Gt CO₂e/yr
- Developing world
 - 54% @ 0.85 t CO₂e/person
- Developed world
 - 7% @ 1.65 t CO₂e/person
- Agricultural emissions
 - 8.8 Gt CO₂e by 2050
 - 54% increase over 2000



Abatement potential

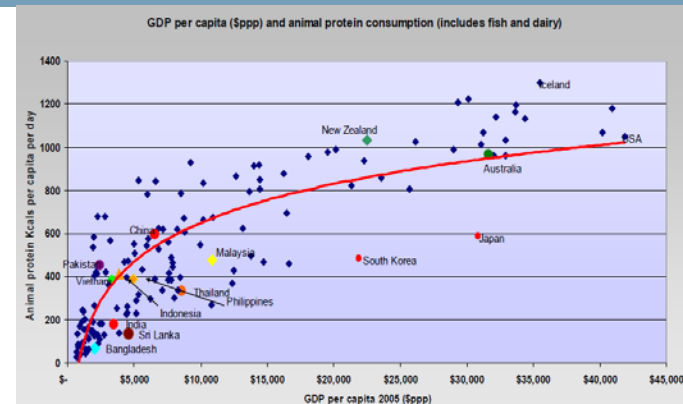
- Likely adoption by 2050
 - Developed countries
 - 20% with policy drivers
 - Developing countries
 - Food production and security a higher priority
 - 0% abatement most likely



Net result = 7.0 Gt CO₂e

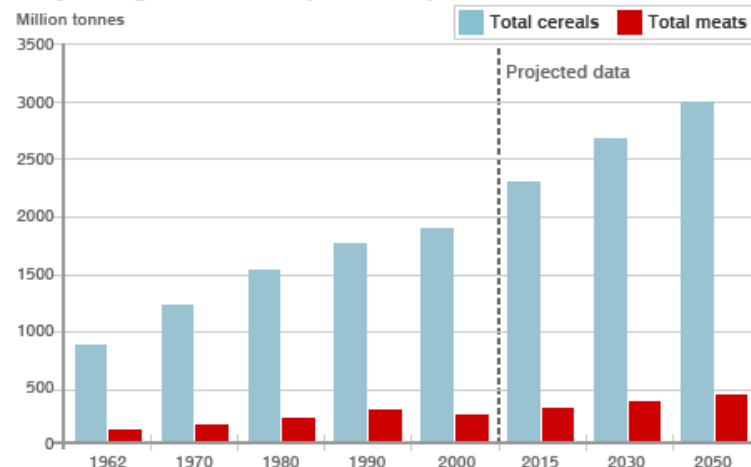
23% increase in GHG from agriculture by 2050 over 2000

- Livestock products
 - Demand +44% by 2030
 - Increasing wealth
 - BUT
 - Mainly poultry, pork, aquaculture, dairy
 - Less trend for red meat, mainly goats



- East less red meat?
 - Developing world (54%)
 - Cultural or no choice
 - Main trend in white meat
 - Developed world (7%)
 - Decreasing trend, but small contribution

Projected growth in food production, 1960-2050



SOURCE: FAO

- Agricultural emissions
 - Will increase by 23% to 2050
 - Even with mitigation policy
 - Mitigation research is critical
 - To produce more food
- AND
- With a lower footprint than before
- BUT
- Must be applicable to developing world as well
 - To address the 23% increase



This is the only way in which already challenging global food production targets can be met, but with fewer emissions than would have otherwise occurred



www.piccc.org.au

www.greenhouse.unimelb.edu.au