



Kyoto Protocol

Ensuring our Future

Climate Change Consultation Paper



New Zealand
Climate Change
Programme

Te Hōtaka
Rerekētanga
Āhuarangi o
Aotearoa



Climate Change Consultation Paper

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Disclaimer: This report has been prepared using the latest information on climate change available. However, there are still many uncertainties associated with future climate scenarios and the degree of future global warming will also depend on international policies to reduce greenhouse gas emissions.

Kyoto Protocol: ensuring our future



Minister's foreword

Climate change is a global challenge. If left to run its course, climate change will have significant impacts on our economy, our environment and our society. Scientific evidence now clearly signals the need for action. The world must take steps immediately if we are to reduce the impact of global warming.

The Kyoto Protocol will put in place the first step to slow down global warming. It will give developed countries, like New Zealand, targets to limit their greenhouse gas emissions. There appear to be enough countries moving towards ratification to bring the Protocol into force sooner rather than later.

The New Zealand Government intends to ratify the Kyoto Protocol by September 2002. We want to join the majority of other nations who have signalled their preparedness to act. This is an international issue that can only be addressed by an international response. We want to demonstrate our commitment to that response. There is no longer any excuse for inaction and there are many ways we can reduce our emissions that will benefit our economy and society.

There is another reason to ratify. New Zealand's climate has begun to change and we cannot afford to ignore the hazards that are already being identified. For a country as dependent on primary production as this one, that would be nothing short of negligence.

Before New Zealand can ratify the Kyoto Protocol, we will need to pass legislation that will allow us to ratify. We'd like to hear your views about ratification, the proposed legislation and the best policy options that will help us to meet our commitments.

Through this consultation process, we aim to get feedback from as many New Zealanders as possible about these issues. I encourage you to make a submission and contribute to this challenge.

A handwritten signature in blue ink that reads "Peter Hodgson". The signature is written in a cursive style with a horizontal line underneath the name.

Hon Pete Hodgson

Convenor, Ministerial Group on Climate Change

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Executive summary

The problem

Global warming is causing world-wide climate change including rising sea levels and a greater incidence of storms, droughts and floods. Scientists predict that the world will continue to warm over the next 100 years because of human activity. If we do not take steps now, the consequences may be severe and long-term. However, global warming can be slowed and even stopped if enough countries combine to take action.

Joint action on a solution

Through the United Nations, the international community has drawn up a plan for action called the Kyoto Protocol. Developed countries that ratify the Protocol agree to cut back their greenhouse gas emissions for the period 2008 to 2012 (the first commitment period). The Protocol will only enter into force if 55 countries (including developed countries which were responsible for 55% of developed-country carbon dioxide emissions in 1990) ratify the Protocol.

The New Zealand Government has stated it intends to ratify the Kyoto Protocol. International action on climate change is inevitable, and it appears that enough countries are moving towards ratification to bring it into force soon, possibly even by the end of 2002. The Government is committed to leadership on this issue. While there will be some costs, these depend on how the Protocol is implemented, and there will also be benefits.

New Zealand is particularly vulnerable to climate change in a number of ways. We are still heavily dependent on primary industries, which in turn depend on climate. We are vulnerable to increased biosecurity risks. Ninety percent of our population lives on the coastline, and therefore could be affected by rising sea levels. Our native ecosystems that are already under pressure, could be further damaged by rapid climate change. In addition, we have an interest in the wellbeing of small island nations in the Pacific, many of which will be adversely affected by extreme weather events such as a long-term rise in sea levels.

Definitions of unfamiliar terms will be explained in the main sections of this document, or see the glossary at the end.

Process for ratification

The process of ratifying the Kyoto Protocol requires New Zealand to pass legislation to put in place mechanisms and policies to meet its obligations. At the start of next year the Government will introduce a Climate Protection Bill, which is divided into two parts:

- Part I covers the minimum requirements for ratification, including setting up a national system to monitor and report on emissions and a national inventory of emission units. It also grants the Government power to buy emission units on the open market
- Part II will set out the policies New Zealand intends to use to meet its obligations (to be introduced after Part I).

Before introducing the legislation, the Government must also present a National Interest Analysis to Parliament, looking at the impact of ratification on New Zealand's social, cultural, environmental and economic interests.

Consultation process

This document is part of a consultation process on the Climate Protection Bill. The consultation will have two phases:

Phase one, which will take place between mid-October 2001 and mid-December 2001, seeks the views of New Zealanders on:

- environmental, social, cultural and economic implications of ratification
- Part I of the proposed legislation
- what policies might be included in Part II of the legislation.

Phase two, starting in March next year, will look at the preferred policy options for Part II of the legislation, developed from the feedback on Phase one.

Implications of ratification

The decision to ratify the Kyoto Protocol has environmental, social and economic implications for New Zealand as a whole, as well as for specific groups within New Zealand society, such as Māori, low-income groups, business, local government and the general public.

As discussed above, New Zealand faces major environmental impacts if global warming continues unchecked. There are also health and income implications.

As far as economic implications go, there are likely to be costs because New Zealand will no longer be free to emit greenhouse gases, so the Protocol will change the way we think about our everyday activities. However, there will also be benefits as businesses move to increased productivity through greater energy efficiency, and develop new enterprises offering products, services and research related to climate change and emissions control.

You can make a submission on the issues set out in this paper. A feedback form is provided at the end of the document. When you have completed the questions please send the form to:

Consultation
Climate Change Programme
Box 55
Wellington

Alternatively you can email consultation@climatechange.govt.nz for an electronic version of the form, fill it in, and return it by email.

Content of Part I of the Climate Protection Bill

Part I of the proposed Bill will include:

- Crown powers to trade on the international market and to issue emission units¹, including sink credits², into the Crown's account with the national registry. The Crown will be able to buy and sell on the international market to ensure that New Zealand holds sufficient emission units to cover its emissions for the period 2008 to 2012
- a national inventory to record and report data on New Zealand's emissions and removals of greenhouse gases. The inventory agency will be a Government agency, and will be specified in the legislation. It will estimate emissions by sources and removals by sinks, and do other associated tasks
- a national registry of emission units to record the amount of units held in accounts, and any trading of units.

¹ Emission units are explained on page 10

² Sink credits are explained on page 10

Part II of the Climate Protection Bill: domestic policy options

The scope of the task

To meet our obligations under the Kyoto Protocol, New Zealand will need to reduce our greenhouse gas emissions to 1990 levels on average over the 2008 to 2012 period, or take responsibility for any excess emissions above 1990 levels by acquiring extra emission units or using sink credits. Our emissions are projected to be around 14 – 20% above 1990 levels during the 2008 to 2012 period. Although we have more sinks than we do emissions, the Government has agreed in principle that most of the sink credits from forest planting will be tradeable on the international market. Also, our emissions tend to be from sources (such as transport and agriculture) where reductions are not easily carried out. This means that it is likely that we will need to purchase emission units on the international market if there are no technological breakthroughs.

Choosing the right policy mix

The Government has identified five key criteria and three overarching issues to be considered when deciding which policies to implement.

The five criteria are:

- **economic efficiency**; that is, what policies will minimise the costs and maximise the benefits to the economy as a whole
- **equity**; that is, how fair policies are to different stakeholder groups
- **feasibility**; that is, whether the policy can be carried out
- **environmental integrity**; that is, how effective a policy will be in reducing greenhouse gas emissions globally
- **competitiveness**; that is, whether the policy will reduce the competitiveness of businesses.

The issues are:

- who is responsible for managing emissions (the Government, those directly involved in producing the emissions, a mix of the two, or some other party)
- how might responsibility for managing emissions be divided between sectors and/or the Government
- should market-based policies be put into action at some point before the commitment period, and what transition mechanisms would be desirable.

The policy options available

The Government has set in place a number of options to encourage a reduction in emissions, e.g. promoting energy efficiency and renewable energy through the National Energy Efficiency and Conservation Strategy. Government is also considering a range of market-based policy options that, alone or in combination with each other, would directly target the price of carbon and provide incentives for New Zealanders and New Zealand businesses to control emissions. These include:

The Government retaining full responsibility for emissions.

The Government could make all decisions on buying and selling emissions, and rely on general taxes to fund its purchase of emission units.

Emission charges. The Government could charge a fee for each tonne of emissions or for activities leading to emissions. The most common emissions charge discussed to date has been a low-level carbon charge. Questions include who would pay such a charge, and how would any revenue be used.

Emissions trading. The Government could devolve responsibility for buying and selling emission units to businesses or sector bodies. Questions include which entities would hold the responsibility and how emission units would be allocated at the beginning of the commitment period.

Levies and rebates. The Government or a sector body could levy sectors or sub-sectors in order to pay for excess emissions purchased on the international market. Sectors that reduce their emissions below the target could be given a rebate. Questions include who would be levied and on what basis.

Project-based initiatives. The Government could give emission units or other incentives to organisations in reward for a reduction in emissions or enhancement of sinks.

Hybrids. Combinations of the above options are also possible.

Negotiated greenhouse agreements are part of the pre-2008 package, but could continue into the commitment period. They involve major emitting industries entering into a voluntary agreement with Government to reduce their emissions to a particular target.

Sinks and the land use and forests sector

Sinks are any natural or man-made systems that absorb and store greenhouse gases, such as growing forests that remove carbon dioxide from the atmosphere. Forests planted since 1990 are known as Kyoto forests, and will generate sink credits. When the forest is harvested, the carbon in the trees will in time be emitted. This emission is an emission liability and must be accounted for. Pre 1990 forests that are converted to another land use also create emission liabilities. We need to decide whether sink credits should be retained by the Government, by land or forest rights owners, or by a mix of the two. We also need to decide who is responsible for any emission liabilities.

How to have your say

You can find out more about climate change and global warming by reading this consultation document and the associated information sheets, attending one of the public meetings we plan to hold around the country in the next few months, or looking at the information on our website (www.climatechange.govt.nz).

Have your say by filling out the feedback form on pages 37 – 40 (details on where to send your feedback are at the end of the form) or attending a meeting. The meetings will be advertised in your local paper, and also on the website.

The information sheets and a series of working papers providing more details are available on the website www.climatechange.govt.nz or phone 0800 WARMING (0800 927 646).

A special consultation document for kids and their families is also available from the above sources.

Introduction

What this consultation paper is about

Climate Change is real and it is here to stay. It is caused by the greenhouse gases produced by human activity. If we do not take action now, its consequences may be severe. New Zealanders are already experiencing changing weather patterns and warmer temperatures. If global warming continues unchecked, the negatives will come to outweigh the positives. There will be more frequent extreme weather events, erosion and saltwater intrusion from rising sea levels (potentially putting much of the most expensive real estate in our major cities and our climate-reliant industries at risk). There would also be biosecurity threats from the spread of sub-tropical pests and diseases, and increased cancer threat from a delay in the recovery of the ozone layer.

The Kyoto Protocol is the first legally binding international agreement aimed at slowing, and eventually stopping, global warming. Eighty four countries have signed it, indicating an intention to tackle the problem seriously. The Protocol will only enter into force if 55 countries ratify the Protocol (including developed countries which were collectively responsible for at least 55% of developed-country carbon dioxide emissions in 1990). New Zealand, with many other countries, has signalled its intention to ratify the Protocol. It aims to do this by the end of 2002 when countries will gather in Johannesburg for the World Summit on Sustainable Development.

New Zealand will make its formal decision on ratifying the Kyoto Protocol early in 2002, after consultation with the community. This document forms part of the consultation. It explains the reasoning behind the Government's approach and outlines the range of options available to help us meet our obligations.

The document provides background information on the broad issues surrounding climate change and global warming. Parts I and II provide more detailed information on major aspects on which we seek your feedback.

Part I contains information and questions about New Zealand's ratification of the Kyoto Protocol, including the issues involved and the legislation that is needed. This section is largely intended to inform you about the reasons why the Government intends to ratify the Kyoto Protocol. *Please feel free to raise issues that you believe need to be considered.*

Part II contains information and questions about the possible policy options that we could use in New Zealand to meet our obligations under the Kyoto Protocol. *The Government has made no decisions about market-based policy options, and seeks your input to help it choose policies from the range of options available.*

A feedback form is included at the end of the document with questions on the issues raised. The questions are repeated at relevant spots in the text so you can read them in the context of the discussion.

There is now clear evidence that the Earth's climate system has demonstrably changed since pre-industrial time, and that most of the warming over the last 50 years has been caused by emissions of greenhouse gases that have been created by humans. The *Third Assessment Report* of the Intergovernmental Panel on Climate Change reports that warming is expected to continue, with an increase in globally averaged temperatures of between 1.4 and 5.8°C. This is two to ten times larger than observed warming in the 20th century. How high the temperatures go, how soon, and whether changes can be reversed, depend on human action. The greater the reduction in greenhouse gas emissions, and the earlier they are made, the smaller and slower the projected warming and rise in sea levels.

Greenhouse gases include methane, carbon dioxide, nitrous oxide and a number of other gases.

Background

Climate change and global warming

The temperature of the Earth's surface has risen over the past 100 years. A small part of this increase has probably been caused by natural climate variations, but there is strong evidence that most of the warming over the past 50 years is a result of greenhouse gas emissions caused by human activity.

Greenhouse gases got their name because they act like the outside covering of a greenhouse, letting the sun's warmth through to heat the ground, but preventing it from escaping back into space. Greenhouse gases absorb heat radiated or reflected from the ground, increasing the temperature of the atmosphere. Greenhouse gases that naturally occur in the atmosphere make life on earth possible. Without them, too much heat would escape, and the surface of the planet would freeze. However, in too high a concentration, they would hold in excessive heat and the planet's climate would become more and more unstable.

Climate models predict that greenhouse gas emissions will continue to increase atmospheric temperatures. **The rise projected for the next 100 years is likely to be more rapid than any natural variations over the past 10,000 years.**

Because rising temperatures cause changes (often drastic changes) in the climate, the effect of global warming is often referred to by the more general term climate change.

The effects of climate change

The effects of climate change are already measurable – the world's temperatures and sea levels are rising, and most glaciers are retreating. Changes in regional rainfall patterns have already been observed and are expected to alter more strongly as climate change continues. The frequency of some extreme weather and climate events such as heat waves, droughts and floods is also expected to increase. These changes are likely to influence native ecosystems, agriculture, coastlines, and our economy, infrastructure, health and security.

For example, changing weather patterns could cause increases in the numbers of refugees seeking international support, as repeated droughts and floods drive people from their traditional homes.

Not all impacts will necessarily be negative and the severity of impacts will vary across the globe. But it is almost certain that, overall, more people will be harmed by climate change than will benefit from the changes. Adverse impacts will become ever more predominant, and beneficial effects are expected to diminish because of larger cumulative emissions of greenhouse gases and associated changes in Earth's climate. Because of the long life-time of some greenhouse gases in the atmosphere, there will be time lags of decades to centuries between reductions in emissions and a corresponding halt to temperature increases.

As temperatures rise, insects and organisms that are not usually found in New Zealand because they prefer warmer climates, could become established. This has issues for our biosecurity arrangements. A draft national biosecurity strategy has been prepared and consultation on this is occurring at the same time as this climate change consultation (see www.biostrategy.govt.nz for details or write to the Biosecurity Strategy Development Team: PO Box 2526, Wellington).

Global warming is a major problem that poses a serious threat to the future of our planet as we know it.

For more details about what climate change is and what its effects are, see information sheets: *Climate change: more than global warming* and *Climate change: impacts on New Zealand*

The international response to climate change

The international community has recognised that the issue of climate change needs a global response and that it is sensible to start limiting the growth of greenhouse emissions now in order to reduce the negative impacts expected from future global warming. Countries have been working through the United Nations to achieve this.

Two important international agreements deal with the threat of global climate change: the United Nations Framework Convention on Climate Change (UNFCCC) was adopted at the Rio Earth Summit in 1992. The Kyoto Protocol, a further agreement negotiated in accordance with the UNFCCC, was finalised in December 1997.

The objective of the UNFCCC is to stabilise greenhouse gas concentrations at a level that avoids dangerous human interference with the climate system. As mentioned earlier, New Zealand is one of 180 countries that signed and ratified the UNFCCC. All developed countries that ratified the UNFCCC agreed to non-binding targets to reduce greenhouse gas emissions to 1990 levels by 2000. Only a few countries made appreciable progress towards achieving those targets.

The UNFCCC was designed so that it could be developed further by countries in response to new scientific knowledge. In 1997, the international community responded to new scientific evidence that suggested the objectives of the UNFCCC would not be met by voluntary reductions and that legally binding targets were required. They agreed to a further international agreement, the Kyoto Protocol.

The Protocol sets target levels of greenhouse gases for developed countries to achieve during 2008-2012 (the first commitment period). The Protocol is only the first step in the reduction of greenhouse gases world-wide, and it is expected that further, stricter targets will be set in future commitment periods. New Zealand signed the Protocol in 1998, and has been actively involved in negotiation of the detailed rules by which it will operate.

Since 1997, countries have been negotiating the working rules that will apply under the Kyoto Protocol. Although some of the detailed rules are still to be finalised, many of them were agreed at the most recent Conference of the Parties to the UNFCCC in Bonn in July this year (the Parties to the UNFCCC are those countries that have ratified it). We are now in a position to look at how these rules will affect New Zealand and how they can be applied to help us meet our obligations under the Protocol.

The Protocol will only enter into force for New Zealand if it ratifies the Protocol, and if at least 54 other countries also do so, including developed countries that were collectively responsible for at least 55% of developed-country carbon dioxide emissions in 1990.

The difference between signing and ratifying an international treaty

New Zealand has signed the Kyoto Protocol but has yet to ratify it.

Signing indicates a good faith *intention* to consider becoming legally bound, but does not in itself commit New Zealand to taking positive steps to comply with the Protocol's specific obligations.

Ratification is the formal act by which New Zealand will become bound under international law to comply fully with its obligations under the Protocol, once it enters into force for New Zealand.

Technically, ratification takes place when the New Zealand Government deposits an instrument of ratification with the Secretary-General of the United Nations, who is the official depositary for instruments of ratification to the Protocol.

By convention, the New Zealand Government will not ratify the Kyoto Protocol until:

- the Protocol, and an accompanying National Interest Analysis, have been presented to Parliament and reviewed by a Parliamentary Select Committee
- New Zealand has law in place to ensure that New Zealand can comply with the Protocol.

The United Nations Framework Convention on Climate Change (UNFCCC) is the international community's response to global warming. Its objective is to stabilise greenhouse gas concentrations in the atmosphere at a level that avoids dangerous human interference with the climate system. The Kyoto Protocol to the UNFCCC sets legally binding greenhouse gas targets for developed countries. It is expected that over time, this first binding step by developed countries will lead to emissions limitation and reduction commitments by all countries so as to achieve the objective of the UNFCCC. The impact on climate change of the initial steps taken by countries under the Protocol must therefore be viewed from the perspective of the long-term objectives of the UNFCCC.

For more details about the international response, see information sheet: *Climate change: the international response*.

New Zealand's task under the Kyoto Protocol

New Zealand's obligation under the Kyoto Protocol is to reduce our greenhouse gas emissions to 1990 levels on average over the 2008–2012 commitment period or to take responsibility for any emissions over these levels.

Under the Protocol, taking responsibility in practice means offsetting emissions above 1990 levels by:

- buying extra emission units on the international market
- using other emission units acquired under the clean development mechanism and joint implementation
- using sink credits from Kyoto forests.

See the boxes below for an explanation of these terms.

Kyoto mechanisms

International emissions trading, joint implementation and the clean development mechanism are referred to as the Kyoto mechanisms. The rules under the Kyoto Protocol allow countries to use the international Kyoto mechanisms to meet their obligations without restriction as long as they meet certain eligibility rules.

Emissions trading is a market system that allows those who own more emission units than they need to trade them to those who need more. So an organisation that owned 200 emission units but emitted only 180 tonnes of carbon dioxide equivalent would have 20 emission units to trade to a business that needed to use 320 units, but owned less than this amount.

Joint implementation allows developed countries to share costs and credits for projects that reduce greenhouse gases or enhance sinks.

The clean development mechanism allows developed countries to earn emission credits for greenhouse gas emissions reduction projects and some sinks projects that are undertaken in developing countries.

For more details about what New Zealand will need to do if it ratifies the Kyoto Protocol, see information sheet: *Climate change: New Zealand's greenhouse gas emissions*.

Emission units

Under the Kyoto Protocol, each developed country has been assigned a certain level of emissions that it can emit between the years 2008 – 2012. These emissions are divided up into units. Countries can buy and sell these units on the international market (see the definition of assigned amount on page 19 for more information).

Sink credits

A sink is any natural or man made system that absorbs greenhouse gases from the air. Because sinks remove greenhouse gases, the Kyoto Protocol allows countries to get credit for them (to offset emissions). One sink credit will be allocated for every tonne of carbon dioxide equivalent absorbed after 1 January 2008. Sink credits are also referred to as emission units devised from sink activities.

Why does the Government intend to ratify the Kyoto Protocol?

New Zealand shares the concerns of other countries regarding the risks that climate change and global warming pose to the sustainability of Earth's biosphere. It is clear that we are not alone. International action on climate change is inevitable and at this stage there appear to be enough countries moving towards ratification of the Kyoto Protocol to bring it into force sooner rather than later.

New Zealand has a number of specific vulnerabilities to climate change and global warming:

- New Zealand's economy is still heavily based on primary production, such as agriculture, forestry and fisheries, and is very reliant on a stable climate. Global climate change could threaten this productive base by affecting the range of agricultural activities that can be undertaken and increasing the frequency and impact of extreme weather events such as floods, droughts and forest fires. Although there will be some benefits (such as the changing climate creating the possibility of new crops), the Government considers that the costs will greatly outweigh the benefits, especially in the long run. Even those areas that have a temporary benefit may lose that advantage as the climate continues to change and crops and associated processing industries need to be removed and replaced
- New Zealand is susceptible to biosecurity hazards. Climate change could support the establishment and spread of exotic pest species and diseases
- ninety per cent of New Zealand's population lives within 40 km of the coast and New Zealand's largest cities are all

on the coastline. Global climate change may lead to adverse effects on coastal margins, urban infrastructure, port facilities, river estuaries and ground water supplies. Sea levels globally are expected to rise by 9 to 88 cm by 2100, compared with average rises of 10 to 20 cm last century. Rising sea levels and occurrence of storms will increase erosion of vulnerable beaches, may increase the need for coastal protection measures, and could affect power and water supplies

- many of New Zealand's native ecosystems are already under pressure from the effects of human settlement and associated habitat clearance, as well as pests. Global climate change could result in further changes to habitats, which some species may be unable to cope with
- New Zealand has direct responsibility for the Tokelau Islands in the South Pacific and has an interest and concern for other small island nations in the Pacific. Many of these small island nations will be adversely affected by sea level rises (some may be completely covered at high tide), and New Zealand is likely to face requests for assistance to the people of those nations.

If New Zealand did not participate in international action, our international reputation would also suffer. We are a major supplier of food to world markets, many of them sophisticated and increasingly influenced by perceptions of environmental integrity. Avoiding the climate change issue would increasingly tarnish the image of New Zealand's products.

International action on climate change seems inevitable – Japan, Russia and the European Union are moving towards ratification, and if they ratify, the Protocol will come into force. While we could wait for even more countries to take the lead, the Government prefers to provide more certainty to the economy by indicating early what New Zealand intends to do and how we will do it.

The Government recognises that New Zealand alone is too small to make the Protocol come into force or to prevent it from doing so. It also recognises that, because the Protocol will change the way we think about our everyday activities, there will be some costs to New Zealand in ratifying it. However, if we are careful about how we go about implementing the Protocol's requirements, and allow time for people who emit greenhouse gases to make the changes they need, these costs will be manageable.

Many of the changes deriving from the Protocol, such as improved energy efficiency³ and a reduction in people's costs, will advantage individuals, businesses and the economy as a whole. Preventing the emissions in the first place could lead to even greater efficiencies. For example, research into reducing methane emissions from farm animals (such as changing the type of pasture) could have the spin-off effect of improving the animal's conversion of food to meat, wool or milk.

New Zealand has a track record for the kind of creative thinking that is needed to develop new technologies to deal with emissions, particularly in the agricultural sector. This means that our efforts to meet our own Kyoto Protocol obligations could lead to significant new business and export opportunities as we make our transition to a lower-emissions economy.

³ Improved energy efficiency involves using smaller quantities of fossil fuels, thereby lessening emissions.

Process for ratification

The formal process of ratifying the Kyoto Protocol requires legislation to:

- allow New Zealand to ratify an international agreement
- put in place the policies by which New Zealand can meet its obligations under the Protocol.

Accordingly, the Government proposes to introduce a Climate Protection Bill in two stages to achieve the target of ratifying the Protocol by September 2002.

- the first Part which will be passed by September 2002 will cover the minimum requirements for New Zealand to meet our international obligations under the Protocol. This will cover setting up a national system to monitor and report on emissions and a national inventory of emission units, as well as granting the Government power to buy emission units on the open market (Part I of this consultation document outlines what this part of the legislation will contain)
- the second Part will follow. It will set out what New Zealand actually intends to do to meet our obligations under the Protocol (Part II of this consultation document outlines the policy options available to us – the hard work is now to determine the right mix of those options).

There will be two opportunities for community consultation.

This first phase of consultation will take place between mid October and mid December 2001 and includes consultation on:

- the implications of ratification on New Zealand, including the social, economic, environmental and cultural implications (covered in Part 1 of this document)

- the legislation that needs to be introduced and enacted to give effect to the international obligations we enter into under the Kyoto Protocol (also covered in Part 1)
- the range of policy options available to New Zealand to meet its Kyoto Protocol obligations (covered in Part II of this document).

Feedback gained from this consultation will be used to:

- finalise a National Interest Analysis (NIA) which will be presented to Parliament (see the box at right for further details)
- develop a Bill on ratification for Parliament's approval (the Climate Protection Bill: Part I)
- develop a Cabinet Paper on the preferred mix of policy options, which will be used to form the basis of a second round of consultation with New Zealanders.

This second phase of consultation will take place next year, starting in March, and will include consultation on the preferred policy package for New Zealand (leading to the Climate Protection Bill: Part II, which the Government proposes to introduce to Parliament at a later time).

The expected timeline for public consultation and the development of legislation and policies can be found on the following page.

What is a National Interest Analysis?

When the Kyoto Protocol is presented to Parliament for consideration prior to ratification, a National Interest Analysis (NIA) reporting on the social, economic, environmental and cultural implications of ratification (among other things), will be presented with it. Feedback and views from New Zealanders regarding ratification and the information outlined in Part I of this consultation paper will be used to ensure that the National Interest Analysis accurately represents the effects of ratification for New Zealand and covers the issues of relevance to New Zealanders. In addition, international developments and new information will be included when the National Interest Analysis is prepared.

Timeline for ratification and policy development processes

Consultation document released		RATIFICATION											
	Part 1: Ratification	Consultation on ratification, including call for submissions and meetings	Analysis of submissions and preparation of recommendations for Cabinet		Decision on whether to ratify; approval of National Interest Analysis and draft Climate Protection Bill Part I	Present Kyoto Protocol and National Interest Analysis to Parliament	Introduce Climate Protection Bill Part I	Select Committee process			2nd and 3rd reading of Climate Protection Bill Part I	Ratify Kyoto Protocol by World Summit on Sustainable Development	
2001	mid-October	mid-October to mid-December	mid-December to mid-February 2002	2002	mid-February to mid-March	mid-March	mid-May (or earlier)	mid-May to June	July	August	September	Beyond September 2002...	
	Part 2: Policy Options	Round one of consultation on policy options, including call for submissions and meetings	Analysis of submissions and preparation of recommendations for Cabinet		Decision on preferred policy package for consultation	Round two of consultation on preferred policy package, including submissions etc as before		Analysis of submissions and recommendations for Cabinet	Cabinet to approve final policy package	Introduction of Climate Protection Bill Part II if possible	Pass Climate Protection Bill Part II, putting domestic policy measures into law		
Consultation document released		DOMESTIC POLICY											

Looking for more information?

A series of information sheets providing more details is available on the website www.climatechange.govt.nz or phone 0800 WARMING (0800 927 646). They include:

Climate change: more than global warming

Climate change: impacts on New Zealand

Climate change: the international response

Climate change: New Zealand's greenhouse gas emissions

Climate change: New Zealand's response so far

More detailed working papers on the different aspects of this consultation document are also available. They include:

Climate change: legislation to ratify the Kyoto Protocol

Climate change: Māori issues

Climate change: emissions charges

Climate change: domestic emissions trading

Climate change: the use of projects, Negotiated Greenhouse

Agreements, and levies to reduce greenhouse gases

Climate change: land use and forest (sinks) sector

Climate change: assessment of economic modelling work to date

In addition, a special consultation document on climate change and ratification issues is available for kids and their families on the website www.climatechange.govt.nz or phone 0800 WARMING (0800 927 646).

To make a submission, fill out the feedback form on pages 37 – 40, and send to:
 Consultation
 Climate Change Programme
 Box 55
 Wellington

An electronic version of the form can also be obtained from consultation@climatechange.govt.nz or from www.climatechange.govt.nz



Part I: Ratifying the Protocol

Introduction

This part discusses the implications for New Zealand of ratifying the Kyoto Protocol, and what we need to do to ratify it. It is set out in two sections:

- The implications for New Zealand of ratification: your feedback on the discussion presented will be included in the National Interest Analysis that will be presented to a select committee of Parliament for its consideration
- The legislation that sets out the minimum requirements to enable New Zealand to ratify the Kyoto Protocol (the Climate Protection Bill: Part I).

Implications for New Zealand of ratifying the Kyoto Protocol

There are many implications for New Zealand if we ratify the Kyoto Protocol. These are discussed below under the headings environmental, social and economic effects. The final heading in this section, Effect on different groups, recognises that different groups face a particular combination of environmental, social and economic effects. This section therefore looks at some of the effects on Māori, low-income groups, business, local communities and the general public.

Environmental effects

The environmental effects of New Zealand ratifying and helping the Protocol to come into force are positive. Provided sufficient countries limit their greenhouse gas emissions, the negative impacts on the New Zealand environment of global warming and climate change will be reduced. As discussed in the introduction to this consultation document, the Kyoto Protocol is the first step towards slowing down and eventually stopping the growing concentrations of greenhouse gases. It is the only international effort to reduce global emissions.

As discussed earlier in the paper, New Zealand will face major risks if the Kyoto Protocol does not come into force (and global warming continues unchecked) including:

- more droughts, high winds and localised flooding
- increasing water shortages
- growing pest and disease problems
- costs of changing land-use activities to suit the new climate (and continuing to change them as the climate continues to change).

Of course, we recognise that New Zealand cannot halt the effects of climate change on its own – we depend on the actions of other countries. That is why the Government is committed to leadership on this issue as one way to convince others that action is needed.

For more details about the environmental effects, see information sheets:
Climate change: more than global warming
Climate change: impacts on New Zealand

When reading this section, consider and keep in mind the following questions about the implications of ratification for New Zealand:

Question 1: What are your views on the Government's case for ratification (see also the discussion on page 11 of this paper)?

Question 2: What are your views on the Government's assessment of the issues relating to ratification set out in this section?

Question 3: Can you think of any other economic opportunities that may be connected with climate change? (Please provide information if you have it.)

Question 4: Are there any other issues you think should be addressed?

Question 5: Do you have any comments on specific aspects of the proposed Climate Protection Bill: Part 1 legislation on ratification set out in pages 19 – 20 of this paper?

For more detailed information about the effects of climate change itself, see information sheet: *Climate change: impacts on New Zealand*.

Social effects

The Protocol itself does not impose direct social or cultural obligations upon countries, so there will be no direct social effects from the Protocol in that sense.

There may be indirect social and cultural effects that occur because of economic changes under the Protocol. These will depend very much on the policies we put in place to meet our Protocol obligations. Possible issues include: the costs of limiting or reducing emissions, who benefits from decisions relating to sink credits, and distribution effects. These policies are outlined in Part II of this consultation document.

Health effects: Climate change has implications for human health. Higher temperatures will reduce winter illnesses and discomfort on cold days, but are likely to increase problems such as heat stress in summer. Disease-transmitting insects – like the mosquitoes carrying Ross River virus and dengue fever – could become established more easily as the climate warms. Continued greenhouse gas emissions are also likely to slow the recovery of the ozone layer by 15 to 20 years. This would increase the period New Zealanders would be exposed to high levels of ultraviolet radiation, linked to skin cancers.

Income effects: A study carried out by Infometrics Consulting (2001) looked at the effects on household incomes of a charge on industries for greenhouse gas emissions. The study showed that effects on income depended on how the revenue from that carbon charge was used. Use of revenue for Government debt repayment was more favourable to higher income groups than to lower income groups (a regressive effect), while use of the revenue to offset other taxes could lead to the opposite effect – depending on which taxes were offset. This suggests that the effects on households at different income levels of a greenhouse gas emissions price during the commitment period will depend greatly on New Zealand's choice of domestic policies to meet Kyoto Protocol obligations.

Effects on our Pacific island neighbours: Climate change is likely to have significant effects on Pacific islands, because of increasing numbers and intensity of tropical storms, and rising sea levels over the long term. New Zealand's strong links to the islands combined with our growing Pacific island population (expected to be about 13% of the total population by 2051) means that effects on the islands are likely to have social implications here in New Zealand.

Economic effects

There is a range of economic implications for New Zealand, both positive and negative. These range from the cost of doing nothing, to the costs and benefits of ratifying the Kyoto Protocol and seeing it enter into force.

The cost of doing nothing

If the Protocol did not come into force, the costs of adapting to the inevitable changes in climate would be significant. These include dealing with flooding and erosion, managing new pests and adapting to new climates. Unfortunately, such costs are extremely difficult to estimate, because they would depend on what changes occurred and what new technologies were developed to deal with these changes. There are some benefits in the short term of a warmer climate – such as warmer winters (which may decrease heating costs) and faster growing crops – but on balance, the costs are expected to be much greater than the benefits.

If New Zealand does not ratify the Protocol, but it comes into force because enough other countries have ratified it, we could be faced with increasingly negative consumer perceptions of our exports and outdated emissions-intensive technologies, as well as strong international pressure to ratify. A key factor in the Government's intention to ratify is the fact that international action seems inevitable, so New Zealand might as well be in a position to take advantage of emissions reduction and economic opportunities earlier rather than later.

Economic and technological opportunities

In the past, businesses have been able to release greenhouse gases without bearing any of the cost of the effects they create. On the flipside, forest growers and the developers of technologies that reduce emissions have not been given the benefit of their climate-friendly actions. In a climate-conscious world, this will no longer be the case. Such a change in the way that we look at greenhouse gas emissions will inevitably lead to new opportunities for New Zealand businesses, including the export of existing or new products, services and technologies related to addressing climate change.

The Kyoto Protocol provides further economic opportunities by providing for emissions-reducing projects in both developed and developing countries under joint implementation and the clean development mechanism (see definitions of these terms in the Kyoto mechanisms box on page 10).

Examples of opportunities

Initial discussions with people already taking advantage of opportunities in the climate change area indicate that there is a wide range of New Zealand exports, processes and research that address climate change aimed at meeting international demand, including:

- energy efficiency (e.g. energy-efficient lighting and insulation products, high-efficiency electric motors and heat pumps, industrial process efficiency)
- energy demand management (e.g. electronic, net-based energy metering and billing)
- renewable energy (hydrogen research, landfill gases, bio-fuels, wind turbines, photo-voltaic panels, geothermal energy, solar water heating, general hydro development and usage systems)
- consultancy services (science, policy-related work, renewable energy trading certification, energy and emission audits, energy-efficient architecture, infrastructure planning, development and management)
- climate impact-specific consultancy services (e.g. CLIMFACTS system); regional climate forecasts (e.g. NIWA: The Island Climate Update for the Pacific region)
- forestry research (bio-energy, forest sinks)
- waste management for energy (e.g. electricity generation from methane gas emissions)
- materials research (e.g. replacing high-energy steel with timber products, superconductivity).

Expanded or new product/service opportunities are likely in:

- renewable energy applications (e.g. solar, wind, geothermal, biomass)
- distribution technologies (e.g. metering and software)
- waste efficiency, landfill natural gas production and distribution
- co-generation (combined heat & power) applications
- livestock husbandry (e.g. manure management, decreased methane emissions improving feedstock efficiency)
- forestry consulting (e.g. expertise in dealing with degraded land, waste disposal, recovering conservation estates, plantation forestry consultancy)
- transportation (e.g. hybrid electrical vehicles, battery technologies)
- building (e.g. heating, cooling and insulation products)
- industry (e.g. appliances and equipment including refrigerators, residential heating systems, lighting fixtures, standby power technologies, fuel-cell power systems)
- natural hazards and risk management consultancy (e.g. coastal/storm protection), climate impacts expertise and modelling/meteorology; links between sustainable development aid and climate impacts resilience
- carbon monitoring, verification, certification consultancy and services
- eco-system certification and consulting.

Can you think of any other opportunities that we could take advantage of? The Government is collecting information in this area in order to develop an information base for people to use.

Kyoto opportunities

Trees in forests absorb carbon dioxide from the atmosphere and store it as carbon. Forests established after 1 January 1990 qualify as Kyoto forests. Kyoto forests allow the carbon stored in trees to earn sink credits, and these credits can be sold on the international market or be used to offset emissions.

Further opportunities could also be created by the Kyoto mechanisms (defined in the box on page 10). These are:

- emissions trading (the principal mechanism): if businesses make reductions they will be able to sell off excess emission units
- the clean development mechanism which will create incentives to export capital and expertise to developing countries
- the joint implementation mechanism which will credit New Zealand businesses for emissions reduction projects in developed countries.

What is likely to happen to our economy

The effect on New Zealand's economy of meeting our obligations under the Kyoto Protocol will depend on the policies we choose. Possible policies are outlined in Part II of this consultation document.

Overall economic effects

The preliminary findings from economic modelling⁴ suggest that meeting Kyoto Protocol obligations by placing a cost on greenhouse gas emissions could reduce New Zealand's year 2010 Gross Domestic Product (GDP)⁴ by 0.1% to 0.4% relative to business as usual⁵. However, New Zealand's year 2010 Gross National Income (GNI) could increase by up to 2% due to exports of sink credits. That is, the gain in income from overseas due to the sale of sink credits would outweigh the fall in domestic production, if all of the sink credits were sold on the international market.

Fiscal effects

Costs to the Government of ratifying the Protocol include the costs of:

1. Establishing and maintaining a registry (the accounts system for emissions and sinks), as well as carrying out national greenhouse gas monitoring and maintaining an inventory beyond those already required for UNFCCC compliance. The costs of a registry, an inventory and monitoring have not yet been estimated.
2. Obligations under the Protocol's financial mechanism to provide assistance to developing countries.

New Zealand has made a political commitment to provide developing countries with up to US\$2.5 million per year by 2005 to assist them to undertake clean development.

Other than these costs, there should be no other costs to Government as long as it puts in place domestic policies under Part II legislation designed to encourage the reduction of emissions and cover the cost of any excess emissions. If the policies do not quite cover the costs, the residual cost to Government could be covered from a proportion of sink credits or taxes.

Effects on different industry sectors

Effects on industry sectors are heavily dependent on how we implement the Protocol here in New Zealand. The preliminary findings of the modelled scenarios suggest emissions-intensive sectors face greater costs, and less emissions-intensive sectors reap greater benefits.

At one extreme, if all sectors had to pay for every unit of their emissions at the international market price, and the Government took no regulatory or other action on energy efficiency, committed no funding to research and failed to promote the greater use of renewable energy, there would be:

- a discernible impact on the coal, gas and geothermal industries, and on the closely-associated electricity sector
- a significant impact on agricultural profitability
- mixed effects on forestry and related sectors, with positive effects for owners of Kyoto forests, limitations on land-use options for owners of non-Kyoto forests and costs on emissions from wood processing

- varying levels of effect on industries that emit carbon dioxide from non-combustion processes (e.g. greater effects on steel and aluminium production, and comparatively lesser effects on cement and lime processing)
- a reinforcing effect on current trends in solid waste management, with closure of older landfills and diversion of waste towards landfills with gas management systems
- a risk that some investment that would otherwise have been made in New Zealand might now be made in developing countries instead because they do not face costs of complying with the Kyoto Protocol.

Under this scenario, if emissions-intensive industries decline, the movement of people and resources from those industries into lower emitting industries could mean considerable adjustment costs. On the other hand, low-emitting sectors including the services sector (e.g. retail and food), would find themselves at a relative advantage and would benefit from increased levels of investment and availability of resources.

At the other extreme, if emitters did not have to pay for any of the costs of their emissions, the Government would have to cover this cost. Effects on individual industries would then depend on how the Government decided to cover these costs.

⁴ Gross Domestic Product (GDP) is the value of all goods and services produced within New Zealand's borders each year. Gross National Income (GNI, also called Gross National Product) represents the value of all final goods and services that are produced under New Zealand ownership each year. GNI is considered the better measure of income, because not everything produced within New Zealand's borders is owned by New Zealanders and so the value added by those businesses does not necessarily contribute directly to New Zealand's welfare.

⁵ These analyses are based on a CO₂ price of NZ\$100 per tonne, which is at the high end of the range of guesstimates internationally. Therefore, the projected impacts on both GDP and GNI are, if anything, high. Business as usual means the Government does nothing to reduce emissions.

⁶ Modelled scenarios of this nature are relatively more reliable at a national level than at an industry level.

Effects on different groups

Different groups within New Zealand will experience the environmental, social, cultural and economic effects on New Zealand discussed previously in slightly different ways. The discussion below looks at some of the effects on Māori, low-income groups, business, local government and communities, and the general public.

Māori

Māori see the world as a unified whole, where all elements including tangata whenua are genealogically connected. Emphasis is placed on maintaining the balance of cultural and spiritual values in the environment while using resources for social and commercial purposes. The potentially damaging effects of climate change, combined with an only recently improved economic position, mean that Māori have a significant interest in any initiatives that mitigate human impacts on the world's climate.

Climate change and relevant policies may have a disproportionate effect on Māori because their assets and activities are concentrated in particular regions and industries (the agriculture, forestry and fishing sectors). This impact may be compounded because of the unique Māori asset ownership structures, such as multiple owned land. Land ownership structures, and spiritual and cultural links to the land, are likely to make it harder for Māori to consider relocating or making major changes in land use. In addition, Māori-owned land tends to be concentrated in areas with less productive land types, which may be more prone to erosion and invasion by subtropical grasses.

More information on the issues for Māori is contained in the working paper *Climate change: Māori issues* available on the website www.climatechange.govt.nz or phone 0800 WARMING (0800 927 646).

Low-income groups

International IPCC reports⁷ have concluded that communities with limited resources will have less ability to make the necessary adaptations to climate change impacts. Low-income families and communities in New Zealand may therefore suffer disproportionate impacts if the Kyoto Protocol does not come into force. If it does come into force, the impacts on low-income groups will depend on the policies implemented to meet Kyoto Protocol obligations.

Business

The section earlier on economic implications largely covers effects on business. The possible effects on business of ratifying the Kyoto Protocol will depend very significantly on the choice of policies for implementing the Protocol within New Zealand, and on how our domestic policies compare with those adopted by our trade partners. The price of many energy and transport products may increase, which would feed directly into the costs of doing business. Equally, there will be pressure to increase investment in economically viable energy efficiency measures, which would reduce the costs of doing business.

In the longer term, there may also be positive effects for business from avoiding the adverse impacts of climate change. This includes safeguarding primary production in New Zealand.

Local government

Effects on local government can be considered in two ways: the direct effects of ratifying the Kyoto Protocol on council operations; and the effects of ratification on the society, economy and environment of the local area for which a council is responsible. Again, the effects are heavily dependent on New Zealand's choice of domestic policies to meet its Kyoto obligations. They also vary according to the different types of business and households in the area, and the different activities undertaken by councils.

Council revenue bases could be affected in different ways by the domestic policies used to meet Kyoto Protocol obligations, either directly through changes in revenue from Local Authority Trading Enterprises (LATEs) or indirectly through changes in levels of user charges or rates depending on economic activity in the local council area.

The effects on local councils operational activities will probably be somewhat similar to the effects on businesses. For example, most councils operate sewage treatment systems and landfills, both of which emit greenhouse gases – they may need to account for these emissions. Alternatively, councils that provide energy services, that have landfills or sewage treatment systems with gas management systems, or that own Kyoto forests as a result of public works activities, may benefit from ratification.

It is intended that a broad-level formal study into the effects on New Zealand's local government regions will be carried out during the October to December consultation period.

In the long term, reducing future greenhouse gas emissions may mean reduced impacts on primary production, avoided flood damage, avoided public infrastructure costs (on stormwater and sewage systems, roading, or water supply systems) and maintaining essential economic infrastructure in coastal areas, such as port and airport facilities, power and telecommunications networks.

⁷ IPCC, 2001: *Summary for Policymakers: Climate Change 2001: Impacts, Adaptation and Vulnerability*. Report of IPCC Working Group II, February 2001, Geneva.

Content of the proposed Kyoto Protocol ratification legislation

The public

In general, the public will share in both the costs and the benefits of ratifying the Kyoto Protocol. The specific effects will depend on what group people are part of and what policies are put in place to meet Kyoto Protocol obligations. For example, if there are charges on businesses (either through a carbon charge or emissions trading), these costs could be passed on to consumers. If Government chooses to pay for excess emissions through general taxes, then this cost must also come from the public. On the other hand, income from sale of sink credits and emission units will benefit the public. So too will the development of new technologies that reduce emissions or address the problem of climate change.

Without global action on climate change, people with homes in threatened coastal areas may lose their land, people's health may suffer, and jobs may be threatened in certain areas as industries susceptible to climate change have to adjust or move.

Do you have any comments on specific aspects of the proposed Climate Protection Bill: Part 1 legislation on ratification set out in pages 19 – 20 of this paper?

- Government ability to buy and sell on the international market
- the inventory
- the registry.

Ratification requirements

Part I legislation will provide for the minimum legal measures, not already provided for in existing New Zealand law, to allow New Zealand to ratify the Protocol. The legislation will include:

- Crown powers to trade on the international market and to issue emission units, including sink credits, into the Crown's registry account
- a national inventory to record, and report data on, New Zealand's emissions of greenhouse gases and removals covered by the Protocol
- a national registry of emission units to record trading transactions and the amount of units held in accounts, as well as report data on emission units.

Following the end of the first commitment period (in 2012) New Zealand will be required to reconcile Crown holdings of units in the registry against national emissions as recorded by the inventory.

Crown control of New Zealand's compliance equation

To enable ratification, Part I legislation must provide the Crown with sufficient powers to ensure New Zealand is able to meet its compliance equation; that is, that the emissions of greenhouse gases between 2008 and 2012 are at 1990 levels, or – if emissions are greater than 1990 levels – New Zealand has sufficient assigned amount to cover its actual emissions. This may require the Crown to purchase emission units on the international market in or after 2012, if domestic measures have not reduced emissions by that time.

A Minister responsible for Crown compliance will be able to buy and sell, or otherwise acquire or transfer, units on the international market. As a matter of policy, the Minister will not purchase emission units that have been derived from nuclear projects. A Government agency may be charged with responsibility for carrying out Crown trading on the direction of the Minister.

Assigned amount refers to the sum of four types of emission units established under the Kyoto Protocol:

- the initial amount of units derived from a country's target – called assigned amount units (for New Zealand this equals about 365 million tonnes of carbon dioxide equivalent which is five times 1990 levels to cover the first commitment period, 2008 – 2012)
- additional units from qualifying sink activities – also called assigned amount units but commonly referred to as sink credits
- units from joint implementation projects – called emission reduction units
- units from clean development mechanism projects – called certified emission reductions.

More information about what will be in the Climate Protection Bill : Part I is available in the working paper *Climate change: legislation to ratify the Kyoto Protocol* on the website www.climatechange.govt.nz or phone 0800 WARMING (0800 927 646).

National registry

The legislation will provide New Zealand with the means of establishing and maintaining a national registry to ensure accurate accounting of all activities associated with emission units. Establishing the registry is a requirement of the Kyoto Protocol. Its primary function is to account for changes in New Zealand's assigned amount. A record of assigned amount is crucial for enabling New Zealand to demonstrate, internationally, compliance with its obligations under the Protocol (i.e. that New Zealand's greenhouse gas emissions do not exceed the assigned amount held in the registry). The registry agency will be specified in the legislation.

The form and content of the registry will be based largely on the technical guidelines that have been created under the Kyoto Protocol and will be supplemented by elements usual to our domestic registries. In particular, the register will be in the form of a standardised electronic database and a Registrar will be appointed to oversee the operation of the registry. The Registrar will have certain duties and powers, including the duty to record the issuance, holding, transfer, acquisition, cancellation and retirement of emission units, and carry over of emission units to subsequent commitment periods.

The legislation will provide for the Crown to hold at least one account at the registry to hold emission units. The legislation will also provide for other legal entities to have accounts at the registry, provided they meet certain criteria and follow certain procedures. Even if it doesn't instigate a domestic emissions trading regime, the Crown may wish to authorise certain legal entities to hold emission unit accounts.

National inventory

The Protocol requires a national system for reporting greenhouse gas emissions and removals by sinks. The inventory agency will be a Government agency and will be specified in the legislation.

New Zealand is already required to report national inventory data under the UNFCCC to the extent that its capacities permit. The Ministry for the Environment (MfE) currently takes primary responsibility for reporting a national inventory of greenhouse gas emissions and removals by sinks to the UNFCCC Secretariat. The Ministry collects information from a variety of sources. This includes both mandatory and voluntary collection.

Although MfE already collates this information for the inventory, arrangements need to be formalised in the Part I Bill because:

- for ratification of the Protocol, there needs to be certainty that the information can continue to be collected and used for the purpose of reporting emissions and removals
- reporting requirements (including timelines and quality) under the Protocol will be stricter than under the UNFCCC.

The functions of the inventory agency in the Part I Bill will reflect international requirements. The primary function is to estimate New Zealand's emissions by sources and removals by sinks of greenhouse gases covered by the Kyoto Protocol. Some information on emissions and removals has already been collected for other purposes under other legislation. The Part I Bill will include provisions to minimise any overlaps in

collection. The inventory agency will also be required to perform other functions such as: archiving test data, emission factors and other documentation; keeping records of changes that occur in the collection of data and use of methodologies and emission factors; implementing national verification systems; and co-operating with international review teams.

In addition to stating the functions of the national inventory, Part I legislation will include:

- data collection and monitoring provisions
- powers of the inventory agency (e.g. search and a limited power of seizure)
- offence provisions and penalties
- confidentiality of information provisions.

Appropriate regulation making powers are likely to be required, although the regulations themselves may not be needed until the Protocol enters into force.



Part II : Domestic policy options

Introduction

The first part of this consultation document discussed the implications of ratification of the Kyoto Protocol, including the legislation that we need to ratify the Protocol. This part focuses on what we can do to meet our obligations under the Protocol.

Your feedback on this part will help the Government decide on a preferred policy approach early next year. As outlined in the introduction, this will lead to a second round of consultation early next year, and ultimately, another piece of legislation (the Climate Protection Bill: Part II) setting out the domestic policy approach.

This section is set out in the following way:

- a summary of what we need to do to meet our obligations, and what makes New Zealand different
- what has already been decided
- the criteria that we need to think about when making decisions about policy options
- key issues that need to be addressed
- a menu of options, including an assessment of each option
- a discussion of sinks issues
- an analysis of possible options for different sectors.

The discussion set out in this section is designed to get feedback on some key questions:

Question 6: Who should take responsibility for New Zealand's emissions management task? The Government, the private sector, or a mix of the two?

Question 7: Should New Zealand's overall responsibility be broken down into specific sectors (or groups) of emitters? If so, why and how?

Question 8: What policy measures should we use in New Zealand? (There are a number of issues related to each measure that you may want to comment on.)

Question 9: Should we take action before the first commitment period starts in 2008? What type of action?

Question 10: What do we need to do to manage sinks?

When thinking about these questions, you might like to consider whether you would answer them differently for different sectors (or groups) of emitters? If so, why and how?

To help people work through these questions they are set out throughout the document and in the feedback form on pages 37 – 40.

What will New Zealand have to do to meet its obligations under the Kyoto Protocol?

New Zealand's obligation under the Kyoto Protocol is to reduce its emissions to 1990 levels on average over the 2008 – 2012 commitment period, or to take responsibility for any emissions over these levels.

Under the Protocol, taking responsibility in practice means buying extra emission units on the international market, or using sink credits or the Protocol's other Kyoto mechanisms. The three Kyoto mechanisms are: trading in emission units, credits earned from joint implementation and credits earned from clean development mechanism project-based activities (see the box on page 10 for a more detailed explanation of these terms). There is no limit on how much the Kyoto mechanisms can be used, as long as countries meet certain eligibility rules.

There are some key factors that need to be considered:

- New Zealand's 1990 levels of emissions were about 73 million tonnes carbon dioxide equivalent, which equates to a total emission allowance of 365 million tonnes over the five-year commitment period. New Zealand's emissions are projected to be about 14 – 20% above 1990 levels during the commitment period (a growth of 50 – 75 million tonnes carbon dioxide equivalent in total over the five years)
- of the projected growth in emissions above 1990 levels, 50 million tonnes⁸ is projected to come from the energy and industrial sectors, with between zero and 25 million tonnes estimated to come from our agricultural sector. Although the largest growth in emissions is from transport and electricity generation, agriculture remains the largest total contributor of emissions. The National Energy

Efficiency and Conservation Strategy may reduce the total excess emissions by 15 – 20 million tonnes, and other measures are also under development. See page 23 for a list and brief description of these measures

- compared to other countries, New Zealand does not have as many options for easy reduction as most of our electricity already comes from renewable sources. However, there is some opportunity for reduction in the agricultural sector through focused research into reducing methane and nitrous oxide emissions
- in many cases, emissions and growth in emissions come from sectors that are key to New Zealand's economy and are vulnerable to international competitiveness pressures. Many of New Zealand's resource processing exports are emissions intensive
- forest planting since 1990 is expected to generate about 110 million tonnes of sink credits over the 2008 – 2012 commitment period. This amount is larger than projected excess emissions.

Considering all these factors, it is likely that the policies that are currently in place will not be enough to ensure that New Zealand meets its obligations during the commitment period. This means that additional policies need to be implemented to encourage the reduction of emissions, or to provide revenue for paying for excess emissions. The sooner we make a commitment, the more likely it is that we will find cost effective ways of reducing emissions, and that there will be more sellers as well as buyers of emission units on the international market.

What has already been decided?

The Government has already decided that:

- to meet our international obligations, we need a **practical programme** of domestic policies
- policies should offer **broadly comparable incentives** to reduce emissions across different sectors
- the specific objective for the 2008 – 2012 commitment period to limit greenhouse gas emissions should be to ensure achievement of New Zealand's Kyoto Protocol obligations in a manner that **demonstrates environmental integrity and leadership** while **keeping as low as practical the social and economic costs** of measures to achieve those obligations.

There is already a substantial amount of work underway to address New Zealand emissions under both the Government's Climate Change Programme and other work programmes. These are mostly non-market based policies, although there are some market based policies under the National Energy Efficiency and Conservation Strategy (NEECS). This consultation therefore focuses on the additional policy options we could take to make sure that we meet our obligations under the Kyoto Protocol. Essentially, this means that this consultation is focused on market based policy options.

Market-based policy options

Policies that involve some form of economic incentive – i.e. usually a price or a financial incentive.

⁸ The range reflects the uncertainties of data and projections in the agriculture sector.

Measures already underway

The **National Energy Efficiency and Conservation Strategy** (NEECS) makes a leading contribution to New Zealand's climate change response. It sets out the Government's policies regarding the promotion of energy efficiency, energy conservation and the use of renewable sources of energy. NEECS contains an energy efficiency and conservation target of at least a 20% improvement in economy-wide energy efficiency by 2012. Energy efficiency measures in NEECS are predominantly voluntary, but regulatory approaches being utilised include Minimum Energy Performance Standards. If it is successful, the strategy may reduce up to 20 million tonnes of carbon dioxide.

The renewables energy target

The National Energy Efficiency and Conservation Strategy will also set a target to increase the supply of renewable energy by a further 19% – 42% (25 – 55 PJ) by 2012. Further work is to be undertaken over the next nine months to determine a final renewable energy target and the most appropriate mechanisms to implement it including a possible mandatory mechanism. Feedback to the Ministry for the Environment or the Energy Efficiency and Conservation Authority on the target is welcome up to December 2001. Formal consultation will take place on the target between mid-March and April 2002 (at the same time as consultation on the preferred policy approach for other climate change policies). A final decision on the target will be made mid next year. Phone the Energy Efficiency and Conservation Authority for more information (04) 470 2200.

The Government is developing a **New Zealand Transport Strategy** which will provide a clear high level statement of the Government's transport policy. The New Zealand Transport Strategy will include all modes and transport users; broad social, economic and environmental objectives; and reflect New Zealand's direction in transport policy. The final strategy will identify ways in which transport can reduce its contribution to greenhouse gases. These may include land transport policy proposals, vehicle technology measures, and the promotion of sustainable forms of transport.

Climate change policy also links into the **National Waste Minimisation and Management Strategy**, which is likely to be made public by the end of 2001. The creation of waste can be an indicator of inefficient resource use. A more efficient use of materials will also reduce energy use and, therefore, greenhouse gas emissions. Part 1 of the strategy will establish a vision, goals, principles and objectives as well as detailing a range of specific measures, including current work and new actions to be pursued through to 2004. Part 2 of the strategy will discuss the larger policy issues that will require further analysis and consultation before decisions are taken.

The Government has previously agreed that **Negotiated Greenhouse Agreements** with major emitting industries, aimed at limiting emissions of greenhouse gases, will form part of the pre-2008 package. Officials have initiated discussions with industry on a draft Heads of Agreement, which will set out the content of, and process for negotiating, final agreements with businesses and/or groups of businesses. Final agreements are likely to be closely linked to development of possible market-based policies such as carbon charges as an option for the commitment period (i.e. 2008 – 12). These are discussed later in this document, on page 38.

Currently, Government supports a significant programme of public good **research** into a range of aspects of climate change. Reducing greenhouse gases in some sectors, particularly agriculture, will depend on research into greenhouse gas emissions reduction technologies and practices. Research into means of adaptation to climate change is also being undertaken. The National Science Strategy Committee on Climate Change advises Government on the overall strategy and priorities for funding. The majority of funding is through the Foundation for Research, Science and Technology and its numerous schemes. Other Government programmes, such as the Sustainable Farming Fund and the Sustainable Management Fund, have projects that achieve climate change outcomes. The Government is also seeking to encourage the private sector to invest more funds into climate change research, including opportunities for collaborative programmes with Government.

Education on the effects of climate change and the things that individuals can do to make a difference is needed so that the behavioural changes that are required to reduce emissions are made. Government is carrying out a stock-take of current activities in this area, with a view to implementing a targeted climate change education strategy next year. A school education kit on climate change and a consultation document for kids is available for interested schools and families. Phone 0800 WARMING (0800 927 646) or see our website www.climatechange.govt.nz

For more details about New Zealand's response so far, see information sheet: *Climate Change: New Zealand's response so far*

Where does the RMA fit in?

Over the years there has been uncertainty about the role of the Resource Management Act (RMA) in addressing greenhouse gas emissions for climate change reasons.

While the Government has not yet taken a decision on the role of the RMA, it does want to clearly signal for this consultation that it does not see RMA controls and mechanisms as being cost-effective for managing greenhouse gas emissions.

Climate change is an international issue, and should therefore be dealt with consistently on a national level. The RMA consenting and planning process means that there will always be a risk of inconsistent treatment and costs of implementing and managing requirements for different regions.

New Zealand as a country has flexibility in the way it can meet its Kyoto commitments. Emitters within New Zealand should also have this flexibility (see page 10 on Kyoto mechanisms). These flexibilities are national and international by their nature, and this does not fit well with regional or local decision-making.

The national instruments under the RMA, including National Policy Statements and National Environmental Standards, are also not seen as cost effective for controlling greenhouse gases because of the time involved in implementing them.

However, the Government will be working with local government to explore the options for providing guidance on the appropriate use of the RMA which could include change to the legislation. The National Energy Efficiency and Conservation Strategy, for example, contains measures to improve implementation of the RMA with respect to energy efficiency (especially in urban infrastructure and development of renewable sources of energy). These are expected to contribute to reducing carbon dioxide emissions. In addition, the Local Government and Environment Select Committee is due to report back on its investigations into the role of local government in climate change. This will provide useful input into decision making on policy.

The RMA will still be used by councils to manage the effects of climate change itself – for example infrastructure planning and flood management etc. There is a separate programme under development to assist councils with this.

Criteria for choosing the right policy mix

How do we decide on the right policy mix for New Zealand? The Government has identified five key criteria, or dimensions, to help guide the choice between different policy options. These dimensions are all aspects of the concept of sustainable development.

Economic efficiency: Over the long term, what policies will minimise the cost and maximise the benefits to the economy as a whole, of meeting New Zealand's Kyoto Protocol obligations? This is a key consideration. Minimising costs includes all costs, while maximising the benefits includes wider benefits (e.g. to the environment, business and economic development and/or regional economic welfare). We need to recognise that commitments beyond 2012 are likely to get progressively stricter over time. A further aspect of economic efficiency is the degree of assurance that different policy options give about whether New Zealand will meet its target and the implications this has for the level of risk assumed by the Government.

The key economic efficiency objective that Government has agreed to is that policies establish comparable incentives to reduce emissions across different sectors. This means that everyone faces a similar encouragement to reduce emissions or enhance sinks (what economists call *equalised opportunity cost*).

Equity: How fair will policy measures be to different stakeholder groups? Equity concerns are likely to centre around the distribution of costs and opportunities, including sectoral, regional and social (including inter-generational) distribution.

Feasibility: Can the option be carried out? For example, an important aspect of economic efficiency is transaction costs. Policies that would have unreasonably high transaction costs are unlikely to be seen as feasible. Feasibility also considers what is practical (e.g. measurement limitations) or pragmatic (e.g. whether affected industries and groups will support the policy).

Environmental integrity: How effective will a policy be in reducing global greenhouse gas emissions, compared to what the emissions would have been in the absence of the policy? Environmental integrity would be undermined if domestic policies meant emitting activities were simply relocated to countries without emission obligations (an effect known as carbon leakage). The extent to which we choose to use sink credits to meet our international obligations is also seen by some countries as an environmental credibility issue.

When reading the rest of the document, you may want to think about these dimensions when commenting on the issues that are raised. To assist you, each of the five dimensions is examined for each of the policy options. Which ones are more important to you?

- **Competitiveness:** Will the policy reduce the competitiveness of businesses? This is a key concern for an open trading economy like New Zealand. If climate change policies raise the costs of production for some of our key businesses, and these costs cannot be passed on, their competitiveness in international and domestic markets may be reduced. This would give an advantage to competitors from countries that do not have these costs, either because their countries do not have obligations or they choose not to impose costs on particular sectors. Uncertainty about the effects of domestic climate change policies on production costs is also likely to raise concerns about attracting new investment (especially energy-intensive activities in export sectors). Policy measures that address competitiveness concerns should, however, aim to maintain broadly comparable incentives. They should also have regard to New Zealand's obligations under the World Trade Organisation (WTO).
Some competitiveness effects are unavoidable, because some countries do not have obligations in the first commitment period. More generally, competitiveness effects cannot be fully known until other countries policies are known.

Key issues that need to be addressed

Each of the specific policy options needs to be considered in the light of three overarching questions:

- who should take responsibility for managing emissions and sinks?
- how should this responsibility be divided up?
- when, and with what transition arrangements, should policy options be introduced?

Responsibility for managing emissions

A key question is *who will take responsibility for emissions under the Kyoto framework?* Should the Government take on the full responsibility for all decisions on how to comply with our obligations under the Protocol, or should it devolve some of this responsibility directly to the private sector?

On the one hand, Government could devolve 100% of this responsibility to the private sector. This could be done by using a comprehensive market-based system of domestic emissions trading fully linked to the international market. Specific parts of each sector would be assigned the legal responsibility of accounting for their emission units or credits. In this case, businesses and individuals would be responsible for the costs of buying emission units, but they could also potentially gain by reducing emissions and selling any excess units. Emissions trading would allow businesses to make decisions appropriate to their circumstances based on information known only to themselves.

On the other hand, the Government could decide to be the sole decision maker and back itself to make the right set of choices to deliver the outcome that meets its objectives and best suits the country as a whole, over the long term. Options include raising revenue (e.g. through taxes or levies) to cover the purchase of any emission units that may be required, or alternatively retaining any income generated through the sale of emission units, if we reduce our emissions beyond our Kyoto target.

This question of responsibility is not limited to the choice of just these two extremes'. A 100% devolved responsibility system could be expected to run into substantial technical, legal and political complexities. However, full Government responsibility may result in a lack of incentive for businesses to reduce emissions and may not be as efficient. The Government has earlier decided that domestic emissions trading will be a central policy measure, but also noted that it may not be feasible to include all sectors in an emissions trading regime. A discussion of emissions trading is set out on page 29.

Degree of responsibility for sectors

The issue of who will take responsibility for emissions leads to a second issue – whether, and how, the Government might divide the responsibility for emissions management between different sectors (or sub sectors) of the economy, e.g. for methane emissions in agriculture or carbon dioxide from transport or electricity generation.

Dividing the emissions management task among sectors is one way to address equity issues in climate change policy, because it could establish the size of the challenge or starting point for the sectors concerned, and so indicate the magnitude of future costs. If different sectors were given different levels of responsibility, this would mean that New Zealand's decisions about what to do with emission units would be based around sectoral obligations rather than a national obligation.

Decisions on the division of responsibility are required if:

- Government decides to apply different measures to different sectors of the economy, e.g. emissions trading for one sector, a levy for another and an emissions charge for a third
- emissions trading is used, and different methods of allocation of emission units are used in different sectors, e.g. auctions in one and free distribution in another.

The Government may decide to divide the responsibility between different sectors in a number of ways. The decision could be made on the basis of each sector's 1990 emissions levels (or some other base year). Alternatively it could be set by some other measure, such as the extent of possible cost-effective abatement available to the sector, the degree of competitiveness risk, or regional or social special circumstances, including for example, the extent of new entrant industry.

At the highest level, decisions on responsibility could simply involve the Government deciding which sectors of the economy it would allocate responsibility to and how much. It would also need to decide how much responsibility it might keep for sectors for which it is taking responsibility.

A related issue concerning the division of emission units is the extent to which the Crown will retain units in order to reduce its risks. That is, how much of a reserve of emission units it retains in the national accounts. For example, a reserve may be needed if Government allocates responsibility to a particular group or sector, but the group that it allocates responsibility to defaults or goes bankrupt.

Timing and transitions for market-based policies

The first commitment period of the Kyoto Protocol does not start until 2008. Furthermore, New Zealand's assessment of its compliance for the first commitment period will not be until some time in 2014 or 2015 when all the inventory, reporting and review processes have run their course. A key timing question is: how soon should the Government introduce market-based measures, such as a carbon charge or emissions trading to add to other policies it already has in place?

As previously discussed, the Government is committed to a range of policies to come into effect well before 2008, including the National Energy Efficiency and Conservation Strategy, a New Zealand Transport Strategy, a Waste Minimisation and Management Strategy, Negotiated Greenhouse Agreements between major emitting industries and the Government, research funding and education.

But will these, plus market-based policies during the commitment period, be sufficient to ensure the Government's climate change objectives are met – in particular demonstrating environmental integrity and leadership while keeping as low as practical the social and economic costs of measures to achieve our Kyoto Protocol obligations?

There are benefits and costs in pre-2008 action by emitters. Prior to 2008, investment decisions regarding buildings and plant (capital stock) will have emissions reduction implications throughout the life of this capital stock. Of particular importance, therefore, are decisions involving long-lived capital stock. In addition, actions taken on the consumer (demand) side that provide signals to capital stock decision-makers (e.g. regarding building design or electricity system infrastructure) can be important.

Who do you think should be responsible for emissions? Should it be Government or the private sector or a mix of the two? If it is a mix, how should we decide what the mix should be and what sectors should be involved?

If the private sector takes responsibility, how do we divide this responsibility between sectors? Where the Government takes responsibility, how much does it take?

The benefits of such actions will need to be weighed against the costs of introducing market-based measures before the commitment period. In essence, this comes down to whether there should be a carbon charge or pilot emissions trading implemented prior to 2008. A key consideration will be whether providing certainty now about what regime will apply in the commitment period will be enough to encourage businesses to act earlier, or whether additional pre-commitment period policies need to be put in place.

A long lead-time for research into mitigation/abatement options in some sectors, particularly agriculture, would suggest there are large potential benefits from investment prior to the commitment period.

The policy options available

The Government is considering a range of market-based policy instruments that, alone or in combination, can serve the objective of setting up comparable incentives for the commitment period or earlier. These include:

- Government retaining full responsibility for emissions
- charges on all emissions or all activities leading to emissions, e.g. a carbon charge

- emissions trading
- levies on activities that are not directly related to emissions
- project-based initiatives including project-based trading
- hybrids of the above, or the above plus other programmes, e.g. Negotiated Greenhouse Agreements to address emissions.

Negotiated Greenhouse Agreements during the commitment period are also an option.

One of the main objectives for this consultation round is to get feedback from the community about which of these options is best for New Zealand in which circumstances. Each of them is summarised below. The discussion includes the extent to which they address efficiency, equity, feasibility, environmental integrity and competitiveness. In each case, the evaluation focuses only on the individual market-based instrument, as if it were applied to all emissions, without reference to non-market measures or other instruments in place.

Government retains full responsibility for emissions

This option would involve the Government retaining full responsibility for emissions and being the sole decision-maker in buying and selling emissions. The Government could make such decisions and rely on raising any required revenue to fund its purchase of emission units through general taxation (i.e. GST). This option is effectively the default option already contained in the Climate Protection Bill: Part I proposed for ratification – described on page 19 of this document. However, the Government has clearly stated that, in terms of policy, this Part I legislation can be thought of as how New Zealand *can* meet its Kyoto commitments whereas the future Part II policy legislation is how New Zealand *intends* to meet its commitments.

Efficiency: This option would not provide any incentives on domestic emissions or activities, except through existing non-market measures. Such measures are not aimed at providing comparable incentives but rather addressing specific barriers or issues. Not seeking any domestic emissions reduction is likely to increase the costs of meeting New Zealand's obligations. The potential fiscal liability could be significant, depending on the treatment of sink credits. In the long term, emissions would probably continue to increase, in the absence of technological breakthroughs. This could mean potentially higher future liability in subsequent commitment periods.

Should market based policies be implemented before the commitment period? Which ones?

What transition arrangements might be needed for different sectors?

If you need more information, working papers have been developed for the different options and can be accessed on the climate change website www.climatechange.govt.nz

Equity: Such an option would not be equitable to the extent that all taxpayers (or in the case of GST, final consumers) potentially bear the liability for the emissions of others, and cannot avoid costs through reducing their use or production of emitting activities.

Feasibility: If required, raising the rate of an existing general tax would be relatively simple.

Environmental integrity: Ratification based only on this option would raise significant concerns, internationally and domestically, about the environmental credibility of the Government's policy response.

Competitiveness: If required, raising general taxation is unlikely to give rise to competitiveness concerns, as the increase in costs to final consumers is unlikely to significantly affect the costs in sectors exposed to international competitors. However, it may affect overall competitiveness of all economic actors. New Zealand's longer-term competitiveness could be affected by delaying adjustment or technology uptake, if there are no incentives to reduce emissions.

If the Government retains full responsibility for emissions, how should this be funded?

Emissions charges

This option would involve applying a charge on each tonne of emissions, or activities that lead to emissions. The cost of the charge would provide incentives to reduce emissions. The Government would need to take responsibility for acquiring any emission units in the event that there are still excess emissions once the charge has been imposed.

The most common emissions charge discussed to date in the New Zealand policy context has been a low-level carbon charge. This has mostly been discussed in a pre-2008 context, but could also be used in the commitment period instead of a domestic system of emissions trading (e.g. as proposed by the Tax Review).

It is necessary to determine who has to pay such a charge. Should emitters pay or others whose activities can be measured and relate to actual emissions elsewhere in the economy?

A carbon charge has generally been proposed as being a fiscally neutral instrument, i.e. having no net fiscal benefit to the Government. A key question with emissions charges is what should be done with the revenue they raise. Options include:

- reduce general taxes
- reduce the national debt
- address physical effects of climate change
- address equity and competitiveness concerns resulting from the imposition of the charge
- create incentives for abatement
- buy emission units
- combinations of the above.

Efficiency: Because an equivalent cost would be applied to every tonne of emissions, this option would, in general, provide comparable incentives for abatement across sectors and activities. However, where the cost of the charge is imposed on a proxy activity⁹ rather than at the point of emissions, the extent to which emitters face comparable incentives will depend on the extent to which the price signal is transmitted to the point of emissions. There may be circumstances, such as monopoly, where incentives exist not to pass on the charge. These would need to be taken into account in the design of a charge. The rate of emissions charge would need ongoing adjustment to reflect accurately the international market price for emission units to ensure that the level of abatement was efficient.

Equity: An emissions charge, if applied at an equivalent rate to all emissions, would ensure all emitters were treated equally. However, some regions, businesses and social groups would bear a disproportionate amount of the burden of a carbon charge, because of the emissions intensity of their activities. Such burdens could be reduced through partial exemptions and/or revenue recycling.

⁹ A proxy activity is one that is directly related to emissions elsewhere in the economy.

If we choose a charge, what should we do with the revenue?

A fuller discussion of emissions charges issues is contained in the working paper *Climate change: emissions charges*, available on the website www.climatechange.govt.nz or phone 0800 WARMING (0800 927 646).

Feasibility: An emissions charge is feasible in energy and industrial inputs sectors where emissions or activities can be accurately monitored, but may be more problematic in sectors with measurement problems, including agricultural methane and waste, though a proxy rate could be applied in these sectors. Some farming groups have explicitly rejected application of an emissions charge to agricultural emissions, and major industrial emitters have sought to avoid a carbon charge prior to 2008.

Environmental integrity: An emissions charge would give rise to environmental integrity concerns if the cost resulted in production moving to another country with no emissions obligations.

Competitiveness: An emissions charge would give rise to competitiveness concerns in sectors where international competitors did not face measures that imposed equivalent costs on their emissions. Competitiveness concerns could be addressed through some form of transitional assistance, possibly involving revenue recycling. Alternatively, other policy instruments could be applied to those at risk, but this may raise efficiency and equity concerns.

Emissions trading

Under domestic emissions trading, the Government devolves responsibility for management of emissions to businesses or sector bodies.

In simple terms it works like this:

- responsible parties are identified for a certain group of emissions. These may be emitters or those whose activities can be measured and relate to actual emissions elsewhere in the economy. Examples of the latter are oil refiners, fertiliser companies or coal producers
- responsible parties are called points of obligation and must have emission units sufficient to cover emissions over a given compliance period. Emissions, or the activities leading to emissions, must be monitored and reported
- initial allocation of emission units can be by auction, sale or allocation without charge by the Government. Responsible parties can then either reduce their emissions or purchase more units, depending on which is most cost effective. If they hold more units than they need, they can sell units to others

- at the end of the compliance period, a quantity of emission units equal to the measured and reported emissions must be retired to the Government and cannot be reused. There would be penalties for points of obligation that did not retire sufficient units. Any excess emission units can be banked for use in the following compliance period.

Efficiency: Emissions trading would, in general, provide comparable incentives across sectors and activities because incentives for abatement would be directly related to the international market price of emission units. This is true irrespective of the method of initial allocation of emission units. However, where the cost of the charge was imposed on a proxy activity rather than at the point of emissions, the extent to which the emitter faces comparable incentives would depend on the extent to which the price signal is transmitted to the point of emissions.

Equity: To the extent that there is effective price transmission, all emissions would face an equivalent cost at the margin and therefore all emitters would be treated equally. The extent to which this option would be considered equitable would depend on whether emitters under comparable circumstances were treated the same. However, some regions, businesses and social groups could bear a disproportionate amount of the burden, because of the emissions intensity of their activities. Such burdens could be reduced through the method of allocation or recycling of revenue, if any. Emissions trading therefore offers greater scope to address equity, carbon leakage, and competitiveness concerns, than a charge.

Feasibility: Emissions trading is feasible in the energy and industrial inputs sectors where emissions can be accurately monitored, but implementation would probably be more difficult in sectors with measurement problems, including agricultural methane and waste. The feasibility of emissions trading also depends on how acceptable responsible parties find the initial allocation method. Transaction costs of implementing emissions trading would depend on where the point of obligation is placed in the supply chain (e.g. car owners versus the oil refinery and importers).

Environmental integrity: Emissions trading would give rise to environmental integrity concerns if the cost resulted in production moving to another country with no emissions obligations.

Competitiveness: Emissions trading would give rise to competitiveness concerns in sectors where international competitors did not face measures that imposed equivalent costs on their emissions.

See box on following page for relevant questions.

Questions on emissions trading include:

- for a given group of emissions what should be the point of obligation (i.e. the part of the sector responsible for accounting for emissions)?
- how should emission units be allocated initially (i.e. auction, fixed price sale or free)?
- in situations other than auction, what should be the basis for allocation e.g. 1990 emission levels (or some other base year), the extent of possible cost-effective abatement available, the degree of competitiveness risk or other special circumstances?
- what should be done with any revenue raised?

A fuller discussion of these issues is contained in the working paper *Climate change: domestic emissions trading*, available on the website www.climatechange.govt.nz or phone 0800 WARMING (0800 927 646).

Levies/Rebates

This option would involve the Government or a sectoral body¹⁰ levying activities not directly related to emissions (rather than a charge for each tonne of emissions or proxy for emissions, as in a carbon charge). The intention would be to recoup the cost of acquiring emission units on the international market for emissions from these activities. An example might be a levy imposed on a sector (or sub-sector) equal to the cost of any excess emissions over and above a sectoral target, e.g. 1990 levels of emissions.

Where a sector has reduced emissions below its target, a rebate could be given on the same basis as the levy. However, the issues that apply to a levy would also apply to a rebate. Recouping the cost of acquiring emission units on the international market is not the only purpose for which a levy can be applied. Levies could also be used in a sector in the pre-commitment period to fund research that could result in reduced emissions in the commitment period.

Efficiency: This option would not ensure comparable incentives, as the cost per unit of emissions would vary between sectors depending on how much it cost to acquire sufficient emission units to cover emissions from each sector. Because a levy is not levied directly on emissions and a reduction in emissions is not rewarded with a reduction in the cost of the levy, there is no direct incentive on emitters to reduce emissions (as there would be under a charge). A levy may therefore lead to activities that avoid the cost of the levy but do not reduce emissions, which would be inefficient. A levy also introduces the risk of emitters who do not take abatement actions free-riding on the actions of those who do.

¹⁰ Where the sectoral body has been devolved responsibility for the sector's emissions (i.e. under emissions trading) or for the cost of the sector's emissions.

Equity: Emitters who are undertaking abatement actions would be treated in the same way as emitters doing nothing, and hence a levy would not ensure fairness of treatment. Because this option cannot ensure comparable incentives, it may raise equity concerns. Some regions, businesses and social groups could bear a disproportionate amount of the burden of a levy, depending on the level of the sectoral target and growth in emissions.

Feasibility: By definition, a levy would be relatively simple to apply, as it would be based on known costs and activities.

Environmental integrity: A levy would give rise to environmental integrity concerns if the cost resulted in production moving to another country with no emissions obligations.

Competitiveness: A levy could give rise to competitiveness concerns in sectors where international competitors did not face measures that imposed equivalent costs on their emissions. These effects would be less under an emissions charge, because sectors would not face the levy on all emissions (leaving aside the impact of possible revenue recycling).

Can you think of any other reasons for using a levy other than paying for excess emissions or research?

Project-based initiatives including project-based trading

Project-based initiatives and project trading involve the Government giving emission units or financial assistance to entities in reward for reducing emissions or enhancing sinks. Rewards would be given against an agreed baseline i.e. emissions reduction or enhancements of sinks must be additional to what would have occurred in the absence of the project.

Efficiency: The extent to which projects provide comparable incentives depends on the accuracy of the baseline, equivalence of baselines between projects, and the relationship of the rewards to the market price for emissions. Unless a project-based programme is incorporated in a broader programme (e.g. it is paired with a charge or a levy), emitters have no obligation to address the cost of their emissions. However, those who choose not to take up project opportunities would forgo the potential rewards. Under a comprehensive market mechanism, such as a charge, giving rewards for projects would be in addition to any savings they may receive through emissions reduction already achieved.

Equity: Ensuring equity would suggest a consistent approach to establishing baselines across different projects and equal opportunity by all emitters to derive benefit from projects. Because this option cannot ensure comparable incentives, it may raise equity concerns.

Feasibility: The ease with which baselines can be established would determine feasibility and this depends on how straightforward it is to assess what would have happened if the project did not occur. Project-based programmes may involve high transaction costs. However, in some sectors the total transaction costs may be less than a sector-wide measure that requires measurement of all emission activities.

Environmental integrity: Where a projects programme was part of pre-2008 policy, this would depend on the extent to which a project reward did not lead to the expected level of abatement. It is unlikely that projects would result in leakage, because of their voluntary nature.

Competitiveness: Because participation in projects is voluntary, projects should not harm competitiveness.

Hybrids

Hybrid policy instruments that combine the above market-based approaches are also possible. Hybrids can seek to address multiple policy objectives, such as making sectors responsible for the cost of excess emissions and aiming to provide comparable incentives. A project-based element, for example, could help address concerns in situations where price signals might not be adequately transmitted to emitters.

Programmes combining non-market measures with market based policy elements are also possible. One example could be combining a Negotiated Greenhouse Agreements programme, where businesses agree to certain constraints on their emissions, with a trading regime that offers the flexibility of businesses being able to trade these constraints among businesses that have NGAs and/or get credit for external projects.

What combinations of policies do you think would work? Should the Government set up projects if it also has other market based policies in place? In what circumstances might this be an option?

Negotiated Greenhouse Agreements

As noted earlier, the Government has agreed that Negotiated Greenhouse Agreements (NGAs) with major emitting industries aimed at limiting emissions of greenhouse gases, will form part of the pre-2008 package. The possibility also exists to extend the use of NGAs into the commitment period because of competitiveness concerns around the use of emissions charges, should they apply in the commitment period. Negotiated Greenhouse Agreements are essentially non-market measures unless they are linked with market-based measures in some form of hybrid.

Efficiency: The extent to which NGAs provide comparable incentives would depend on the extent to which the negotiated performance requirements are consistent across sectors and emitters. If the resulting performance requirements are inconsistent or do not reflect those required in sectors subject to other market measures, this could lead to inefficient economic distortions. Because there would be no direct relationship between the negotiated level of abatement and the international permit price, the resulting level of abatement may not be efficient.

Equity: Ensuring equity would require negotiating a consistent level of performance across all emitters and providing equal opportunity for emitters to participate in negotiations. Because this option cannot ensure comparable incentives, it may raise equity concerns.

Feasibility: The ease with which baselines can be established would determine feasibility and this will depend on how straightforward it is to assess what would have happened in the absence of the NGA. NGAs may involve high transactions costs because of the extensive negotiation and monitoring that are likely to be required.

Environmental integrity: It is unlikely that NGAs would result in leakage, because they require the emitters to agree to a specified level of performance.

Competitiveness: Because the level of performance under an NGA requires agreement by emitters, NGAs should not harm competitiveness.

Should the Government continue Negotiated Greenhouse Agreements into the commitment period?

A fuller discussion of projects, levies and Negotiated Greenhouse Agreements is available in the working paper *Climate change: the use of projects, Negotiated Greenhouse Agreements, and levies to reduce greenhouse gases* on the website www.climatechange.govt.nz or phone 0800 WARMING (0800 927 646).

Sinks and the land use and forests sector

Issues and options for land use and forests

Sinks are any natural or man-made systems that absorb and store greenhouse gases, mainly carbon dioxide (CO₂). A forest sink is a growing or expanding forest. Sinks are beneficial because carbon dioxide is removed from the atmosphere, where it would otherwise contribute to global warming.

Under article 3.3 of the Protocol, New Zealand's Kyoto forests (those established since 1990) can generate substantial sink credits that could be used to offset New Zealand emissions and/or generate income through sale on the international emissions trading market.

On the other hand New Zealand has obligations for emissions from forests. Under the Protocol New Zealand must account for emissions from harvesting of forests that involve either:

- land conversion to a non-forestry use such as dairy production, or
- harvesting of Kyoto forests¹¹ that have generated sink credits.

Only Kyoto forests can generate sink credits, but any forest could potentially generate an emissions liability for the Government due to land conversion.

The principle issue relating to sink credits is ownership.

There are three main options:

- option 1: The Government could retain all of the sink credits and sectoral obligations from Kyoto forests
- option 2: The Government could devolve a proportion of the sink credits and related obligations and retain a proportion to hold or sell
- option 3: Land/forest rights owners could receive all sink credits and related obligations.

¹¹ A forest is defined internationally and potentially includes stands of manuka/kanuka scrub predominantly on Māori land (See glossary for the definition of forest').

The Government has already agreed in principle that all or most of the sink credits derived from sink activities would be tradeable within an international emissions trading market and noted that some proportion of the sink credits would go to those undertaking the sink activities. Sink credits could also be used to meet any residual cost of excess emissions if other policies do not sufficiently reduce New Zealand's emissions during the commitment period.

There are a number of reasons why the Government might retain a proportion of credits, for example:

- to meet verification/auditing costs
- to cover liabilities for some/all eligible forestry emissions
- to manage risks arising from fire/biosecurity damage to Kyoto Forests
- for public good reasons.

Any decision on the proportion of emission units to be held by the Government can only be made following decisions on the nature of the system to be implemented. This decision would need to consider the desirability of incentives to protect and enhance sinks, plant new sinks, and participate in a sink scheme that would also impose obligations. Establishing forestry rights for owners or landowners as the principal owners of emission units would perhaps provide the strongest means to achieve the desired incentive effects listed above.

A possible system to manage forest sinks is described in a separate working paper entitled *Climate change: land use and forests (sinks) sector*. Establishing a system would require:

- defining an emissions unit and how it is created
- establishing the principal responsible party for ownership of emission units derived from Kyoto forests (e.g. the Government, landowners and/or forestry rights owners)

- determining whether participation in the scheme to receive emission units is voluntary or mandatory (this needs to be considered because, depending on the price of emission units, the compliance and administrative costs for small forestry blocks may be greater than the benefits of participation)
- establishing mandatory legal obligations on responsible parties (points of obligation) to report emissions and hold a corresponding number of emission units. A point of obligation could be placed on the Government, landowners or forestry rights owners
- establishing options for the accounting and measurement of carbon sequestration and emissions
- establishing a responsible party registry (as part of the national registry), including for deforestation
- establishing a national inventory to include greenhouse gas emissions and removals by sinks for reporting to the United Nations Framework Convention on Climate Change
- providing for periodic audit of forestry activities that lead to increases and decreases of carbon stock for which New Zealand is accountable
- providing for the definition of offences and the application of penalties to ensure compliance with the scheme.

Article 3.4 of the Kyoto Protocol provides a basis for claiming further emission units from additional sink activities associated with management of pre 1990 forests (excluding Kyoto forests), cropland management, grazing land management and revegetation if New Zealand chooses to do so for the first commitment period 2008 – 12. New Zealand will need to decide whether it will be practical and in our interests to elect to account for sink credits and debits arising from such activities.

New Zealand would only be eligible for sink credits from forest management of pre 1990 forests cropland management, grazing land management and revegetation if it had robust scientific information on the rate of uptake or loss of carbon from these activities across the entire country including indigenous forests. We currently do not have this information, and there are questions whether we would be able to compile it. In addition, we would need to demonstrate that there is a net increase in the carbon content of these sinks over the commitment period in comparison with 1990 to earn additional sink credits.

These issues are discussed in more detail in four stand-alone sinks papers entitled:

- *Climate change: land use and forests (sinks) sector*
- *Forest sinks and the Kyoto Protocol – an information document*
- *A compendium of submissions received on forest sinks and the Kyoto Protocol – an information document*
- *An assessment of the significance to New Zealand of article 3.4 activities under the Kyoto Protocol.*

Questions on sinks:

Question 10: What elements are necessary for a system to manage forest sinks? In particular:

- what proportion of sink credits, if any, should the Government retain? (and why?)
- who should sink credits be assigned to (e.g. land owners, forestry rights owners)?
- should participation in a system to receive sink credits be voluntary or mandatory?
- where should the point of obligation be for emissions from forest harvesting (that is, the Government or land owners and/or forestry rights owners)?

Question 11: Should the Government seek to use the provisions of article 3.4 (additional sink activities) of the Protocol?

Options for the different sectors that emit greenhouse gases

The tables below summarise the key characteristics of different sectors and how policy options might apply to each. These are given as a guideline for the way Government is thinking for different sectors. Your views on the suggestions are welcome.

Sectors, % of NZ emissions in 1999, gases emitted	Characteristics of sectors	Potential applicability of market-based policy options
<p>Energy (oil, coal, gas and geothermal) 38%</p> <p>Emitted gases:</p> <ul style="list-style-type: none"> • Carbon dioxide • Emissions are primarily from the consumption of fossil fuel. 	<ul style="list-style-type: none"> • There is a diversity of emission sources – industrial point sources (e.g. fossil-based electricity generators, wood processing plants, dairy factories); commercial buildings; freight and passenger transport; individual houses and cars • Some sources represent businesses that are important to the economy and are competitiveness-at-risk • The scale and growth of emissions varies widely – for example, emissions from transport and electricity generation are both large in scale and continue to have high annual growth rates • Measurements of emissions or proxy activities leading to emissions can be relatively certain (but firm level inventory systems need to be further developed). 	<p>Options for the commitment period</p> <ul style="list-style-type: none"> • Government responsibility for the full sector plus a carbon charge with revenue recycling (potentially with an alternative programme of NGAs or with assistance for competitiveness-at-risk firms) • Emissions trading (potentially with allocation or revenue recycling for competitiveness-at-risk firms) • Projects – in addition to the above if applicable and compatible. <p>Options for the pre-commitment period (noting that just forward signalling of commitment period costs, as Cabinet has previously agreed, is also an option)</p> <ul style="list-style-type: none"> • NGAs (alternative programme to a carbon charge) • Low-level carbon charge with revenue recycling • Early (pilot) emissions trading • Projects – in addition to the above if applicable and compatible • The possibility of mandatory renewable energy targets and market based energy efficiency policies within the National Energy Efficiency and Conservation Strategy.
<p>Agriculture 54%</p> <p>Emitted gases:</p> <ul style="list-style-type: none"> • Methane • Nitrous oxide. 	<ul style="list-style-type: none"> • Emissions of ruminant methane from livestock and nitrous oxide from livestock waste deposition onto pastures (use of energy by the agricultural sector) is covered in discussion on the energy sector. • A key economic sector that is also competitiveness-at-risk • In aggregate, emissions today are estimated to be about at 1990 levels, with decreases from sheep since 1990 offset by increases from dairy • In aggregate, emissions are likely to grow by 2008 (largely due to continued growth in dairying and improved animal performance) • Technologies for reducing emissions are still largely at the developmental stage • Significant technical difficulties in measurement whether at farm (emitter) level or higher up the value chain (proxy activity level) – the data is still highly uncertain. 	<p>Options for the commitment period</p> <ul style="list-style-type: none"> • Govt responsibility for the full sector plus levy/rebate • Govt responsibility for part(s) of the sector plus levy/rebate. Other part(s) covered by an emissions trading system. Point(s) of obligation could be sector body or closer to the farm level • Emissions trading for the full sector. Point(s) of obligation could be sector body or closer to the farm level • Projects – in addition to the above if applicable and compatible. <p>Options for the pre-commitment period (noting that just forward signalling of commitment period costs, as Cabinet has previously agreed, is also an option)</p> <ul style="list-style-type: none"> • Industry agreements (e.g. for research and development) • Early (pilot) emissions trading • Projects – in addition to the above if applicable and compatible.

Sectors, % of NZ emissions in 1999, gases emitted	Characteristics of sectors	Potential applicability of market-based policy options
<p>Industrial processes 4%</p> <p>Emitted gases:</p> <ul style="list-style-type: none"> • Carbon dioxide • Perfluorocarbons • Hydrofluorocarbons • Sulphur hexafluoride. 	<ul style="list-style-type: none"> • Material transformations (e.g. cement, steel, aluminium, and petro-chemicals) and inert synthetic gases (electrical switchgear, refrigerants) • The majority of emissions are from a few large sources – these are generally competitiveness-at-risk • Some major sources have reduced emissions since 1990 • Measurements for large sources can be relatively certain. 	<p>Options for the commitment period</p> <ul style="list-style-type: none"> • Govt responsibility for the full sector plus a carbon charge with revenue recycling (potentially with an alternative programme of NGAs or with assistance for competitiveness at risk firms) • Emissions trading (potentially with allocation or revenue recycling for competitiveness at risk firms) • Projects – in addition to the above if applicable and compatible. <p>Options for the pre-commitment period (noting that just forward signalling of commitment period costs, as Cabinet has previously agreed, is also an option)</p> <ul style="list-style-type: none"> • NGAs (alternative programme to a carbon charge) • Low level carbon charge with revenue recycling • Early (pilot) emissions trading • Projects – in addition to the above if applicable and compatible.
<p>Waste 4%</p> <p>Emitted gases:</p> <ul style="list-style-type: none"> • Methane • Nitrous oxide. 	<ul style="list-style-type: none"> • Primarily emissions of methane from landfills; also small amounts of methane and nitrous oxide emissions from wastewater treatment • In aggregate, levels in 2008 are expected to be lower than 1990 levels because of the installation of methane recovery systems at landfills. 	<p>Options for the commitment period</p> <ul style="list-style-type: none"> • Govt responsibility plus levy/rebate • Govt responsibility plus an emission charge with revenue recycling • Emissions trading • Projects – in addition to the above if applicable and compatible. <p>Options for the pre-commitment period (noting that just forward signalling of commitment period costs, as Cabinet has previously agreed, is also an option)</p> <ul style="list-style-type: none"> • Industry agreements • Early (pilot) emissions trading • Projects – in addition to the above if applicable and compatible.
<p>Land use and Forestry</p> <p>Emitted gases:</p> <ul style="list-style-type: none"> • Carbon dioxide • Methane • Nitrous oxide. 	<ul style="list-style-type: none"> • Emissions (i.e. sink debit) arising from forest clearance and conversion to non-forest land use • Emissions (i.e. sink debit) arising from harvesting of Kyoto forests (mainly a second commitment period issue) • Removal of greenhouse gases (i.e. a sink credit) from forests planted since 1990 (Kyoto forests) and other eligible activities • Removal of greenhouse gases (i.e. a sink credit) from management of agricultural soils. 	<p>Options for the commitment period</p> <ul style="list-style-type: none"> • Govt responsibility plus an emission charge/rebate for some or all eligible emissions or removals • Emissions trading obligations for some or all eligible emissions or removals • Projects – in addition to the above if applicable and compatible.

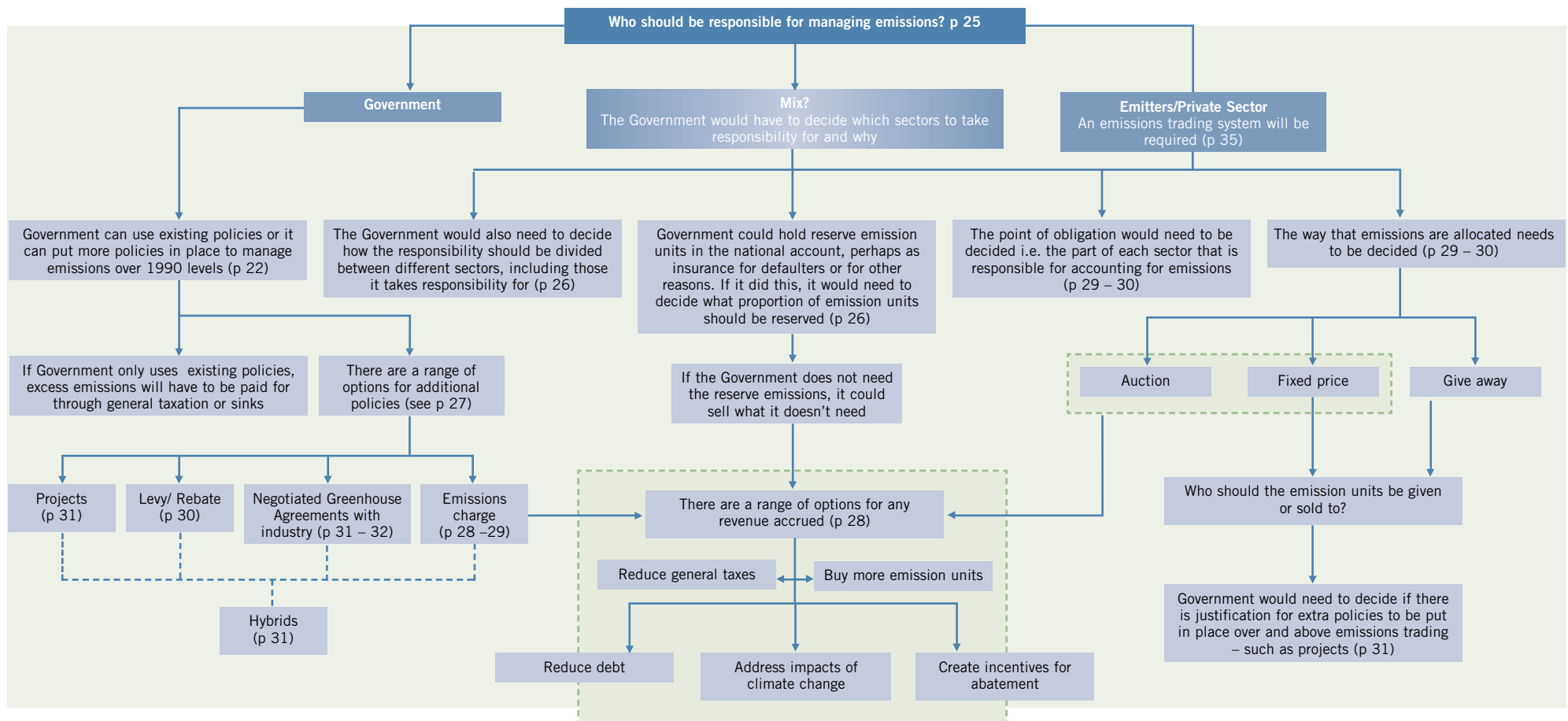
Which policies for emissions?

Issues to think about

This diagram shows how the questions relating to the policy options for emissions on the feedback form relate to each other. It also identifies where to find more information in the paper.

Key issues that you can help the Government think about:

- who should be responsible for managing emissions (see the flow chart below for the different considerations)
- whether there should be any policy measures implemented before the commitment period (p 26)
- whether different sectors should have different measures – and what they should be (p 34 – 35)
- how the policies chosen might interact with policies already in place (p 23)
- whether there should be even more policies other than the ones presented in this paper, such as further research or mitigation of the impacts of climate change itself
- what criteria (policy dimensions) it needs to take into account when choosing a policy approach (p 24 – 25).



Feedback form 1/4

Part I: Consultation on ratification

Question 1 What are your views on the Government's case for ratification, set out on page 11?

Question 2 What are your views on the assessment of the issues relating to ratification set out in Part I (pages 14 – 19)?

Question 3 Can you think of any other economic opportunities that may be connected with climate change? Please provide information if you have it. Refer to page 16.

Question 4 What other issues or further information not presented in this document do you think the Government should consider?

Your response to these questions will help us to prepare the National Interest Analysis on the ratification of the Kyoto Protocol that will be tabled in Parliament early next year.

Question 5 Do you have any comments on specific aspects of the proposed Climate Protection Bill Part I legislation on ratification set out in pages 19 – 20 of this paper?

- Government ability to buy and sell on the international market
- the inventory
- the registry.

This legislation sets out New Zealand's minimum obligations under the Protocol, and will be supplemented in the future by additional legislation on the actual domestic policy measures that the Government decides to use to meet its obligations under the Kyoto Protocol.

Feedback form 3/4

Question 8 Keeping in mind the measures that the Government has already announced or is developing (including Negotiated Greenhouse Agreements), which of the following proposed market-based policy instruments do you think are appropriate, and in which sectors or circumstances?

(Noting the Government's objective is to ensure achievement of New Zealand's Kyoto Protocol obligations in a manner that demonstrates environmental integrity and leadership while keeping as low as practicable the social and economic costs of measures to achieve those obligations)

- Government responsibility (if so, how should this be funded?, see pages 27 – 28)
- emissions charges (noting the options for the use of revenue, see pages 28 – 29)
- emissions trading (noting the options for points of obligation and methods of allocation, see pages 29 – 30)
- levies/rebates (why might you use a levy or rebate?, see page 30)
- project-based initiatives including project-based trading (see page 31)
- hybrids of the above (what combinations of policies would you suggest? Should Government set up projects if it has other market based policies in place? Why? See page 31).

In answering this question which of the policy dimensions most influenced your thinking?:

- Efficiency Equity Feasibility Environmental integrity
 Competitiveness Other (please identify) _____

Question 9 Should market-based policies be implemented prior to the commitment period? If so, which ones?

(Noting the issues regarding timing and transitions on page 26)

Question 10 What transition arrangements might be needed for different sectors?

Feedback form 4/4

Question 11 What elements are necessary for a system to manage forest sinks? In particular:

- what proportion of sink credits should the Government retain? (and why?)
- should participation in a system to receive sink credits be voluntary or mandatory?
- who should sink credits be assigned to (e.g. land owners, forestry rights owners)?
- where should the point of obligation be when there is a responsibility for emissions from forest harvesting?

Question 12 Should the Government seek to use the provisions of article 3.4 (additional sink activities) of the Protocol?

Refer to pages 32 – 33 for more information about sinks issues

When you have completed the questions please send the form to:

Consultation
Climate Change Programme
Box 55
Wellington

Alternatively you can email consultation@climatechange.govt.nz for an electronic version of the form, fill it in, and return it by email.

Please note that submissions with no name and address will not be accepted. To help us analyse submissions, please fill out the details below.

Name: _____ Position: _____

Company/Organisation/Iwi: *(if applicable)* _____

Address: _____

Phone: () _____ E-mail: _____ Fax: () _____

If you are submitting as an individual, please tick this box

Or tick any of the groups below you feel you represent

Government: National Local Regional

Private company/Business:

Energy Forestry Agriculture Other land use
 Waste Transport Industrial Manufacturing
 Service industry Tourism Small business

Other (please specify) _____

Organisation/Representative group

Environmental Business Social
 Maori Pacific Island Other (please specify) _____

Other: (please specify) _____

If you have circled a business or organisation, how many employees or members does it have?

If you have any further comments to make to your submission please attach more pages.

Glossary

Article 3.3	Under this article of the Kyoto Protocol, sink credits can be earned over 2008 – 2012 for a limited set of sink activities (establishing new forests) that have occurred since 1 January 1990. Any loss of carbon over 2008 – 2012 from forests that are converted to a different land use after 1 January 1990 results in a loss of a country's emission units.
Article 3.4	Article 3.4 of the Kyoto Protocol provides a basis for claiming further emission units from additional sink activities associated with management of pre 1990 forests, cropland management, grazing land management and revegetation if New Zealand chooses to do so for the first commitment period 2008 – 12.
Assigned amount	See box on page 19 for this definition.
Biosphere	The regions of Earth's atmosphere occupied by living organisms.
Carbon dioxide (CO₂)	Carbon dioxide is a greenhouse gas with emissions coming primarily from fossil fuel combustion and industrial processes.
Carbon dioxide equivalent	Using carbon dioxide as a basis, Global Warming Potentials have been developed which provide a means of comparing the impact of different greenhouse gases on the climate system. This allows emissions of greenhouse gases to be given in carbon dioxide equivalent terms, e.g. one tonne of methane is said to be equivalent to 21 tonnes of carbon dioxide over a 100-year time period.
Clean development mechanism	The clean development mechanism allows developed countries to earn emission credits for greenhouse gas emissions reduction projects and some sinks projects that are undertaken in developing countries.
Climate change	The term that describes what will happen to the world's climate system if Earth's atmosphere warms up because of increasing concentrations of greenhouse gases. Also known as the enhanced greenhouse effect, or global warming.
Climate-friendly	A general term for technology, actions or attitudes that don't contribute, or contribute less than the norm, to the risks of climate change (e.g. carbon-free or low-carbon intensive means for generating energy).
Climate Protection Bill: Part I	The minimum legislation needed to ratify the Kyoto Protocol.
Climate Protection Bill: Part II	The legislation that needs to be put in place for policies that New Zealand will implement to meet its obligations under the Kyoto Protocol.
Commitment period	A range of years within which Parties to the Kyoto Protocol are required to meet their greenhouse gas emissions reduction target, which is averaged over the years of the commitment period. The first commitment period is 2008 – 2012.
Conference of the Parties	Conference of the Parties is the main international conference on the UNFCCC that all countries attend to make decisions.
Crown account	The place where the Crown holds its emission units and sink credits (like a bank account).
Developed countries	Developed countries are typically described as (core) OECD countries. For the purposes of this document, the term is used to describe countries listed in Annex I of the UNFCCC which also includes countries in eastern Europe and the former Soviet Union (referred to as having economies in transition).
Ecosystem	A biological community of interacting organisms and their physical environment.
EECA	The Energy Efficiency and Conservation Authority.
Emission(s)	Release(s) of greenhouse gas(es) into the atmosphere.
Emission charges	Where the Government charges a fee for each tonne of emissions or for activities leading to emissions.

Emission factors	Emission factors are used together with activity data to derive greenhouse gas inventory data. They are usually expressed as mass of greenhouse gas per unit of activity, e.g. kilograms of carbon dioxide per unit of energy, or kilograms of methane per animal.
Emission unit	A general term used in this document for any unit of assigned amount (see box on page 19 for further information).
Emissions intensity	Emissions per unit of output, or the quantity of emissions resulting from the production of something, or the undertaking of an activity.
Emissions trading	<p>Domestic emissions trading Emissions trading refers to a regulatory regime in which specified businesses and other organisations would have obligations to report their emissions and to hold or purchase a corresponding number of emission units. The units would be tradeable, and those with obligations could decide how much to reduce emissions and how many units to purchase. Responsible parties who deforest land, or who harvest Kyoto forests, would also have obligations to acquire the necessary number of emission units (or sink credits) for the carbon released upon deforestation or harvesting.</p> <p>International emissions trading Transfer of assigned amount between Parties listed in the Kyoto Protocol, either between governments or between persons within these countries that have been authorised to trade.</p>
Enter into force	When enough countries ratify the Kyoto Protocol, it will enter into force – which means that it will start operating and will be legally binding on countries that have that have ratified it.
Forestry rights owners	People who own the rights to plant trees on land – but who don't necessarily own the land.

Fossil fuels	Coal, natural gas, and fuels derived from crude oil (e.g. petrol and diesel) are called fossil fuels because they have been formed over long periods of time from ancient organic matter.
Global warming	The effect that is caused when greenhouse gases enter into the atmosphere causing a rise in temperature as they trap heat. Another commonly used term for climate change.
Global Warming Potentials	Global Warming Potentials (GWPs) provide a means of comparing the impact on the climate system of emissions of different greenhouse gases. The GWP index is relative to carbon dioxide which is given a GWP of one. As greenhouse gases have differing atmospheric lifetimes, GWPs also have a time component. A time horizon of 100 years is used in this document as the time horizon approved for reporting purposes under the UNFCCC including the first commitment period under the Kyoto Protocol (see also carbon dioxide equivalent).
Greenhouse gas	Greenhouse gases trap some of the heat the Earth radiates back into space. This is referred to as the greenhouse effect. The greater the concentration of greenhouse gases in the atmosphere, the greater the potential for a warmer planet and changes to the climate. The greenhouse gases included in the Kyoto Protocol are CO ₂ , CH ₄ , N ₂ O, PFCs, HFCs and SF ₆ .
Gross Domestic Product (GDP)	GDP represents the value of all goods and services produced within New Zealand's borders each year.
Gross National Income (GNI)	GNI, also called Gross National Product (GNP), represents the value of all final goods and services that are produced under New Zealand ownership each year.
Hydrofluorocarbons (HFCs)	Hydrofluorocarbons are a group of greenhouse gases used in a range of industrial applications. 100-year Global Warming Potentials for these gases range from 140 to 11,700.

IPCC	The Intergovernmental Panel on Climate Change.
Joint implementation	Joint implementation allows developed countries to share costs and credits for projects that reduce greenhouse gases or enhance sinks.
Kyoto forest	A forest planted since 1 January 1990 on land that was previously non-forest.
Kyoto mechanisms	The three Kyoto mechanisms are international emissions trading, joint implementation, and the clean development mechanism.
Kyoto Protocol	The international agreement under the UNFCCC that sets legally binding targets for greenhouse gases on countries listed in its Annex B.
Levy	Levies are imposed charges on activities that are not directly related to emissions, with a view to funding an activity or purchasing emission units.
Market-based policies	Policies that involve some form of economic incentive – i.e. usually a price or a financial incentive.
MEPS	Minimum Energy Performance Standards – to be developed under the National Energy Efficiency and Conservation Strategy (NEECS).
Methane (CH₄)	Methane is a greenhouse gas with emissions coming from ruminant livestock, landfills, coal mining and other sources. It has a 100-year Global Warming Potential of 21.
National Interest Analysis	The National Interest Analysis is an analysis that Government is required to undertake on the implications of ratification of the Kyoto Protocol. It will include issues raised by the public during consultation and will be tabled in Parliament.
National inventory	The national inventory records and reports data on New Zealand's emissions and removals of greenhouse gases.

National registry	The national registry records trading transactions in the amount of units held in accounts and also reports data on emission units.
NEECS	The National Energy Efficiency and Conservation Strategy (NEECS), being developed by EECA to encourage energy efficiency.
Negotiated Greenhouse Agreements	Formal agreements between business and Government to reduce greenhouse gas emissions.
New Zealand's emissions management task	This is the task that New Zealand has to achieve under the Kyoto Protocol. Essentially this is to reduce greenhouse gas emissions to 1990 levels on average between the years 2008 and 2012 or otherwise take responsibility by using Kyoto mechanisms (emissions trading, joint implementation and the clean development mechanism) or using sink credits.
Nitrous Oxide (N₂O)	Nitrous oxide is a greenhouse gas with emissions coming from agricultural soils, nitrogenous fertiliser, fossil fuel combustion and other sources. It has a 100-year Global Warming Potential of 310.
Non-Kyoto Forest	Or pre-1990 forest', refers to forests already in existence before 1 January 1990.
OECD	Organisation of Economic Cooperation and Development (New Zealand is an OECD country).
Party	A country that has ratified an international agreement such as the UNFCCC or Kyoto Protocol.
Perfluorocarbons (PFCs)	Perfluorocarbons are a group of greenhouse gases which are used in a range of industrial applications and are produced during aluminium smelting. 100-year Global Warming Potentials for these gases range from 6500 to 9200.

Point of obligation (in a domestic emissions trading system)	A point of obligation is a person or organisation (such as a business) that has a legal responsibility to monitor and report their emissions and, at the end of each reporting period, to hold and surrender a quantity of emission units, equal to their emissions.
Ratification	The formal act by which New Zealand will become bound under international law to comply fully with its obligations under the Kyoto Protocol once it enters into force.
Rebate	A payment by Government to a sector. Essentially the opposite of a levy.
Removals	The removal of an amount of greenhouse gas from the atmosphere. Essentially the opposite of an emission (also see sink).
RMA	Resource Management Act 1991.
Sector bodies	Groups representing different industry sectors.
Sink	Any natural or man-made systems that absorb and store greenhouse gases, including carbon dioxide, from the atmosphere. To be considered a sink, a system must be absorbing more CO ₂ than it is releasing so that the store of carbon is expanding.

Sink credit	A unit of assigned amount representing one tonne of carbon dioxide equivalent absorbed after 1 January 2008. Sink credits would be equivalent to emission units and could be used to meet emission obligations under the emissions trading system.
Sulphur hexafluoride (SF₆)	Sulphur hexafluoride is a greenhouse gas used in electrical switchgear and other industrial applications. Its 100-year Global Warming Potential is 23,900.
Transaction costs	The costs incurred by governments, businesses and individuals in making decisions or taking actions such as trading. Transaction costs include information, search, monitoring and administration costs. They usually exclude direct abatement costs associated with reducing emissions.
Transition mechanisms	Measures that the Government can put into place to help businesses and others affected by Government policy to move from emissions intensive technologies to lower-emissions technologies.
United Nations Framework Convention on Climate Change (UNFCCC)	This convention was negotiated by the world's nations in 1992. It aims to stabilise greenhouse gas concentrations at a level that avoids dangerous human interference with the climate system.