Towards regulating climate smart agriculture: lessons from Australia's Emissions Reduction Fund

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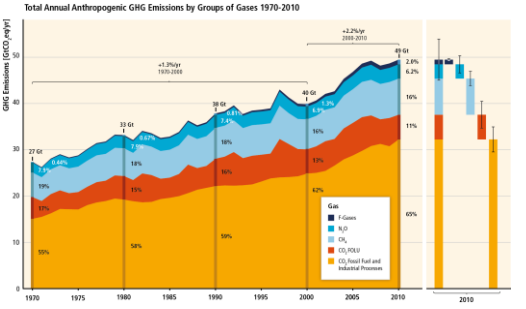
Introduction

- Who am I and what am I doing here?
  - Horizon 2020/Marie Sklodowska Curie Global Fellowship (academics mobility & advancing EU's policy areas)
  - Aim: identify the main elements of a regulatory framework that enables, facilitates and stimulates the transition of conventional farm practices toward 'climate smart' practices in the EU
- Set up of my presentation:
  - Some background on climate change-agriculture-food security
  - Research into experiences Australia's Carbon Farming Initiative/Emissions Reduction Fund: lessons?
  - What does the CCA's 'Toward a Climate Policy Toolkit' (August 2016) say?
  - Take home messages

Background: climate change & food security

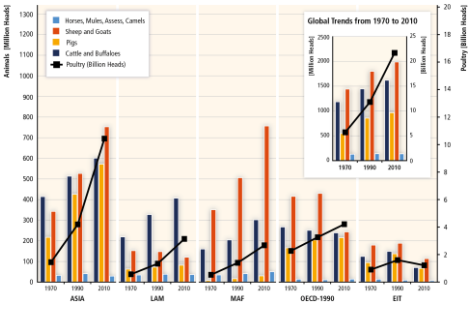
1. Agriculture contributes to climate change
   - Contribution agriculture, forestry and other land use (AFOLU): about 25% of all anthropogenic emissions
     - Non-CO_2 emissions:
       - methane: livestock, rice cultivation (25x impact CO_2)
       - nitrous oxide: synthetic fertilizers, manure on soils and pasture (300x impact CO_2)
     - CO_2 emissions: deforestation, peatland drainage
     - But: also important source of carbon sequestration (soils and vegetation: crops, grassland, trees)
   - Global emissions from agriculture have been rising since 1990 (down in Europe, up in Asia)

Contribution AFOLU to global GHG emissions



Source: P. Smith et al., Agriculture, Forestry and Other Land Use (AFOLU). In: Climate Change 2014: Mitigation of Climate Change, WGII, IPCC AR5 (Cambridge University Press)

Sharp increase livestock (esp. poultry in Asia)



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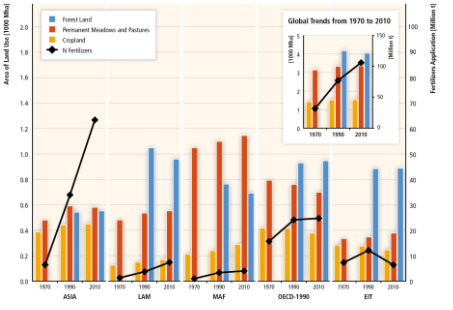
Sharp increase use of synthetic fertilizers



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Background: climate change & food security

2. Agriculture will suffer most from climate change
   - Negative yield impacts for all major crops in tropical and temperate regions (at 2°, even at 1.5° although less dramatic)
     - Reduced water availability, temperature shifts, extreme weather events (floods), increasing occurrence of pests
     - Example: 56% of crops in Sub-Saharan Africa negatively affected by 2050
   - Increase of irrigation demand by more than 40%

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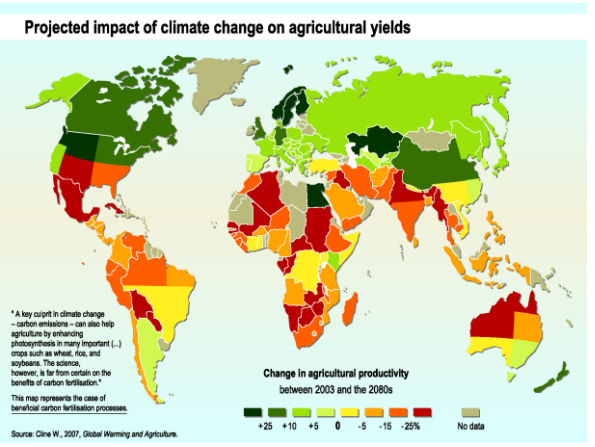

Background: climate change & food security

3. 40% increase global food production needed by 2050
   - Population growth: 7 → 9 billion
   - Rise in calorie intake by 60% due to greater affluence, particularly in China and India
   - Biomass supply for energy, carbon sequestration, afforestation have potential implications for food security
   - Leads to further increase greenhouse gas emissions

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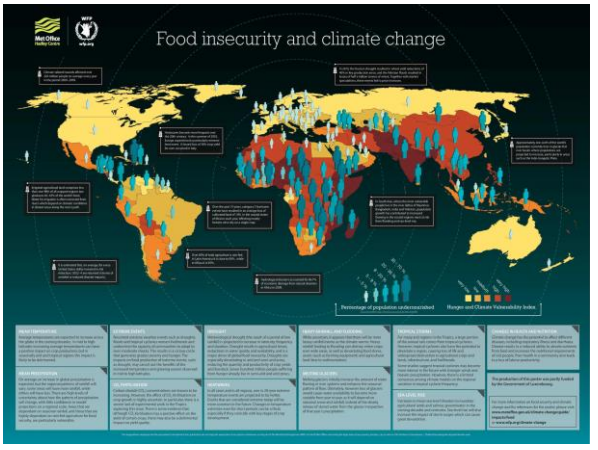

Possible solution: climate smart agriculture

- Sector has to convert to agricultural practices & technologies that:
  1. Reduce emissions of greenhouse gasses
  2. Increase resilience of the sector by adapting to the changing climate
  3. Sustainably increase production for food security
- Wide range of measures & technologies, such as:
  - Capture methane from cattle & convert to biogas
  - Improve digestion cattle (change feed, change genetics)
  - Increase carbon in soils (compost, no nitrates, rotational cropping)
  - Improve water retention (soil carbon, landscape hydrology)
  - Rotational grazing (accelerating sequestration grazing lands)
  - Permanent vegetation cover
  - Different crops (more resilient, more sequestration)
  - Etc.

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IPCC: "Agriculture has good mitigation potential against high costs"

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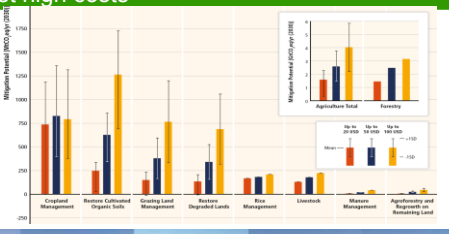

Grazing land regeneration in western NSW
Photo credit: http://www.soilsforlife.org.au

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Bring in the law: Paris Agreement (2015)

- International agreements on climate change:
  - UNFCCC (1990)
  - Kyoto Protocol (1997)
  - Paris Agreement (2015)
- Agriculture not mentioned, except: mitigation policy cannot negatively impact on food security
- Paris Agreement:
  - well below 2°C or at 1.5°C (Art. 2) ≈ 90% emission reduction
  - transition to net zero carbon emissions worldwide
- Agriculture pivotal (reduce emissions & increase sequestration)
- Domestic policies largely lacking (including in the EU)

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Domestic law aimed at stimulating climate smart agriculture: Australia's unique approach

- Some countries now allow industries to obtain offsets from agriculture as part of emissions trading scheme (California, Alberta, Japan), recent, limited impact
- Australia has stand alone programme, five years of experience
  - Carbon Farming Initiative (CFI) / Emissions Reduction Fund (ERF)
  - Very complex piece of legislation: 300 pages of text of CFI Act, plus another 100 pages of CFI Rule, plus hundreds of pages on methodologies
  - Basics:
    - Emission avoidance and sequestration projects can generate credits
    - Only when covered by accredited methodology, contains standards to ensure that emission cuts are:
      - Additional, measurable, verifiable
    - Extensive rules on monitoring and reporting
    - Clean Energy Regulator (CER) issues credits after 1st reporting period
    - Credits can be purchased by CER under carbon abatement contracts, through reversed auctions (x amount of abatement, against y costs)

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Research into experiences: methodology

- Desk study: legislation, government documents, Climate Change Authority CFI review (2014)
- Case studies of selected CFI/ERF-projects
  - Goal: better understanding of projects, back ground info for interviews
- Interviews with key players within different stakeholder groups:
  - Government (CER, Dept. of Environment)
  - Farmers (NFF, Australia Pork)
  - Consultants (Carbon Farmers of Australia, Corporate Carbon, Climate Friendly)
  - Financial and accountancy (Rabobank, Baker & McKenzie)
  - NGOs (The Climate Institute)

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Experiences carbon farming: successes

- Successful, but only after 2015 change of policy (ERF instead of carbon market):
  - 630 projects, most on vegetation, most on agricultural lands, 143 million tonnes of CO_2-e abatement
  - stimulated farmers to move to climate smart agriculture
  - advanced knowledge (soil carbon for instance)
  - many co-benefits: economic, climate resilience, biodiversity
  - regulatory framework is robust and ensures integrity
    - real reductions (monitoring)
    - additional reductions (beyond business as usual, projects wouldn't have happened otherwise *mostly*)
    - high level of compliance (auditing system works well)

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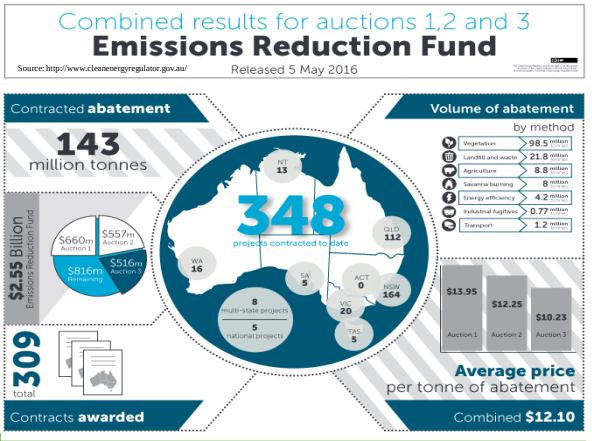

Experiences carbon farming: limitations

- Lack of accepted methods for many branches in the sector
- The large majority of small farms is not involved
  - 'aggregation' practiced, but has several problems
  - 'whole of farm'-method suggested as a solution for small farms
- High overhead costs, for government and farmers
  - Complexity: farmers need consultants
  - More automated monitoring and reporting systems needed
- Government budget alone can never fund sector wide transition to CSA: private funds have to come in (options: tightening safeguard mechanism for industry/energy sector, linking to ETS, or financing through carbon tax revenue)
- Doubtful whether CSA will solve all problems (production increase may offset reductions achieved): dietary changes?

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What does the CCA's special review say?

- *Towards a Climate Policy Toolkit* (Climate Change Authority, August 2016):
  - ERF offsets scheme for agriculture and land use is a good instrument, keep it!
  - New method development & research should be supported by Australian government
  - Safeguard mechanisms create demand for land-based offsets
  - Until such demand occurs, government should keep on purchasing ACCUs
  - State and territory governments should create synergy between ERF and their natural resource management policies so as to encourage farm productivity, carbon storage and reduce emissions (in other words: promote climate smart agriculture)

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Take home messages

- Farmers have to implement structural changes with long term impact on their business: a reliable, long term policy required!
- Policy should not focus on getting emissions reductions alone, but on adaptation, food security, landscape conservation, biodiversity, and jobs as well: create resilient, sustainable farms
- Accepted climate smart agriculture-methods should also foster long term innovation and create economic, social and environmental co-benefits, science has to be central in the development of methods
- Current rules on monitoring, reporting and verification are very good, automated systems need to be further developed
- Thank you Australia! Lessons from Australia's approach to carbon farming are relevant for the rest of the world, including the EU

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Questions and discussion





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