



NEW ZEALAND INSTITUTE FOR THE STUDY  
OF COMPETITION AND REGULATION INC.

# Climate Change Stock-Take and Appraisal

JTO Workshop – Reporting the Economy  
Victoria University of Wellington  
7 March 2007

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## CORPORATE MEMBERS

Contact Energy Ltd

Fonterra Co-operative  
Dairy Group Limited

Meridian Energy

Powerco

Telecom Corporation  
of New Zealand Ltd

Transpower New Zealand Ltd

Vector Ltd

Victoria University of Wellington

Westpac Institutional Bank

# Overview

- Disclaimers and confessions
- Current emissions and sources
- Historical and “projected” climate change
- How should we respond to these projections?
- New Zealand’s outlook and response
- Some particular issues for Maori
- Conclusions

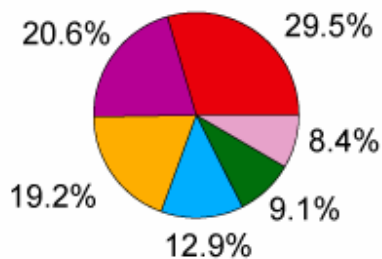
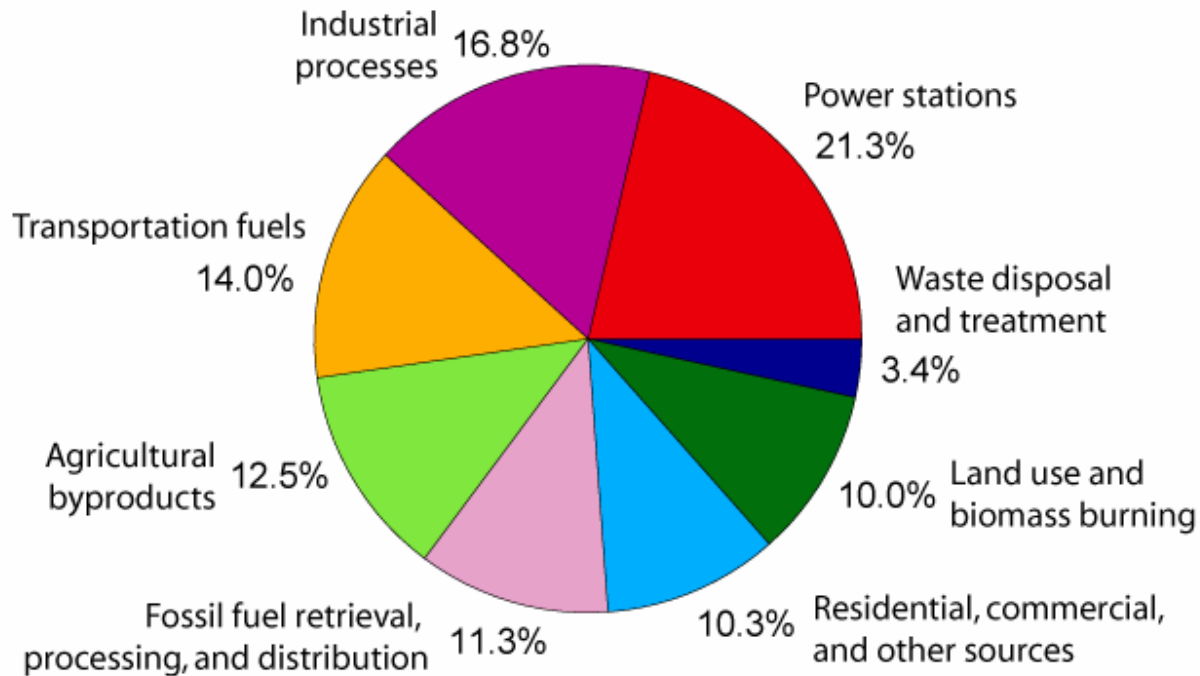


# Disclaimers and Confessions

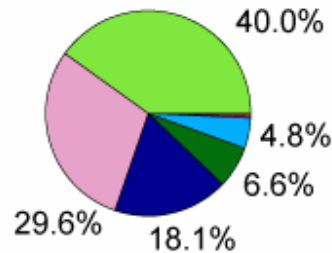
- Advised Ngati Porou on PFSI joint venture agreed December 2006 with international partner
- Advised Federation of Maori Authorities valuing impact of alternative climate change policies on Kyoto and Non-Kyoto Foresters
- Was a member of the Maori Issues Group convened by former NZCCO on impact of climate change policies on Maori
- Act for Maori claimants in Treaty settlements processes (involving forest land ...)
- Accept the science of climate change despite obvious problems forecasting long-term weather, globally, with a changing weather model, ...
- Accept that the main global emitters need to do something to avoid a possible catastrophe
- Do not accept all disaster scenarios, or that climate change is bad *per se*
- Accept New Zealand probably needs to do something about climate change for multilateralism/export protection, with reservations ...



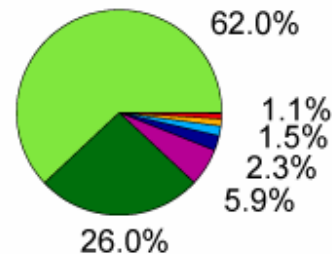
# Annual Greenhouse Gas Emissions by Sector



**Carbon Dioxide**  
(72% of total)



**Methane**  
(18% of total)



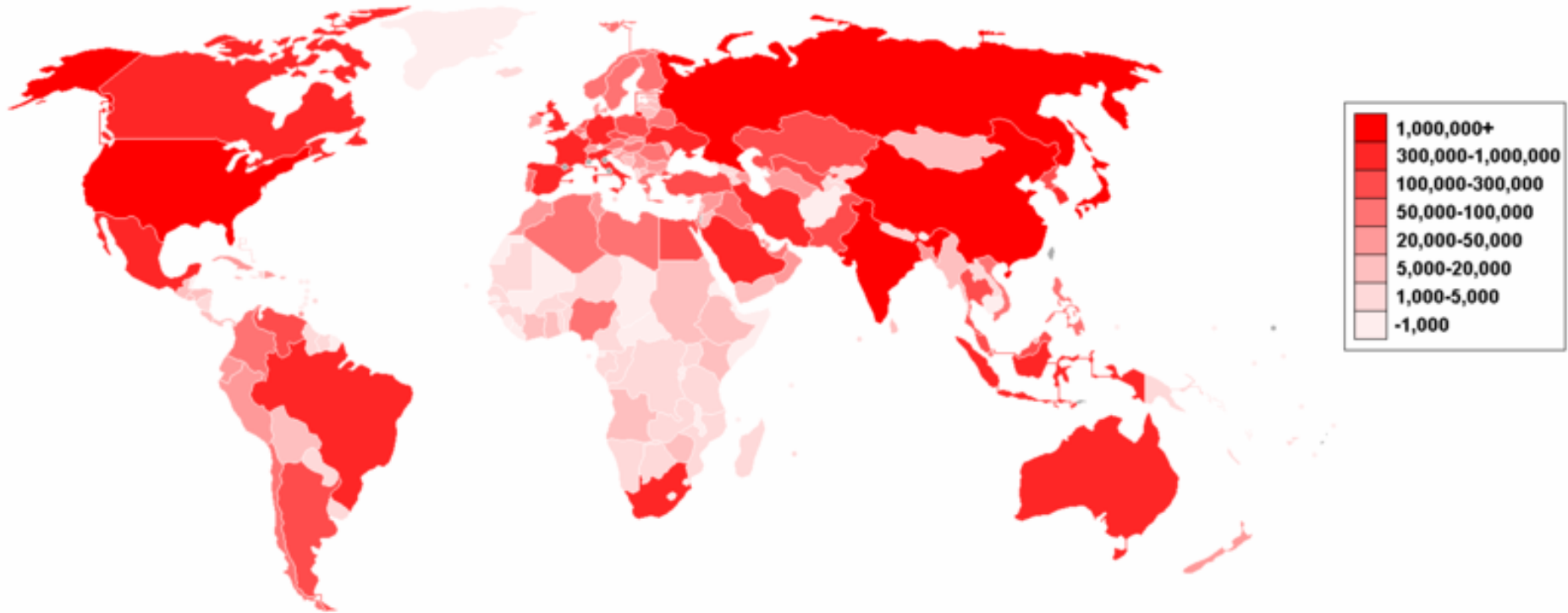
**Nitrous Oxide**  
(9% of total)

Source: Wikipedia, 2000 data



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# Carbon dioxide emissions by country

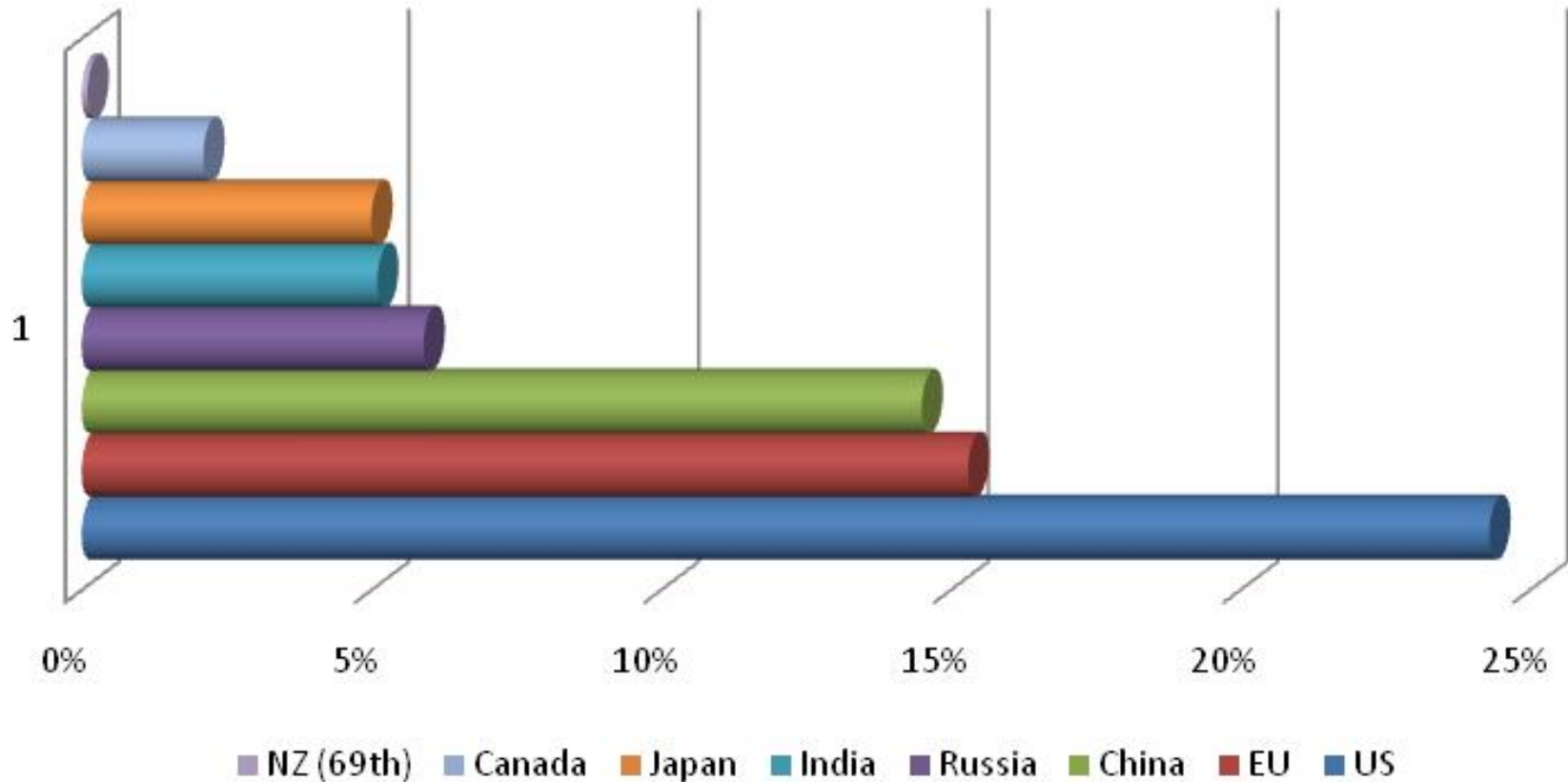


Source: Wikipedia



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## Annual carbon dioxide emissions by country



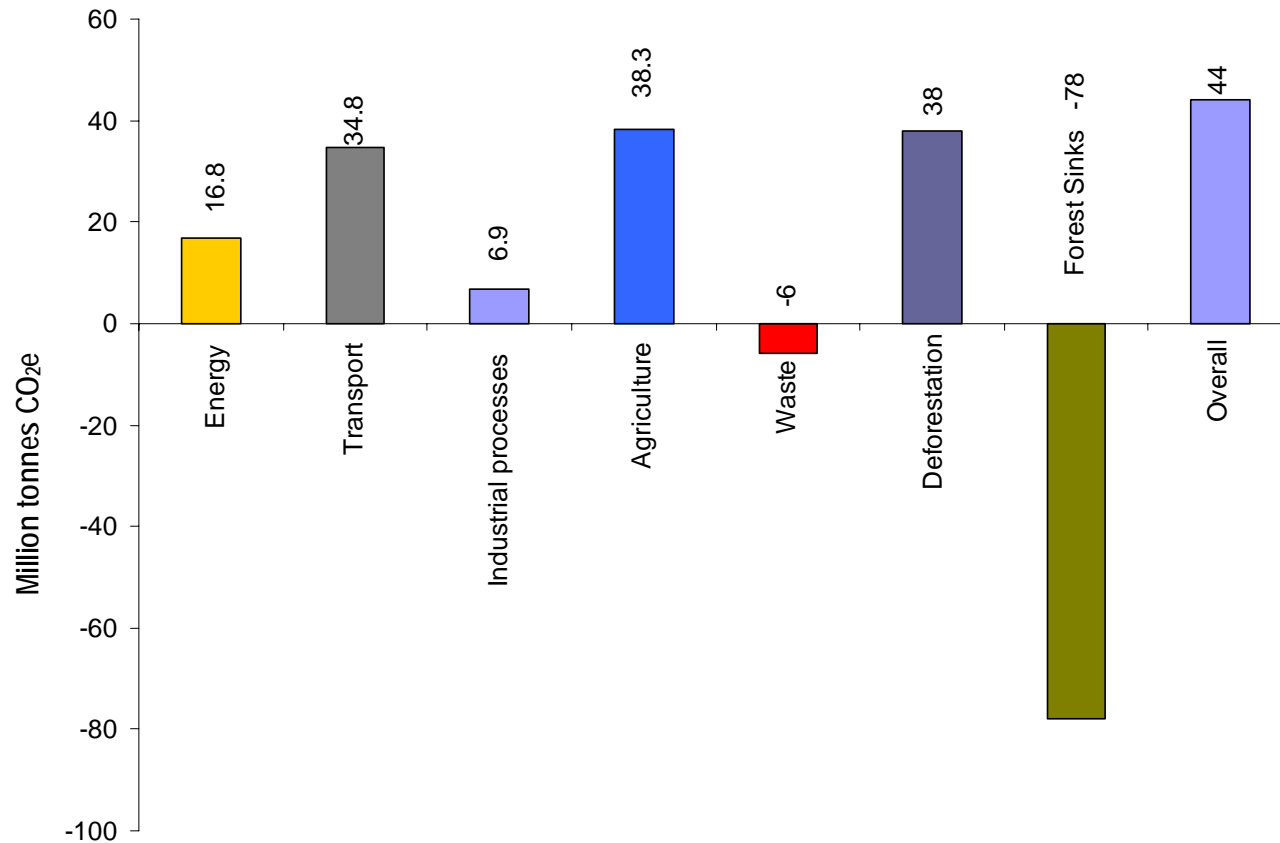
NZ = 0.1%    UK = 2.3%    Germany = 3.3%

Source: Data from Wikipedia



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# NZ's Projected CP1 Excess Emissions

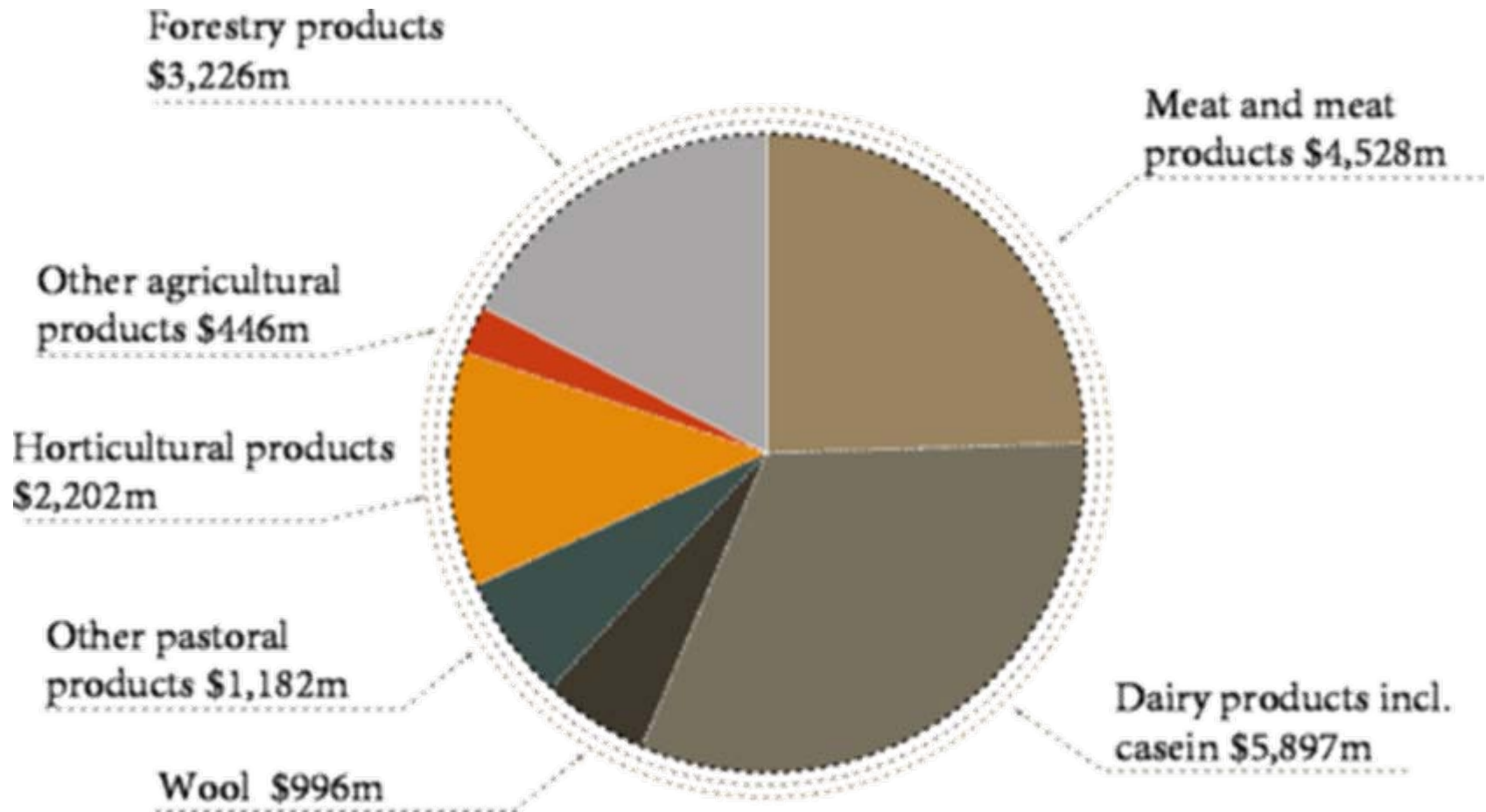


Source: Sustainable Land Management and Climate Change, MAF slides, December 2006



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# New Zealand's Exports



Source: Sustainable Land Management and Climate Change, MAF slides, December 2006



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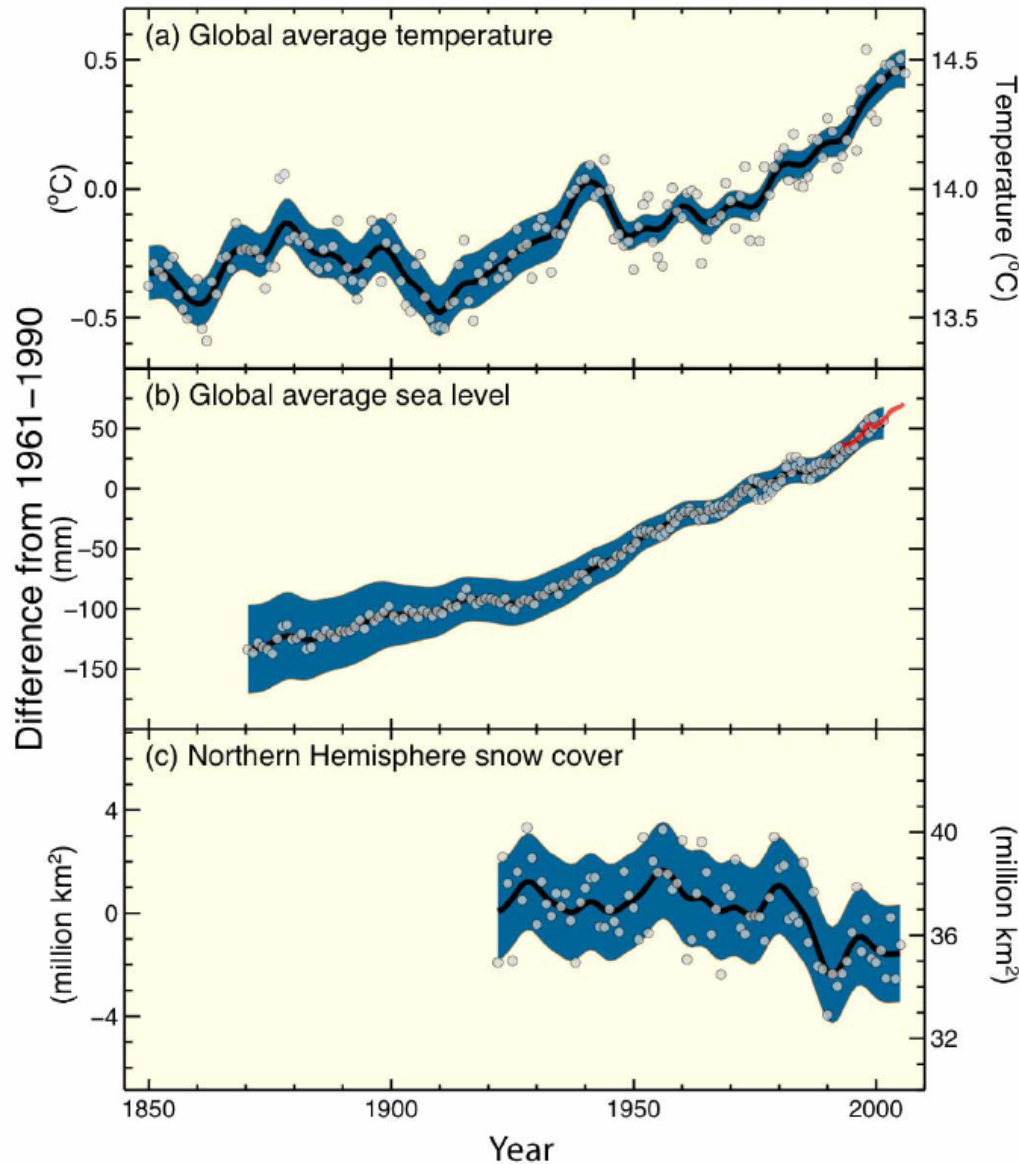
# IPCC's (latest) view

- Science of climate change is evolving, and not all revisions paint a bleaker picture than earlier predictions – e.g. sea levels not to rise as much
- Hard to escape the view that human activity over the past 250 years has contributed to rapidly rising global average temperatures
- Effects are measurable – increasing air/ocean temperatures, melting snow and ice, rising sea levels (although controversies remain)
- Some things are not observed to change (e.g. Antarctic sea ice extent, despite *Inconvenient Truth's* focus on Larsen B), and some natural variability acknowledged (e.g. average Arctic temperatures)
- Land use change assumed to have only a minor role in global warming (despite KP focus on this)

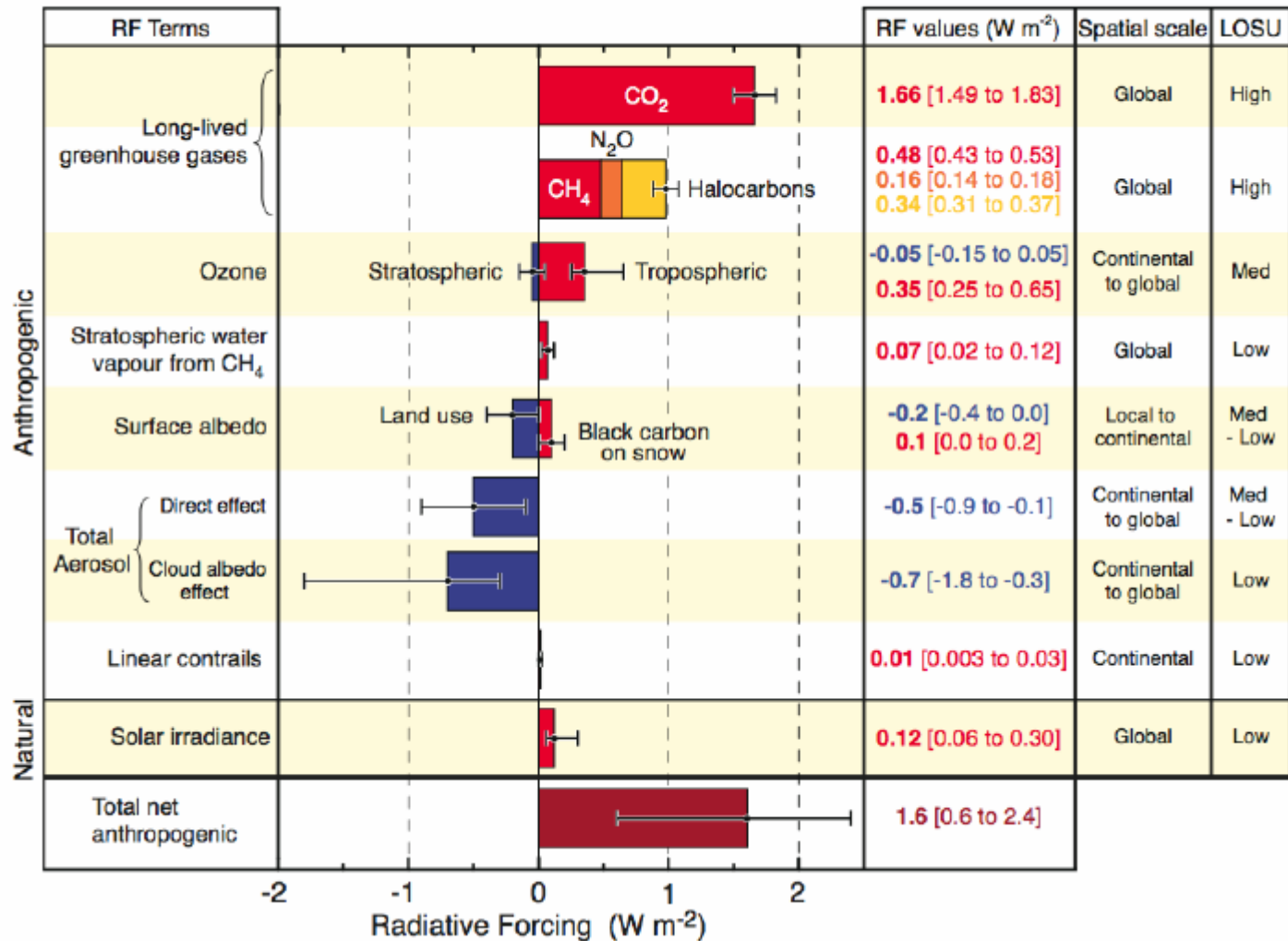


# Changes in Temperature, Sea Level and Northern Hemisphere Snow Cover

Source: IPCC WGI Assessment Report, Summary for Policymakers, February 2007



# Radiative Forcing Components



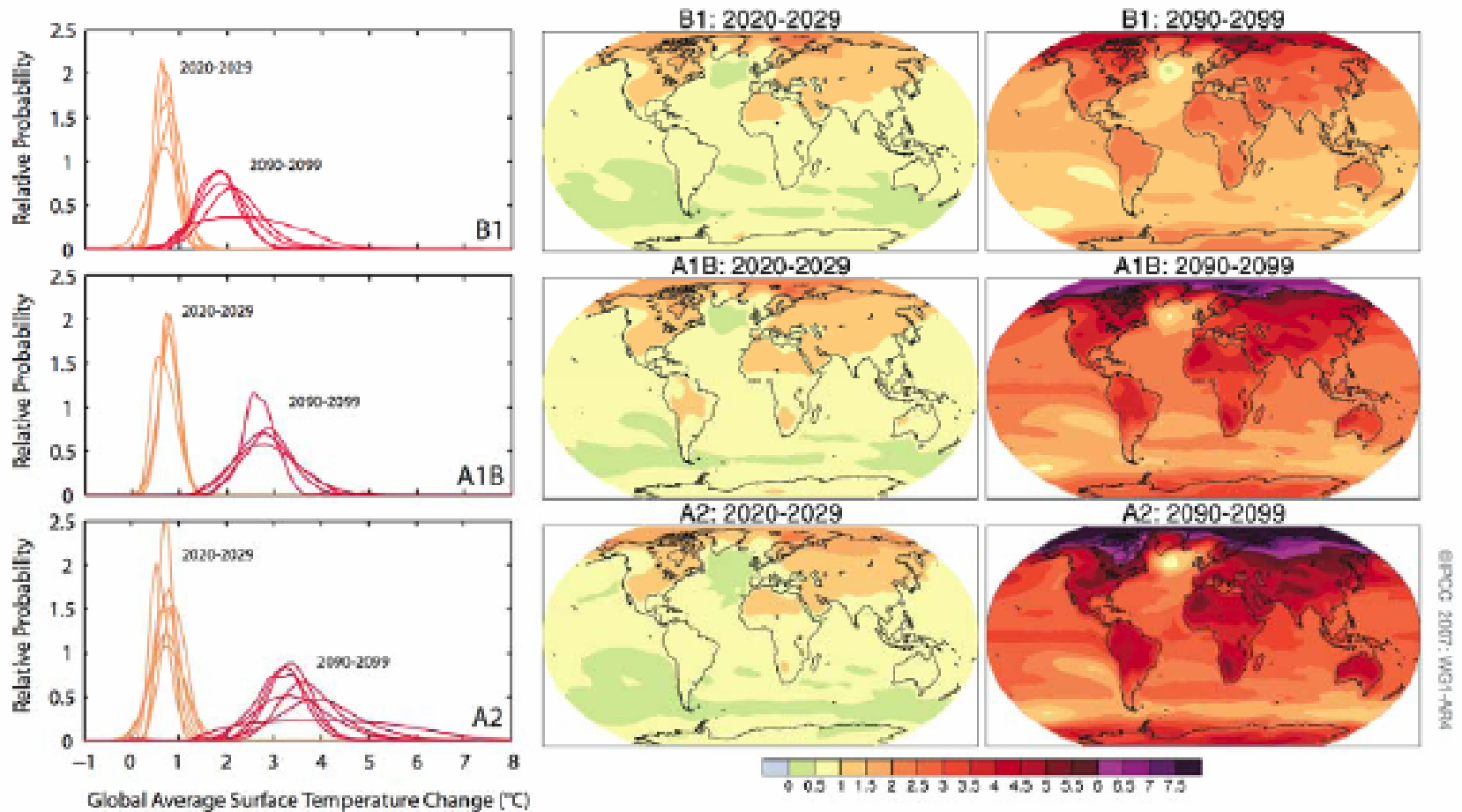
©IPCC 2007: WG1-AR4

Source: IPCC WGI Assessment Report, Summary for Policymakers, February 2007



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## AOGCM Projections of Surface Temperatures



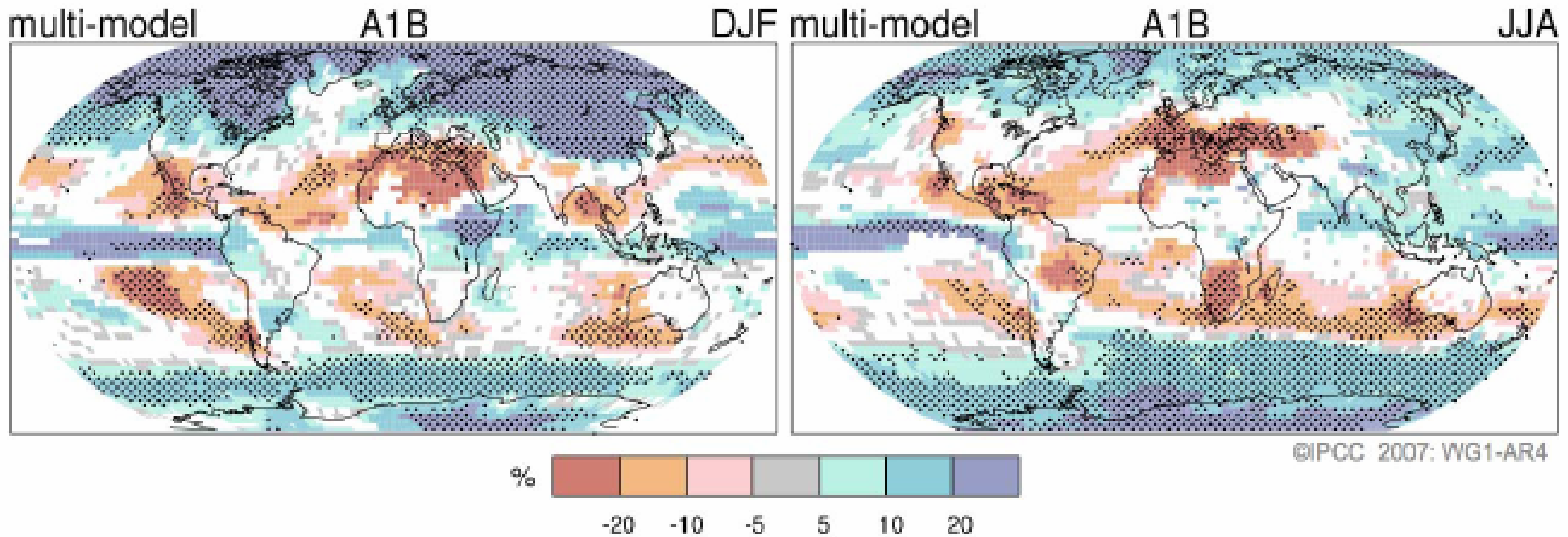
N.B. This is not a uniformly “bad news” story – e.g. Russia

Source: IPCC WGI Assessment Report, Summary for Policymakers, February 2007



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# Projected Patterns of Precipitation Changes

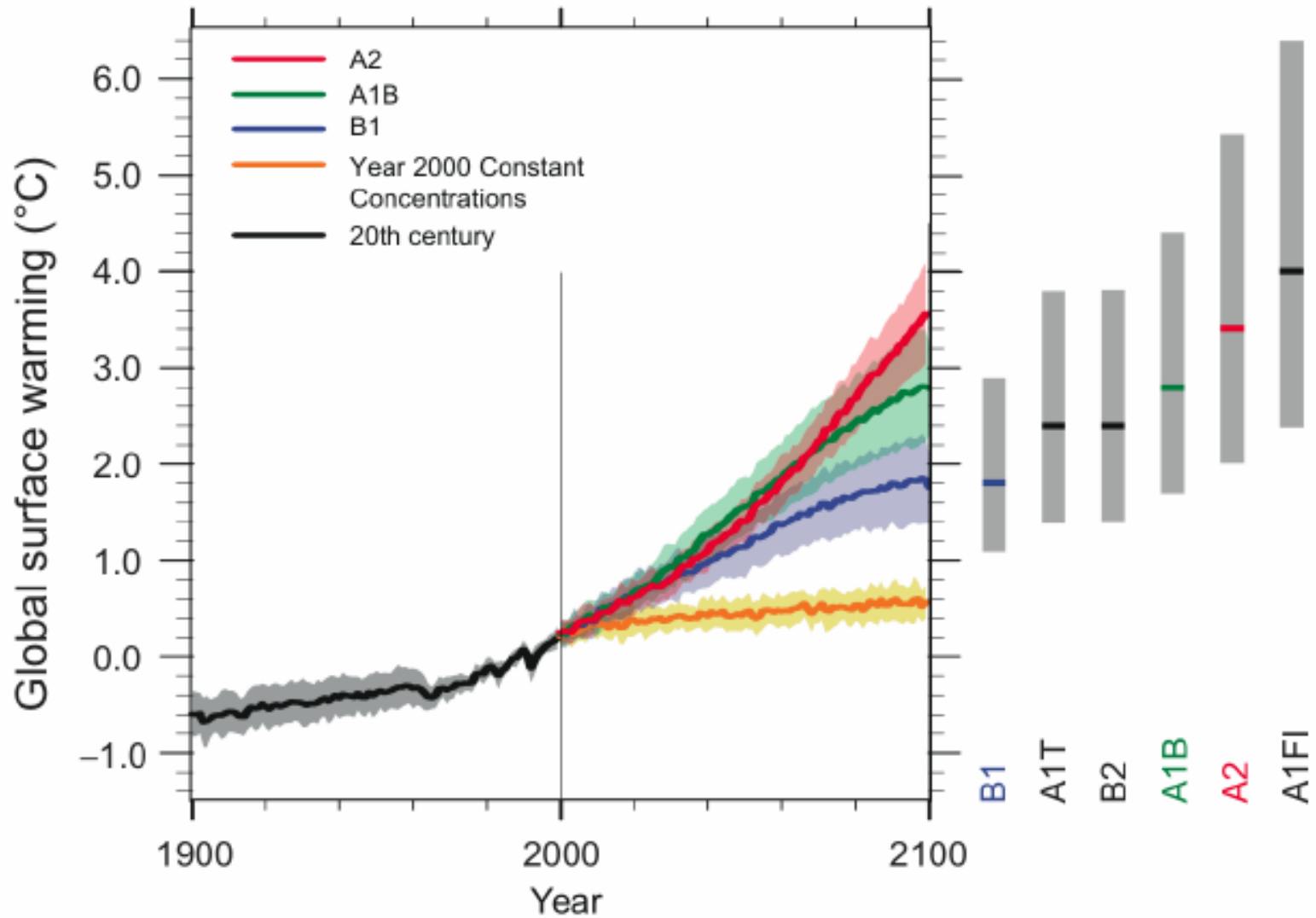


Source: IPCC WGI Assessment Report, Summary for Policymakers, February 2007



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# Multi-model Averages and Assessed Ranges for Surface Warming



Source: IPCC WGI Assessment Report, Summary for Policymakers, February 2007



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# Echoes of Malthus?

- A nineteenth century British cleric Malthus:
  - Predicted disaster because he observed the world population growing faster than the resources needed to sustain it
  - Advocated restraint on the size of families (“nip and trade”?)
- Malthus was wrong:

## TECHNICAL PROGRESS!!!

- His predictions made sense given the agriculture technology then available: the 20<sup>th</sup> century saw surging agricultural productivity that can now sustain a world population even greater than Malthus foresaw
- Avoid pathological pessimism (or optimism) re climate change – what’s “irreversible” now might not be in the future



# Blame it on the bogey?

- Media coverage of extreme weather events increasingly attributes all and sundry to climate change
- *An Inconvenient Truth* uses Cyclone Katrina as a rallying cry for Americans to get behind the “global war on temperature” [my words]
- The IPCC indeed reports increase in North Atlantic intense cyclones post 1970, but how do we avoid “man with a hammer” syndrome?
- What do we conclude from New Zealand’s growing glaciers (which not that long ago had been receding) and recent cold summer?



# World War-ter III?

- One prediction of climate change is worsening droughts in some parts of the world
- Some suggest that the next world war will be fought over water
- But what is cheaper:
  - Waging war to secure water supplies OR
  - Building a desalination plant (e.g. using wave technology for energy)?



# The sharpest tool in the shed

- When emitters fail to account for the environmental costs of their actions, what can be done?
- Conventional wisdom has been that government can either:
  - Tax the undesirable actions OR
  - Subsidise desirable ones
- Getting the tax/subsidy level “right” is hard – the price can be set, but outcomes are uncertain (they depend on individuals’ responses)
- Creating tradable property rights (e.g. emission units) has recently been seen as a more efficient alternative – a quantity outcome (e.g. total emissions) is specified, with market forces aggregating information and preferences and thereby determining price
- Government can set price or quantity, but not both!



# Internal Externalities?

- At its heart climate change is all about “negative externalities” – where the social (i.e. global) costs of emissions outweigh the private costs
- By limiting emissions but allowing for emissions trading Kyoto encourages the market to “price” the emissions externality, which should aid in its reduction
- Ironically, current New Zealand government policy clips a “positive externality” that would have encouraged the creation of forestry carbon sinks – by not devolving carbon credits to foresters creating such sinks
- Climate change policy uncertainty worsens the forestry story (more later)



# New Zealand's outlook

- According to MAF, we can expect:
  - Increasing frequency of severe climatic events
  - Wetter in the west (good for electricity, water exporting?), drier in the east
  - Sea level rise (Karori to become prime beachfront?)
  - Increased risk of forest fires
  - Changing growing seasons and regions (more vineyards?)



# SO WHAT???

- I live in Wellington – I want it to get warmer
- The Dutch (and others) have coped with high sea levels for centuries
- New Zealand accounts for a fraction of 1% of total world emissions – would anyone notice if we eliminated them altogether (versus just keeping them to 1990 levels)?
- Our emissions per capita might be relatively high, but we are still not part of the problem – what is our role in the solution?
- Does it make sense to impose the same sorts of costly mitigation mechanisms on New Zealanders as it does on US, EU and Chinese emitters?
- Is it equitable to impose mitigation measures on New Zealand's non-traded sector just to defend markets for the traded sector (since exports account for only 25% of GDP)?



# On carbon neutrality

- The target is too tight – it will be economically optimal to have at least some net emissions
- Does it make sense to gun for this when our main trading partners – and the main emitters – are only just catching up with limiting further emission increases?
- Would government advocate immediate move to zero tariffs to fly the flag for free trade?
- Is being “greener than green” “sustainable”?



# On multilateralism

- New Zealand already has a flagship policy with which to lead the world → “Nuclear Free”
- How many other countries even know?
- Did it stop:
  - The North Koreans or Iranians from enriching?
  - The US and UK from announcing new generations of nukes?
  - The Indians and Pakistanis from testing?
- More importantly – doesn’t this flagship policy now conflict with our new one of carbon neutrality?



# Food miles – non-black is the new green

- Problem with the food miles “debate” is that facts aren’t decisive – it has turned into a battle to define consumer preferences (e.g. by guilt-tripping dissenters)
- Perception thus becomes the new reality – NZ exporters will have to engage with this



Source: [www.time.com](http://www.time.com)



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# Maori issues

- Maori face institutional constraints and inflexibilities not generally shared with non-Maori:
  - Land often communally owned – complicates governance
  - Maori Land Act “alienation” restrictions – reduce bankability and land portfolio flexibility
  - Geographical bias – “home” territory not easily changed
  - Land type bias – settlers didn’t go for the worst stuff first – limits suitable land uses
- Such constraints and inflexibilities mean Maori are relatively less able to adapt their asset ownership and usage to:
  - Mitigate impacts of climate changes or climate change policies
  - Take advantage of opportunities presented by such changes or policies
- These raise efficiency and equity issues in addition to those inherent in Kyoto itself



# Conclusions

- There is clearly a global issue to be considered
- For New Zealand the climate prognosis is not uniformly bad, despite the fact that changes will (once again) be required
- New Zealand contributes little to the problem, and it is hubris to think we will play a significant role in its solution
- Having said this, New Zealand's tradable sector has a genuine perception problem it will have to contend with if it is to retain markets – carbon is now a shared product attribute
- The distributional problems this creates behoves some critical and sober cost-benefit analysis

