



Landcare Research
Manaaki Whenua

Environmental Regulation of Agriculture in New Zealand

Suzie Greenhalgh
Landcare Research NZ



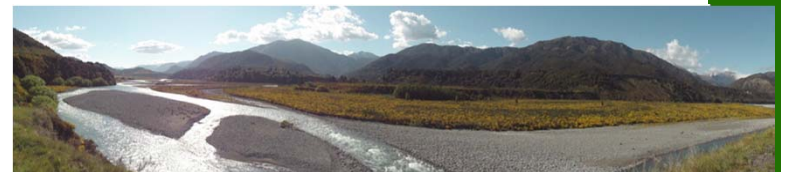
Agriculture in NZ

- Agriculture is key sector of NZ's economy
 - ~5% of GDP excluding downstream processing
 - ~15% of GDP including downstream processing
- Growing intensive pastoral farming, mostly dairy
- Key source of environmental impacts
 - GHG emissions & carbon sequestration
 - Nutrient discharge
- Contrast to US
 - No agricultural subsidies (abandoned in 1984)
 - Dominance of pastoral agriculture
 - Willingness to regulate agriculture



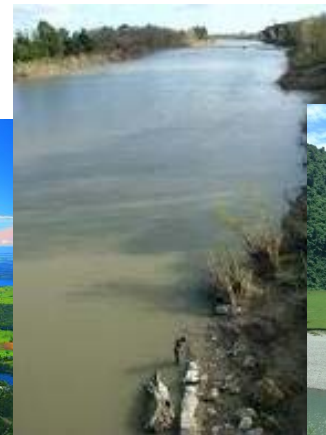
NZ's Policy Environment

- Regional government
 - Resource Management Act (1991) devolved most environmental management to regional councils
 - Affects-based legislation covering land, coastal area, river & lake beds, water, discharges, noise
 - 16 regional councils in NZ – all with different approaches
- National government
 - Responsible for climate policy
 - Formulate national policy statements but few exist
- Local government
 - Responsible for land-use zoning



Water Quality Regulation

- Regulating agricultural water quality impacts is a reality
 - Lake Taupo Watershed
 - Rotorua Lakes
- Other regions moving to regulate agricultural nutrient discharge
 - Canterbury
 - Southland
 - Otago
 - Horizons



Lake Taupo Watershed



Background: Lake Taupo

- Lake clarity had decreased from 16 to 14 m
- Estimated that 20% reduction in manageable N lake inputs to lake was needed to maintain quality at 2001 levels
- Achieved by
 - Controlling current leaching N to 2001 levels (with N trading programme)
 - Permanently reduce N input by 20% (established a public Trust with \$81 million funding to reduce N)



Policy development process

- Policy timeline
 - 2005: Proposed Variation to plan notified
 - 2006/2007: Council hearing to hear appeals, decisions released
 - May 2008: Environment Court hearings
 - Nov 2008: Interim Court Decision
 - June 2011: Final Environment Court Decision



Policy development process

- Legal framework
 - Regional Plan under NZ's Resource Mgt Act
 - S9(2): No person may use land in a manner that contravenes a regional rule unless the use
 - (a) is expressly allowed by a resource consent
 - S15: no person may discharge any
 - (a) contaminant or water into water
 - (b) contaminant onto or into land which may result in that contaminant...entering water



Contested policy/design issues

- Regulation of pastoral agriculture
 - controlled vs permitted activity
- Allocation mechanism
 - grandfathering chosen
 - Highest leaching year (2001-2004) for benchmark
- Credibility of bio-physical modelling to estimate farm N losses
- Maori concerns
 - Allowed to develop their undeveloped land for housing
- Size of cap too small



Status of Trading programme

- ~97% of farms benchmarked (ie. have NDA)
- ~70% of farms have consents
- 26 trades have occurred
 - 19 Lake Taupo Protection Trust (LTPT): require permanent reductions
 - 7 with dairy farmer
- Nitrogen traded
 - 120,000 kg N to LTPT
 - 18,000 kg N to dairy farmer



Status of Trading programme

- Trading prices
 - Permanent reductions (\$350 - \$400/kgN)
 - Leased temporary reductions (\$25/kgN)
- Transaction costs:
 - \$1000-\$1500 to modify consent/party
 - cost of implementing change

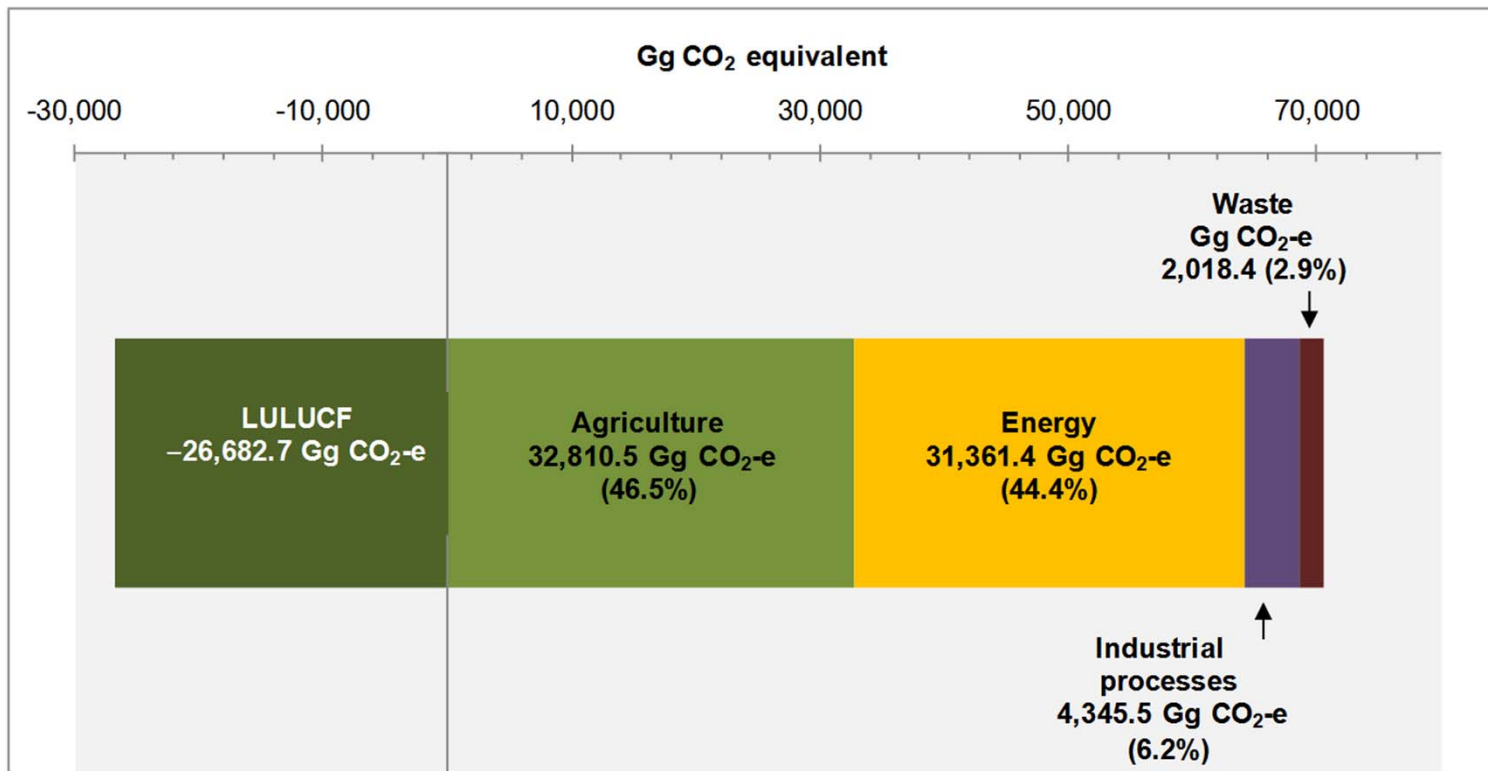


Key implementation observations

- Folks planting trees for N trades & then looking at selling C
- Lots of new local research being undertaken
- Farms became more efficient, e.g. retiring marginal land
- Exploration of alternative farming options for the catchment (e.g., native vegetation, blueberries)
- Windfall to farmers (NDA was highest leaching year)
- People panicked, sold out early but meant Trust secured trades early
- Dislike of a more forested catchment from a visual amenity perspective (local comments)
- Innovative marketing by farmers – Taupo Beef

Climate Change

- Agriculture is large contributor of:
 - ~47% of national greenhouse gases (GHGs) emissions, mostly enteric fermentation



2009 National Inventory

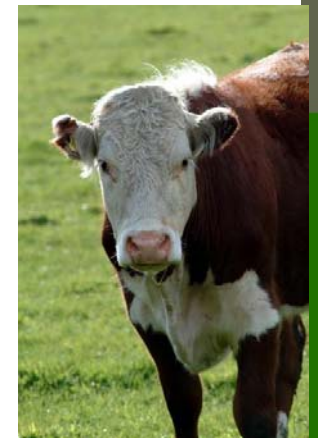
Climate Policy Development Process

- **NZ Emissions Trading Scheme**
 - National legislation “Climate Change Response Act (2002)” was legal framework for NZ to ratify Kyoto protocol
 - Allows for establishment of NZETS
 - Timeline for sector coverage
 - 1 Jan 2008: Forestry
 - 1 July 2010: Transport fuels, electricity production & industrial processes
 - 1 Jan 2013: Synthetic gases & waste
 - 1 Jan 2015: Agriculture
- **Debate surrounding inclusion of agriculture**
 - Currently processor level of obligation
 - Compulsory reporting from 2012
 - 90% free allocation with 1.3%/annum phase out from 2016



Climate Policy Status

- **Reporting & accounting for agricultural emissions**
 - Fuel and electricity emissions: energy companies responsible for obligation and pass on the price directly to consumers
 - Fertiliser emissions: manufacturers responsible for obligation and pass on the price directly to consumers
 - Animal emissions: processes responsible for obligation and levy a price per kg of meat or per kg milksolid or number of layers
 - Forestry: mandatory for pre-1990, opt-in for post-1989 plantations
 - Measurement: lookup tables or field measurements
 - Harvest liability of \$25 per NZU





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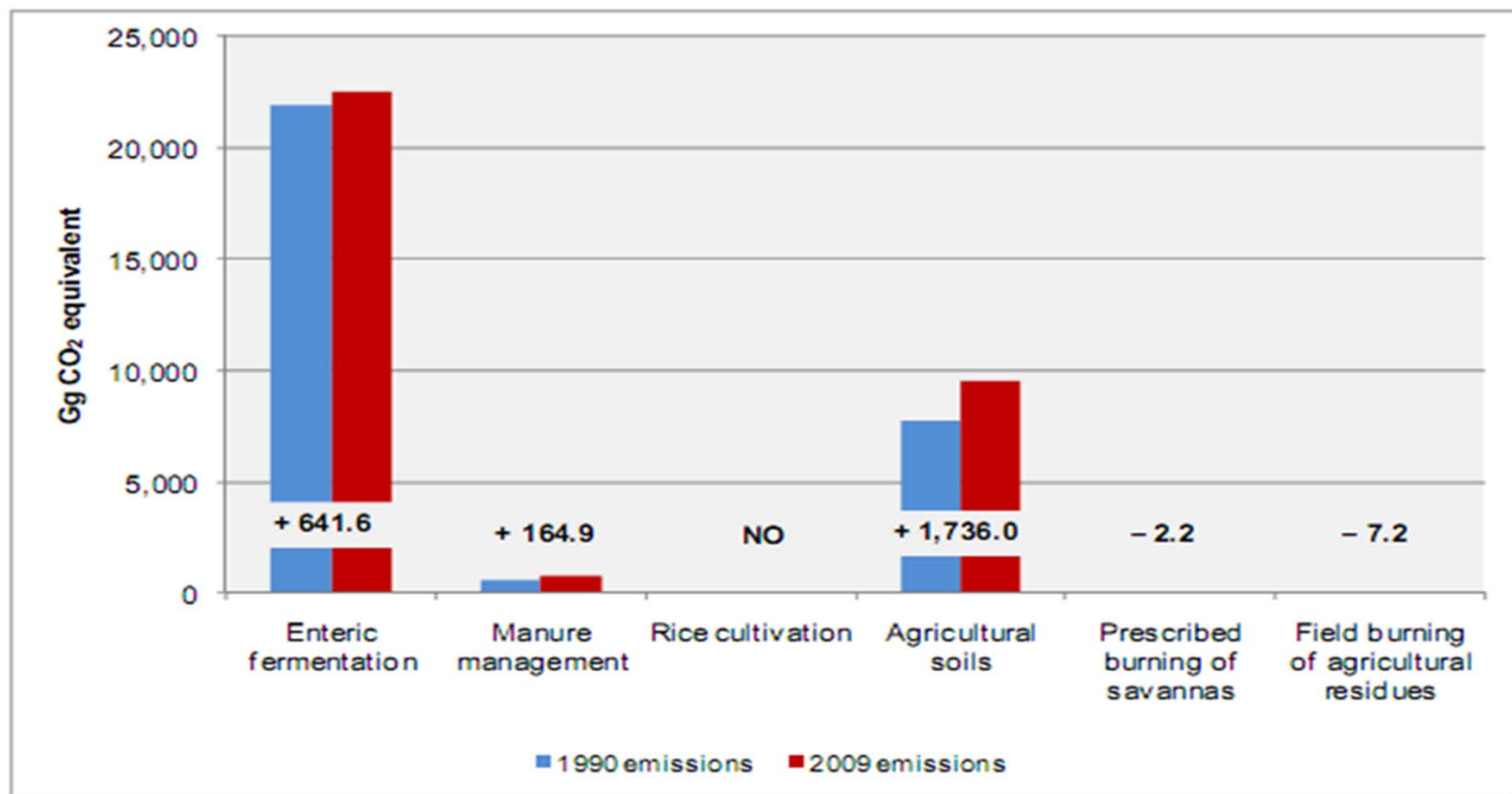
Rules

- Each farm has a N allocation
- Farm limit is confirmed via 25 yr resource consent
- Farmer maintains a nutrient plan
- OVERSEER nutrient model must be used
- Council audit looks at inputs to nutrient plan



Agricultural GHG Emissions

Figure 6.1.2 Change in New Zealand's emissions from the agriculture sector from 1990 to 2009



Lake Rotorua Watershed



Background: Lake Rotorua

- Large N reduction desired: 60-70% of manageable nitrogen
- Most nitrogen flows through groundwater – only around 30% surface water.
 - Ground water lags are up to 200 years



Policy development process

- Legal framework
 - Regional Plan under NZ's Resource Mgt Act
- Policy timeline
- **ADD ROTORUA DETAILS**

