Environmental Regulation of Agriculture in New Zealand

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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

Observations from Natasha Haywood, Taupo Implementation Manager
Climate Change

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

![Diagram showing CO2 emissions by sector]

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

- Enteric fermentation: +641.6 Gg CO₂ equivalent
- Manure management: +164.9 Gg CO₂ equivalent
- Rice cultivation: NO change
- Agricultural soils: +1,736.0 Gg CO₂ equivalent
- Prescribed burning of savannas: -2.2 Gg CO₂ equivalent
- Field burning of agricultural residues: -7.2 Gg CO₂ equivalent
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