



He Ānga Whakamua
Paving the way forward

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Carbon Neutral - Wairoa



Greenhouse Gas Inventory of the Wairoa District

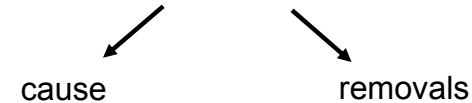


Wairoa Sustainable
Development Summit
10th Oct 2008

Robyn Sinclair

What is a GHG inventory

- It is a detailed look at a regions activities



- Base year 2006 -2007



Why do a GHG inventory

- Our country has international obligations
- First step in reducing emissions
- Knowledge is power
- Tourism/business opportunities
- Potential financial savings



Importance to Wairoa

- Understanding our affect on the changing climate
- How do we compare the nation?
- Are there obvious actions we can take to reduce our impact?



Background

- Greenhouse Gases
 - Carbon Dioxide
 - Methane
 - Nitrous Oxide
 - Hydrofluorocarbons
 - Perfluorocarbons
 - Sulphur hexafluoride
- } Refrigerants, aerosols, air conditioners & industrial process

Caveat

- Measurements in CO₂-e
 - Global Warming Potential
 - Methane = 21 more powerful than CO₂
 - Sulphur hexafluoride = 23 900 more powerful than CO₂

The inventory

- Methods based on national report
 - Agriculture
 - Energy
 - Industry
 - Waste
 - Forestry



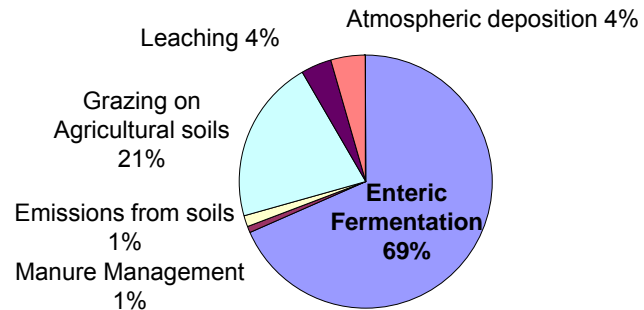
Agriculture

- Livestock numbers
 - Beef cattle, dairy cattle, sheep, goats, horses, deer & pigs
- Crop hectares planted
 - N fixing crops & non N fixing crops
- Fertilizer use

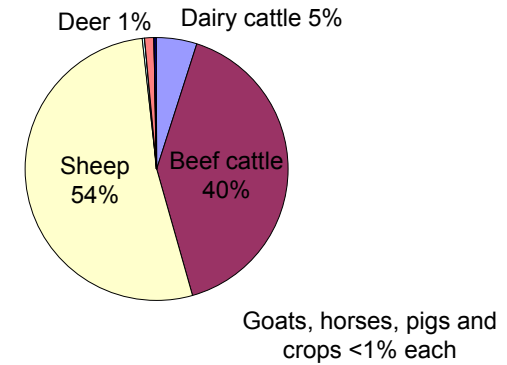


Agriculture

- Emissions by source



Emissions by farm type



Agriculture

- Total emissions

- 487 Gg CO₂-e /year

- 89% of district emissions



Energy

- Liquid fuels

- Petrol, diesel & LPG (AvGas)

- Solid fuels

- Coal

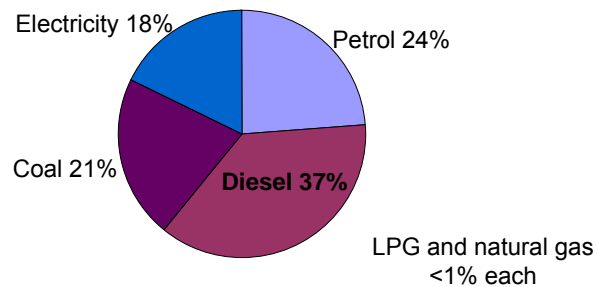
- Meat processing & "unidentified" coal

- Electricity use



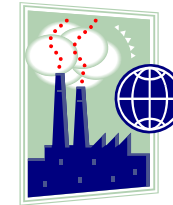
Energy

- Total emissions
 - 53.37 Gg CO₂-e /year



Industry

- Iron, aluminium, concrete, urea & hydrogen production
- Other emissions from
 - Mobile air conditioners
 - Stationary refrigeration
 - Metered dose inhalers
 - Aerosols
 - Electrical equipment



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Industry

- Allocated on a per capita basis from national emissions
- Very low
- Total emissions
 - 1.2 Gg CO₂-e /year
 - or 0.2% of district emissions

Waste

- Solid waste to landfill
- Indirect nitrous oxide emissions (sewage)
- Waste water
 - Population connected to system
 - Handling system



Waste

- Total emissions
 - 3.08 Gg CO₂-e/year
 - 0.6% of district emissions



Forestry

- Planted radiata pine area
 - carbon removed dependent on age & soil quality
- Harvested area
- Shrubland cover
 - Manuka/kanuka, gorse & broom, mixed exotic shrubland & grey scrub



Forestry

- 47,461 ha planted forests
 - 619 ha harvested
- 34,199 ha shrubland
- Removals of **674** Gg CO₂-e /year



Note: conservative estimate as soil fertility unknown in commercial sites

Wairoa District

Sector	Gg CO ₂ -e
Agriculture	487
Energy	53
Industry	1.2
Waste	3
Forestry	-674

- Removing more than emitting
-129.51 Gg CO₂-e

Per Capita Comparison

	Wairoa	New Zealand
	T CO₂-e per person per year	
Agriculture	56	8
Energy	6	8
Industry	0.1	1
Waste	0.3	0.4
Forestry	-78	-5
Total	-15	16

What does all this mean?

- Climate is today's issue
 - Water?
- Jobs are more meaningful than carbon
- Future development can not discount carbon
 - Environmental issues need to be considered – No offsets

Further Information

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Livestock

	Wairoa	New Zealand
Sheep	766,108	38,460,000
Beef Cattle	113,076	4,393,000
Dairy Cattle	7,421	5,260,000
Deer	7,667	1,396,000

Forestry

	Wairoa	New Zealand
Forest Area	47,452 ha	1,790,000 ha
Forest Harvested	290,000 m ³	18,280,000 m ³