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Keywords

Climate Change, Greenhouse, Policy, Agriculture, Economy, New Zealand

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Climate Change Policy: Actions and Barriers In New Zealand

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Abstract

The success of global negotiations in structuring a new broadly based agreement towards greenhouse emission reduction will be much influenced by the extent to which developed countries have met their commitments under the current Kyoto agreement. It is apparent however that many developed countries have failed to reduce their emissions, and it is important to understand why this has been so. The paper examines the case of one such developed country, New Zealand, and the factors which have helped shape its climate policy implementation. While New Zealand's emissions have risen, few substantive steps have been taken to counter them in order to meet Kyoto commitments. Barriers to effective policy action are shown to have been both political and economic, with the latter being reflective of issues in developing countries also.

Keywords: *Climate Change, Greenhouse, Policy, Agriculture, Economy, New Zealand*

Introduction

In global efforts to mitigate climate change, the future impact of developing country emissions is as important as the historical impact of developed country emissions. Hence securing developing country engagement in emission reduction efforts is critical to success. Developing country participation will be much determined by the performance of developed countries in meeting their commitments under the Kyoto Protocol of 1997. It is thus important to understand what factors have affected developed countries' achievements so far. By investigating the factors likely to promote or hinder climate action in a developed country, this paper will not only consider economic, social and political constraints and opportunities of climate change policy on developed country achievements *per se*, but in so doing offer inferences on the prospects for securing developing country engagement by example.

This paper investigates the actions and outcomes to 2009 in New Zealand, a country whose emissions situation has relevance to both developed and developing countries. To evaluate New Zealand's policy actions the paper draws on broad concepts including institutionalism and interest group theory. The next section considers two important aspects of climate policy - carbon sinks and supplementarity - as potential means of meeting Protocol targets, especially for a primarily agricultural country like New Zealand. It then considers that country's broad economic circumstances and policy drivers, its level of greenhouse gas emissions, and the rhetoric and actions over climate policy since the 1990s. The latter part of the paper considers the impact of interest groups, dominant political parties and prevailing economic perspectives on climate change in recent years. The paper concludes that despite avowed idealism and imagery, New Zealand has so far been able to make little progress.

Methods of Compliance

The Protocol requires relevant developed countries ("Annex B" countries) to undertake specified emission reductions, but two additional concepts which were much contested in the negotiation of the details of Protocol implementation deserve close consideration. These are the use of carbon 'sinks', and the issue of supplementarity.

Debate over 'sinks' centred on the extent to which CO₂ uptake by plant matter, largely forests, might be counted towards emission reductions. Critics pointed to the fundamentally different nature of reduction by sinks, raising qualifications including its reversibility, and the ability to accurately measure them and discriminate between induced and naturally occurring CO₂ uptake - the issue of 'additivity' (Marland et al, 2001, 260-2). After much debate, relatively liberal interpretations for sinks were finally agreed, largely through the loss of bargaining power by those opposing them, after the US announced its decision to not ratify the Protocol in 2001 (Fry, 2002, 159).

The second issue is that of supplementarity – the extent to which Annex B countries may meet their individual emission targets not by domestic action, but through actions by others. The "Umbrella Group" countries (of which NZ was a member) argued for maximum freedom to use 'flexibility mechanisms' – systems such as emissions trading - where developed countries might purchase emission reductions from other countries. The Group had in fact arisen to counter EU efforts to constrain the adoption of flexibility mechanisms as a substitute for domestic action (Yamin & Depledge, 2004, 45). The final agreement on supplementarity, at Marrakesh in 2001, stated that "the use of the mechanisms shall be supplemental to domestic action and that domestic action shall thus constitute a significant element of the effort made by

each Party included in Annex I' (UNFCCC, 2001, 52). It is this wording which governs application of the flexibility mechanisms for the Kyoto Protocol.

New Zealand's National Circumstances

NZ is a small country around one tenth larger in area than the UK, but with only one fifteenth of its population (CIA, 2009, 1). Much is sparsely populated, some 70% of the population living in only 16 major centres of population (Statistics NZ, 2008, 1). Its major natural resource is productive farmland, with pasture nearly 40% of total land cover (MfE, 2007, 45). Other natural resources, with the exception of hydroelectricity, are modest. Proven oil resources for example are minimal, and natural gas resources less than six years' consumption (EIA, 2009, 1).

It is one of the smallest OECD economies. Agriculture accounts for some 4.5% of GDP, but is of considerably greater importance to trade. Direct food and live animal exports comprised around half of New Zealand's export trade in 2008 (OECD, 2008/1). It is the world's largest producer of traded dairy products. One firm, Fonterra, is the world's largest exporter of dairy products (*The Economist*, 2009, 1-2). An important element of trade strategy was promotion of its 'clean, green' image in international marketing of agricultural products and tourism (Beverland, 2002, 153-160; Bell, 2008, 352-3)

Export industries are very important to the economy. NZ incurs a persistent current account deficit, reaching nearly 9% of GDP in 2006 (OECD, 2008/2). That deficit is in large part driven by income payments (*Economist*, 2008, 1) servicing a substantial and growing overseas debt, at 126% of GDP in 2008 (RBNZ, 2008, 1). Growth rates averaged a little over 3% in the early 2000s, not enough to remedy a fairly persistent fall over several decades in GDP per capita relative to the OECD average. A key challenge was to raise longer-run living standards (OECD, 2007/1, 3), implying growth and hence a clear constraint on government policy measures.

Greenhouse Gas Emissions

Under the Kyoto Protocol most developed countries undertook to reduce their greenhouse gas emissions by varying amounts (relative to 1990) in the First Commitment period (CP1), 2008 – 2012. New Zealand agreed to restrain emission levels to those of 1990 (UNFCCC, 1998, 21). While one of the lesser commitments, it was to be difficult in practice.

History

New Zealand's GHG emissions differ markedly to other developed countries, with agriculture contributing around half of total emissions (MED, 2008, 5). Even in other countries with substantial farming activity, that contribution was far lower – around 9% for Canada (Environment Canada, 2006, 8), and 16% for Australia (CoA, 2005, 4).

In the period after 1990, the base year for the Kyoto Protocol, emissions rose markedly. Gross emissions of all greenhouse gases rose by 26% between 1990 and 2006.¹ Nett emission levels rose by 33%, as the sinks contribution (land use change and forestry) increased only 11% over

¹ All percentage data rounded to whole numbers.

the period. The largest sectoral contributor to the emission increase was energy use, with energy emissions per capita increasing 34%. That was followed by agricultural emissions which rose 16% (MED, 2008, 5). These significant increases were clearly much at odds with New Zealand's commitment to restrict its emissions to those of 1990.

The drivers for that emissions growth had an importance unusual for most developed economies – the growth of car use, and expansion and intensification of agriculture in dairying. New Zealand's gross emissions largely comprised carbon dioxide from energy use, and other gases (methane and nitrous oxide) primarily from agriculture. Their relative importance is shown in Table 1.

Table 1: Overall Emission Sources

Source	1990		2006	
	Mass emission (ktCO ₂ e)	% of total	Mass emission (ktCO ₂ e)	% of total
Energy use (largely CO ₂)	23,600	38	34,102	44
Agriculture (largely CH ₄ , N ₂ O)	32,499	53	37,668	49
Other	5,708	9	5,910	8
Total	61,807	100	77,700	100
<i>Source: MED, 2008, 5</i>				

Energy uses problematic elsewhere – industry and electricity generation – were not major factors in NZ. Electricity from fossil fuels was less than 36% of total, coal supplying only some 14% in 2005. Much supply (55%) came from hydroelectricity (IEA, 2008, 1). Unusually, the principal user of energy was transport, at 46% of total in 2007 (MED, 2007, 8) of which some 63% supported motor car use.

Cars were a staple of New Zealand's way of life for reasons including the distribution of population, and aspects of town planning. Lifestyle factors played a role, with 25% of total kilometres travelled being for social and recreational purposes. Also important were petrol prices which were among the lowest in the OECD (Perreau, 2007, 11-16). Car ownership per capita in NZ was third highest in the world in 2006 (OECD, 2009, 1). Road freight was significant also, and unlike other OECD countries was increasing. Freight transport kilometres were increasing at a rate greater than GDP, and were projected to continue doing so without government measures (Mackie et al, 2006, 3).

Two sources dominated agricultural emissions – methane from enteric fermentation, and nitrous oxide arising from nitrogenous fertiliser use, and animal waste. Enteric fermentation is associated with digestion in ruminant animals such as sheep and cattle; among cattle it is generally higher for dairy cows than non-dairy stock (EPA, 1996, 6). Contributions to overall emissions in 2006 were:

Table 2 Non-CO₂ Greenhouse Gases, 2006

Gas	Total mass emission as CO ₂ equivalent (ktCO ₂ e)	Portion of total non-energy based emission %
Methane - agriculture	24,866	60
Methane – other sources	2,749	7
Nitrous oxide – agriculture	12,802	31
Nitrous oxide - other	493	1
Other non-CO ₂ GHGs	697	2
Total non-CO ₂ GHGs	41,607	100

Source: MED, 2008, 5

Smaller sources grew markedly also. Significant emissions growth occurred between 1990 and 2006 in industry (18%) and electricity generation (91%). Emissions however were dominated by transport and agriculture – and within those sectors, by motor cars and dairying.

The Outlook for Emissions

NZ reported annually to the UN Framework Convention on Climate Change (UNFCCC) on its emissions and forward emissions estimates. In 2009, those projections suggested that overall nett emissions for CP1 would be 3.1% lower than its Kyoto commitment. Beneath that ‘headline’ figure and its seemingly comfortable compliance however were details which were much less reassuring. First, emissions had maintained consistent growth after 1990, reaching 26% above 1990 levels in 2006. Events unrelated to climate policy (drought and global economic events) had brought about a modest fall at that point, but growth was predicted to resume through CP1. Second, previous predictions had been highly variable, from large surpluses to large deficits (see Table 3), and with wide confidence limits. Actual audited outcome data was not expected until 2015 (MfE, 2009/1, 1-17).

Table 3: Forward Predictions of Performance Against Kyoto Target

Prediction of (year)	2003	2004	2005	2006	2007	2008	2009
Excess of CP1 emissions over Kyoto target (MtCO ₂ e)	-55	-33	+36	+64	+46	+22	-10

Data from (MfE, 2009/1,17) and (MfE, 2005, 6), and rounded to whole numbers

Third, with the exception of a recent partial emissions trading scheme, no substantive policy measures were implemented to reduce emissions in CP1. Shifts in predicted outcomes were driven not by policy measures, but by either variations in measurement methodology, or exogenous events such as drought or global financial disruption (MfE, 2009/1, vii). The fact that the target might be achieved without any material policy implementation would also suggest that the target itself might have been ‘soft’.

Continued emissions growth meant that nominal Kyoto compliance essentially rested on the nett sink capacity provided by forestry and land use, together with any necessary purchase of emission reductions by others. Afforestation had however fallen to its lowest level in sixty

years, while deforestation was predicted to exceed afforestation by a factor of ten during CP1 (MfE, 2009/2, 30-34). In addition, a significant portion of forestry CO₂ absorption being claimed was from plantation forests intended for later felling – with consequent release of that CO₂ at a later date outside CP1 (Pearce, 2009, 2; SCNZ, 2009, 2), negating the original CO₂ takeup. In all, the achievement of nominal Kyoto compliance by NZ appeared rather less than certain – and that by questionable means and against an emissions target which appeared low in the context of the intent of Kyoto commitments.

Emission Reduction Measures

Few measures were in place to counter that increase in GHG emissions. The International Energy Agency (IEA, 2009) listed measures in place in 2009. Their database shows some 13 items, in a range of initiatives largely based on broad framework measures. Most were implemented from 2005 onwards, and five dated only from 2008. Those implying concrete reduction actions were modest in their nature and impact.

Principal substantive measures included an emissions trading scheme (ETS) commencing in 2008 but with limits on participation for five years; a national energy efficiency strategy, commenced in 2002 and remodelled in 2007; and a variety of smaller measures. Prior to 2008 there was in place no ‘umbrella instrument’ (Michaelowa, 2003, 34) which might integrate the various sectoral initiatives. Even the 2008 ETS which might fulfil that function had, by the end of 2008, been substantially relaxed after a change of government in November of that year.

The ETS as enacted in 2008 and revised in 2009 was very limited in its impact in CP1. While forestry was included from 2008, other major sectors were, after the review, to follow later:

- stationary energy in 2010
- transport fuels from 2010 and
- agriculture in 2015 - outside CP1 (NZGovt, 2009, 6)

In addition to delayed implementation, the review led to the original scheme being ‘softened’ in a number of ways, including a guaranteed limit on the carbon price, extended free issue of permits to trade-exposed industry, and the use of emission intensity measures to determine an (uncapped) issue of free permits to trade-exposed industry (BellGully, 2009; WWF, 2009).

In summary, the measures in place after the first year of CP1 were but recent, and modest in their effect. They lacked a coordinating policy instrument. A significant contributor to emission increases – agriculture – was excluded from action in CP1 altogether. In effect, no significant actions had been taken, other than a ‘partial’ emissions trading scheme, to contain emissions in accordance with Kyoto commitments. Before considering that outcome further, it is useful to look briefly at the history of New Zealand’s climate change actions.

History of Climate Policy

While NZ had participated in early discussions on climate change its attitude appeared somewhat ambivalent. After attending the Rio Earth Summit in 1992, the (then National) government announced the imposition of a carbon tax from 1997 to pursue the obligations it had assumed. As it neared, however, the tax was deferred and never became law, in the first of two significant climate policy reversals. The second occurred in 2002, when the (then Labour coalition) government announced a carbon tax, operational from 2007 (Ward, 2007, 4). Like its predecessor, it also reversed its decision later, in December 2005, after fashioning a

coalition government following the September 2005 election. Several of its supporters in the new coalition had opposed a tax, and Kyoto generally, before the election (Ward, 2006, 21).

Another move towards a broad policy instrument occurred in September 2007, when the Labour government proposed an emissions trading system (NZ Govt, 2007, 1). That instrument was actually enacted twelve months later (NZ Govt, 2008/2, 1). Three months after, following a change of government, the ETS was put to review by a Parliamentary select committee (NZ Govt, 2008/1, 1). The review was a condition of support by a minority party of a strongly neoliberal persuasion (Reid, 2003, 275), which had strenuously opposed the ETS during the election. As noted above, the review led to a significant weakening of the original scheme. At the same time a number of other smaller measures were rejected also (NZPA, 2008, 1; NBR, 2008, 1).

NZ climate policy evolution was marked by “lengthy and inconclusive debates, a lack of consensus amongst key stakeholders, and governmental indecision” (Chapman & Boston, 2007, 113). That seemed to reflect a more general situation with broader environmental policy also. The OECD for example, undertook Environmental Performance Reviews in New Zealand in 1996 and 2007. The 1996 report commended two broad policy frameworks which had been put in place (an Environment 2010 Strategy and the Resource Management Act) (OECD, 1996, 3). Eleven years later, the second report could only note the demise of the former, and material limitations on the latter. These included an absence of clear national standards, an absence of quantitative performance indicators and other administrative shortfalls (OECD, 2007/3, 2).

Overall the picture which emerges of New Zealand’s climate (and more generally, environmental) policy development is one of stated good intentions, with a major policy implementation deficit. The discussion which follows considers possible explanations for this situation.

Influences on Climate Policy

It is argued here that three related factors - two political and one economic - have influenced climate policy in NZ to date. The relative strength of interest groups promoting and opposing meaningful action has been important, as has been an enduring legacy of neo-liberal, market-oriented thought dating back to an economic restructuring in the 1980s. In terms of the economy, NZ has fallen behind its former peers in terms of national income. That created an overarching imperative to improve *per capita* income, implying dependence on industry of significant environmental impact, in the absence of other industry development. In this respect New Zealand’s position resembled that of many developing countries, facing the same conflict between economic development and sustainability.

Interest groups

NZ was the home of the world’s first national ‘green’ party – the Values Party, in 1972. Contesting ‘first-past-the-post’ elections, the party achieved a high point of 5.2% of the national vote in 1975 but did not achieve representation. A Green Party later emerged, and achieved representation following the introduction of a proportional representation (MMP) system, in 1999 (Carter, 2007, 106). The Greens entered an effective coalition with Labour for

three years, and more limited ‘cooperation agreements’ with Labour in two succeeding governments (IPU, 2009, 1).

Aligned with the Green Party in supporting environmental arguments were various civil society groups, including interests from NZ conservation groups, and international groups such as Greenpeace. Opposing them were bodies such as the corporate lobby group, the Business Roundtable, the most influential network affecting government policy of the time (Kelsey, 1996, 75), and recognised for its “pro-business, right wing, and free-market ideology” (Milne et al, 2004, 20). Allied with the Roundtable were groups including the farmers’ lobby Federated Farmers (Liepins & Bradshaw, 572), special purpose groups such as the Greenhouse Policy Coalition (of major emitters), and business generally (Yang, 2004, 9).

Lobby group activity to counter threats to members’ business objectives is consistent with Olson’s (1971, 34) observations on the origins of collective action. In any productive activity, there are likely to be individual firms whose losses, in the event of measures being enacted, are adequate to justify the cost of organisation, making formation of a coherent group most probable. To those supporting climate action however, the converse applies. For any potential group member, personal benefits are difficult to quantify and likely to be small, the probability of free riders near one hundred per cent, and transaction costs to structure an effective organisation high. In that situation, a simple interest group perspective would suggest that the views of producers (emitters) are likely to prevail over the views of those favouring emission reduction.

That disparity of influence might have been expected to be redressed by the existence of formal Green political representation. That did not occur, several factors tending to diminish their potential influence. First, they were but a minority of the broader body of independent parties to whom major parties might turn in seeking coalition partners (IPU, 2009, var), and their opportunity to capitalise on electoral leverage thus quite limited.

This was reinforced by a political culture which remained ambivalent about the MMP electoral system, and the power it potentially delivered to small parties. A third impediment to wider public support came from an image of the Greens as a party of the left, and one with a broader agenda encompassing other contentious issues. Included among their other policies were a number likely to be unacceptable to both the main parties (such as opposition to unrestrained free trade) (Bale, 2003, 288-291). The Greens were however credited with having stimulated public debate and challenged prevailing neo-liberal thought (Farquhar, 2006, 298-9). That did not though translate into the critical stage of climate action – putting the Kyoto principles into practice in New Zealand.

Government’s Own Views

Interest group theory may pose a view of government as passive, a point at which contesting force vectors might be resolved (Odegard, 1958, 699), and hence an interest group approach might provide some explanation for climate policy in NZ. But that is to overlook the active preferences of governments of the day, and their influence on policy determination. It is argued here that successive NZ governments held views and values which were fundamentally inimical to the actions required to achieve New Zealand’s stated climate policy commitments.

These views traced their origin to the rapid ascendancy of neoliberal thought in NZ in the early 1980s. The term 'neoliberal' (and its associated concept of economic rationalism) is used here simply to denote that school of thought having as its ideological core the primacy of markets, and commonly characterised by initiatives like deregulation, privatisation, a reduced role for government, and monetarism (Mudge, 2008, 705-707). That was the nature of the comprehensive, radical programme which from 1984 swept NZ with "breakneck speed" from its relatively Keynesian, 'welfare state' orientation (Menz, 2005, 49).

The shift was catalysed by poor economic performance, and coincided with defeat of a National government in July 1984 (Mein Smith, 2005, 204-208). The Treasury in 1984 prepared a briefing document for the incoming government which was highly ideological in tone (Liepins & Bradshaw, 1999, 568), and virtually a manifesto for radical action (Menz, 2005, 60-61). A "theory driven revolution" was then carried by a small elite including ministers and Treasury and Reserve Bank officials, with support from the Business Roundtable (Mein Smith, 2005, 211). The reform continued through the tenure of the Labour government.

Subsequent changes of government in 1990 (to National), 1999 (in a return to a Labour coalition) and 2008 (to a National coalition) did not materially change the nature of reforms. While the pace of change slowed (Menz, 2005, 52-55), the core of the reforms endured, with indications that conservative economic policies, and a preference for markets as an instrument to pursue desired outcomes, would remain a feature of the NZ political landscape. The NZ Business Roundtable welcomed the most recent government of 2008 (*ODT*, 2008, 1), one of whose first acts was to effectively suspend the new emissions trading system pending a full review (NZPA, 2008, 1).

The period over which climate policy developed in NZ was dominated by neo-liberal thought, which had become the 'common sense' (Farquhar, 2006, 76). It had rapidly become institutionalised, leading to a situation where, as Beland (2005, 3) put it, "political institutions and previously enacted public policies [may] structure the political behaviour of bureaucrats, elected officials and interest groups during the policy-making process". That helped legitimate a concept of the national interest "constructed as the outcome of the sum of individual self-interests" (Lewis & Moran, 1998, 142). Acceptance of such 'common sense' was suggested by the findings of a major national 'Values Study' survey carried out in 2005. Responses suggested an endorsement of individualism, with for example sixty per cent of respondents perceiving that laziness and lack of willpower were the principal cause of poverty in NZ (Rose et al, 2005, 9-16).

Implementation of measures to materially reduce emissions was therefore unlikely in the prevailing climate of ideas in NZ. First, the use of market-interventionist instruments itself contravened the orthodoxy of the day, with its emphasis on the primacy of markets – and indeed, as Lewis & Moran (1998, 142) suggest, on the use of the market as a policy instrument *per se*. Second, any effective policy instruments had to influence emitters in a manner as to reduce their emissions. That was unlikely to be acceptable to the Business Roundtable, to farmers, or even to the general public as the principal generator of transport emissions. But there was another factor also, one which had faced successive governments over decades – the state and nature of the NZ economy, and the imperative of growing national income.

The Economy

New Zealand's economic situation is evident from its average income, or GDP per capita, compared to like countries. Over several decades from 1984 (the start of the reform programme) to 2005, average income (PPP basis) in NZ fell from 94% of the OECD average to a little under 72%. Several short periods (1992-1994, 2002-2004) saw a reversal of the trend, but in each case the ratio subsequently dropped to a figure lower than that before the reversal. Comparison to its nearest neighbour, Australia, showed a similar trend, average income in NZ falling from 89% of that of Australia to 71% over the same period (OECD, 2008/3, 1).

Income distribution also changed. Between 1983/4 and 1995/6, the lowest 10% of households by income saw a decrease in real per capita income of 8.7%, while the highest 10% saw a real increase of 26.5% (Dalziel, 2002, 44). There was not only an increase in dispersion, but an absolute loss to those on lowest incomes. Both capital and earnings incomes became more unequally distributed, disproportionately to those in the OECD generally. The income poverty percentage rose from 6% in the mid 1980s to 10.5% in 2000 (OECD, 2008/4, 1). Household debt rose to around 160% of disposable income by the mid 2000s, higher than most OECD countries (OECD, 2007/3, 1).

It is not the objective here to discuss the merits of the economic restructuring but rather to note that high short term costs were incurred for which subsequent growth failed to compensate. That left New Zealanders materially less well-off than before, implying economic pressure for development. The OECD in its 2007 survey was non-committal about means of redressing the problem. Noting that "the main challenge is to enhance longer-run living standards" it commented also that "options ... are not obvious" (OECD, 2007/2, 3). It did nonetheless recommend initiatives like reducing pension payments, and further privatisation of state enterprises (OECD, 2007/1, 8).

Bertram (2003, 94-98) in a broader view identified that ultimately the main structural constraint on raising living standards lay in the balance of payments. NZ could only spend as much foreign exchange as could be earned and/or borrowed. Two outcomes from the reforms though were significant barriers in that regard. First, the reforms had tended to diminish the role of the directly productive tradeable-goods sectors (the traditional sources of exports) compared to service sectors. Second, the markedly increased foreign ownership of NZ assets had created a major income outflow, payments to overseas investors being almost completely responsible for New Zealand's current account deficit from the mid 1980s.

Nett export growth was therefore central to any attempt to raise average income in NZ. That export/growth nexus confirmed parallels with developing country Structural Adjustment Programmes, and their broad aim of export promotion (Barnett & Pauling, 2005, 273). Manufacturing, having seen very major job losses in the reforms, showed some recovery later but not of a scale adequate to allow NZ to escape its 'commodity export trap' (Willis, 2001, 4). In that situation, it seemed unlikely that the export earning potential of agriculture would be seriously put at risk through competing policy objectives.

Thus the position of agriculture in NZ was similar to that in many developing countries. In one direction, economic growth (and its corollary of increased per capita income) favoured exploitation of resources which might contribute to export earnings. Against that, sustainable development concepts implied limitation of such industries to a level compatible with long

term environmental sustainability. While the absolute need for economic development might be less compelling in NZ than in many developing countries, the argument in principle was parallel. In this instance, priority would appear to have remained with development, and the emissions that implied.

Conclusions and Implications

NZ committed through the Kyoto Protocol to reduce its GHG emissions. As this paper has shown, results to date, and projections for CP1, indicate that NZ will have little to show as the result of domestic action – one of the implicit requirements of the Protocol. While current projections suggest it will meet its nominal commitment, that result is far from certain, and may well depend on carbon removal by forests whose effect is later to be reversed. Barriers to action have been shown to include the relative strength of contesting interest groups; the prevailing political ideology including both major political parties; and a continuing economic dependence on agricultural exports.

Ultimately decisions on the level of commitment to climate action have rested with a succession of NZ governments. It is reasonable to assume, given the public good nature of the environmental issue involved, that such decisions have been determined in the context of perceptions of the public interest as a motivating principle. But that is a relatively empty statement without regard for what constitutes the public interest *per se*. In the case examined here, it is argued that the perception of the public interest was constructed in a quite narrow perspective of national economic interest. That in turn was influenced by a well-institutionalised political frame of thought embodying concepts of individualism, small government, economic rationalism, and a commitment to markets as an organising principle.

What then must change if countries in such a situation are to contribute meaningfully to global emission reduction initiatives? Two alternatives seem possible – that either the concept of public interest is broadened by the addition of other factors, or that within the prevailing view of public interest the set of incentives change to encourage a different course of action. In the case of the former, clearly greater demonstrated leadership in actions by other countries (particularly the US) may add global citizenship values to a local focus, in a manner as to bring about a broader view of what constitutes the overall public interest. In terms of the latter, incentive changes for example might include potential economic impacts through export target countries reaching a view that NZ is not embracing global environmental goals. In that situation, it would be an irony if it were markets which ultimately provided a remedy to what is a problem in part founded in market primacy.

Whatever may be the outcome, the case of New Zealand demonstrates clearly that however global in nature the policy problem may be, in the end it is domestic policy and measures through which the problem must be addressed. The determinants of those domestic policy approaches are therefore central to the resolution of the global issue concerned, the mitigation of climate change through greenhouse gas emission reduction.

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