

SUSTAINABLE LAND MANAGEMENT AND CLIMATE CHANGE

Options for a *Plan of Action*

A public discussion document for those with an interest in New Zealand's forestry and agriculture sectors.

Information about this consultation and downloadable copies of this publication are available at: www.maf.govt.nz/climatechange

You can request hard copies of this publication from:
Policy Publications

MAF Policy
PO Box 2526
Wellington
New Zealand

Tel: (04) 894 0599
Email: policy.publications@maf.govt.nz

Published by:
MAF Policy
Ministry of Agriculture and Forestry
Pastoral House
25 The Terrace
PO Box 2526
Wellington

Tel: 64 4 894 0100
Fax: 64 4 894 0742
Web: www.maf.govt.nz

ISBN (Print): 0-478-29863-3 ISBN (On-line): 0-478-29865-X

© Crown copyright 2006. This document may be copied for non-commercial purposes providing its source is acknowledged.

The information in this publication is for consultation only; it is not Government policy. While every effort has been made to ensure the information in this publication is accurate, the Ministry of Agriculture and Forestry does not accept any responsibility or liability for error of fact, omission, interpretation or opinion that may be present, nor for the consequences of any decisions based on this information. Any view or opinion expressed does not necessarily represent the view of the Ministry of Agriculture and Forestry.

Officials will prepare a public summary of submissions received on this discussion paper. The public summary will not attribute comments to individual submitters. Please note that your comments will be subject to the Official Information Act 1982 and may need to be publicly released. If you object to the release of any material provided in your submission, please specify the material that you consider should be withheld, and the grounds for withholding. Please note that even if you do identify specific material that you consider should be withheld, we cannot guarantee that we will withhold this material. All requests under the Official Information Act need to be assessed in terms of the Act and while we will take into account your views, we are not bound by them.



Ministerial Foreword

Climate change is a serious global problem. As scientific understanding of climate change deepens, the trend is for expected impacts to be more serious, and to happen sooner.

Our biologically based economy is vulnerable to the impacts of climate change. The future of our economy, environment and way of life are threatened. It is in New Zealand's interest that there is a concerted global effort to reduce greenhouse gas emissions.

Here at home, measures to reduce emissions are part of the Government's wider objectives to ensure our economy remains competitive and sustainable into the future.

No matter what happens with the Kyoto Protocol, New Zealand needs to prepare for a world in which a cost is attached to greenhouse gas emissions. This is not a New Zealand Government initiative; it is an international reality. The cost arises from reducing greenhouse gas emissions, whether this is achieved through regulation, legislation or price-based instruments. While action to reduce greenhouse gas emissions will have a moderate cost, the predicted costs and risks of inaction are higher.

We have already announced a large number of practical, everyday measures to reduce greenhouse gas emissions, and we are developing more. Many have other benefits, such as improved air and water quality, reduced erosion and flood risk, lower electricity and transport fuel costs, healthier homes and workplaces, improved energy security, and the protection of our native flora and fauna.

At the same time, we are taking action to prepare New Zealand for the effects of climate change such as rising temperatures and sea levels, and more frequent and severe weather including both floods and droughts.

In the short term, actions to reduce emissions will be specific to each sector and include a combination of voluntary, price-based and regulatory measures to encourage efficiency and low-emissions technology.

In the longer term, action is needed across the economy. Although it is true that some sectors can and should reduce their emissions more than others, we all can play our part in some way.

The Government wishes to build comprehensive and durable policies for the land management sectors, and this consultation is an important part of the process. We look forward to receiving your views on how we can work together, now and in the future, to respond to the challenges and opportunities of climate change.



A handwritten signature in black ink, appearing to read 'J Anderton'.

Hon Jim Anderton
Minister of
Agriculture and
Forestry



A handwritten signature in black ink, appearing to read 'David Parker'.

Hon David Parker
Minister Responsible
for Climate Change
Issues

CONTENTS

EXECUTIVE SUMMARY	7
Pillar 1: Adapting to climate change	7
Pillar 2: Reducing emissions and creating carbon sinks	8
Pillar 3: Capitalising on business opportunities arising from climate change	9
Pillar 4: Working together	9
Consultation	9
Terms used in this document	10
SECTION A: OVERVIEW	11
Introduction	12
The proposed <i>Plan of Action</i>	13
<i>Figure 1: Government climate change principles and strategic direction</i>	16
Why climate change is important to New Zealand	17
Agriculture and climate change	19
Forestry and climate change	20
Maori and climate change	21
SECTION B: A PLAN OF ACTION FOR THE LAND MANAGEMENT SECTORS	23
Goals for a <i>Plan of Action</i>	24
<i>Figure II: Overview of the four pillars and options for consultation in the land management sectors</i>	26
Four Pillars underpinning the <i>Plan of Action</i>	28
Pillar 1: Adapting to climate change	28
Pillar 2: Reducing emissions and creating carbon sinks	31
<i>Figure III: Overview of possible options for managing agricultural emissions</i>	33
<i>Figure IV: Overview of possible forestry options</i>	35

Pillar 3: Capitalising on business opportunities	36
Pillar 4: Working together	38
SECTION C: PILLAR 2 IN DETAIL	41
Introduction	42
Reducing agricultural emissions	42
<i>Figure V: Overview of possible options for managing agricultural emissions</i>	43
Agricultural Option 1: Research	44
Agricultural Option 2: Technology transfer	45
Agricultural Option 3: Voluntary reporting	46
Agricultural Option 4: Incentive for nitrification inhibitors	47
Agricultural Option 5: Charge on nitrogen fertiliser	49
Agricultural Option 6: Tradeable permit regime for agricultural emissions	50
Agricultural Option 7: Offset schemes for agricultural	51
Agricultural Option 8: RMA standards to control agricultural greenhouse gas emissions	52
Agricultural Option 9: RMA standards to control new agricultural land use after deforestation	54
Agricultural Option 10: Charge where deforested land is used for agriculture	55
Actions to reduce forestry emissions and increase carbon sinks	57
Introduction	57
Afforestation options	57
<i>Figure VI: Overview of possible afforestation options</i>	57
Afforestation Option 1: Afforestation grant scheme (AGS)	58
Afforestation Option 2: Choice between an AGS and devolution of sink credits and their associated liabilities	59
Deforestation options	62
<i>Figure VII: Overview of possible deforestation management options</i>	62

Deforestation Option 1: Flat charge on land use change from forestry to another use	63
Deforestation Option 2: Tradeable permit regime	64
Deforestation Option 3: Centrally determine deforestation levels	64
Deforestation Option 4: RMA controls on deforestation	69
SECTION D: CONSULTATION AND SUBMISSIONS	71
Having your say	72
Questions	76
ANNEXES	87
Annex 1: Central government programmes relevant to the <i>Plan of Action</i>	87
Annex 2: Private sector initiatives relevant to the <i>Plan of Action</i>	89
Annex 3: Permanent Forest Sink Initiative	91
Annex 4: Global warming and climate change	92
GLOSSARY	94

EXECUTIVE SUMMARY

Climate change is widely recognised as a serious global problem that needs to be addressed with long-term vision, enduring policies and initiatives that protect our economy and our way of life.

New Zealand's land management sectors – agriculture, horticulture and forestry – are most vulnerable to the extremes of weather that are the long-term predicted impacts of climate change. A significant portion of New Zealand's economy is based on the way our land is managed; we need to develop policies that reduce our greenhouse gas emissions and so position us well internationally to protect our economic and trade interests.

The UK Treasury's Stern Review 2006 (*see page 17*) concluded that the less the world does now to reduce greenhouse gas emissions, the higher the future cost of adapting to climate change and cutting back emissions. Taking strong action now is an investment in our future; not taking action poses significant risk.

This discussion document, *Sustainable Land Management and Climate Change*, proposes policies for the agriculture and forestry sectors, to be developed and implemented through a single, collaborative *Plan of Action*.

It is proposed that the *Plan of Action* would contain a set of goals to guide actions on climate change and identify those that could be taken with immediate effect. It would also show how the Government and sectors could work together to create solutions for the long term.

Feedback on goals proposed for the *Plan of Action* is sought in Questions 1 to 4 of the submissions form at the back of this document.

A wide number of options are canvassed as part of the *Plan of Action*, including measures to help the land management sectors adapt to the impacts of climate change, reduce emissions, create carbon sinks and capitalise on possible business opportunities. In all these areas, the Government wants to build a lasting and constructive relationship with the agriculture and forestry sectors, to jointly manage the economic and environmental risks of climate change over the decades to come.

Four key policy pillars form the structure of both this discussion document and the proposed *Plan of Action*.

Pillar 1: Adapting to climate change

Resilient land management practices and upgraded infrastructure can assist New Zealand to avoid, or significantly reduce, the potential costs of the physical impacts of climate change. Adaptation to these new conditions would involve identifying and implementing a range of actions to help land managers understand more about the expected impacts of climate change on their sector, and manage the risks. Ideas are sought on what could be included in a package of initiatives to adapt to climate change – see Questions 5 to 10 in the submissions form.

Pillar 2: Reducing emissions and creating carbon sinks

Specific policy options to reduce emissions and enhance carbon sinks are proposed in this pillar. The Government is looking to create a package of options that balances cost-based and incentive-based measures to achieve tangible emissions reductions for both agriculture and forestry. Following consultation, preferred policies will be determined by the Government. Feedback on the discussion document will guide the development of the preferred policies.

The options for managing agricultural emissions are:

Research, technology transfer and voluntary reporting

1. Increased research funded by the Government and farming sector based on a new and broader research strategy
2. Technology transfer
3. Voluntary reporting of emissions

Any or all of these could run alongside any other options outlined under Pillar 2.

Government pricing mechanisms

4. A financial incentive to encourage the use of nitrification inhibitors, linked to:
5. A charge on nitrogen fertiliser

If implemented, the Government envisages options 4 and 5 working together – any inhibitor could be balanced with a charge, and vice versa.

Options 4 and 5 could also be replaced by any of the options 6, 7 and 8 below

Market-based mechanisms

6. Tradeable permit regime to reduce agriculture emissions
7. A scheme to offset agriculture emissions, by making emissions reductions elsewhere

Regulation

8. Resource Management Act (RMA) standards to control agricultural greenhouse gas emissions
9. RMA standards to control the greenhouse gas and environmental effects of land use change from forestry to agriculture

Government pricing mechanism

10. A flat charge imposed on agricultural emissions when land use is changed from forestry to agriculture.

See Questions 17 to 21 in the submissions form

The options for the forestry sector are:

Afforestation

1. Afforestation grant scheme (AGS)
2. Choice between AGS and devolved Kyoto credits with associated liabilities

See questions 22 to 25

Deforestation

1. Centrally determine deforestation levels; that is, set a national deforestation limit
2. Tradeable permit regime: the Government allocates tradeable deforestation permits. Forest owners who deforest are liable for emissions above the level of permits they hold
3. A flat deforestation charge imposed on land use change from forestry to another use
4. RMA controls on the environmental effects of deforestation (including greenhouse gases).

See questions 26 to 29

Pillar 3: Capitalising on business opportunities arising from climate change

Finding solutions to climate change problems could create tremendous business opportunities. New Zealand already has considerable expertise and world-leading research capability in agriculture and forestry. Feedback is sought from the agriculture and forestry sectors on ways the Government and sectors could work together to identify opportunities, reduce barriers to development, and facilitate the creation of markets for emission reducing technologies in an ongoing work programme. A number of possibilities are canvassed. *See questions 11 to 14*

Pillar 4: Working together

Some of the actions being proposed to deal with the impacts of climate change need to be enduring. So too does the Government's relationship with the sectors. The consultation outlined in this discussion document is just the beginning of a long process of engagement. The issues are complex and time consuming, and will require a significant commitment of resources over a sustained period of time. The Government wants to establish a durable and constructive way of working both with sectors and local government. This means making linkages between the *Plan of Action* and other government and industry-led initiatives. Ideas are sought on how the Government, local government and sectors could work together. *See questions 15 and 16*

Consultation

The Government is committed to widespread consultation and is expecting the debate to be lively and challenging. It is important that as many people as possible have a say. The Ministry of Agriculture and Forestry will be holding consultation meetings around the country early next year. Details of dates, time and venues will be released shortly via the Sustainable Land Management and Climate Change website. Submissions on this discussion document close 30 March 2007. Following consultation, the Government will consider a preferred package of sustainable land management policies.

Terms used in this document

This discussion document makes frequent reference to the following terms. Further terms are defined in the glossary.

Climate change

A change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods.

Greenhouse gases and global warming

Greenhouse gases, both natural and human-induced, absorb and re-emit infrared radiation, leading to what is commonly known as the 'greenhouse' effect which in turn causes a heating of the earth's atmosphere (commonly referred to as 'global warming'). *See Annex 4 for a fuller description.*

The greenhouse gases covered by the emission limitation commitments of the international Kyoto Protocol are:

- Carbon dioxide (CO₂) created from the burning of fossil fuels, burning and/or breakdown of plant matter, and some industrial processes
- Methane (CH₄) from farm animals, rice paddies and waste
- Nitrous oxide (N₂O) emitted from soils enhanced by clovers and nitrogen fertiliser
- Synthetic gases used in some industrial processes; these include hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulphur hexafluoride (SF₆)

Almost 50 percent of New Zealand's greenhouse gas emissions are made up of methane and nitrous oxide, the two gases most closely associated with farming. As a greenhouse gas, methane is 21 times more powerful than carbon dioxide. Nitrous oxide is 310 times more powerful as a greenhouse gas than carbon dioxide.

Kyoto Protocol

The Kyoto Protocol is an international agreement under the United Nations Framework Convention on Climate Change (UNFCCC). The Protocol sets legally binding targets for greenhouse gas emissions for all countries that have ratified the agreement and are listed in its Annex B. Each country has agreed to a target for greenhouse gas reductions averaged over the five years of the Protocol's first Commitment Period, from 2008-12. New Zealand's target is to return to the level of greenhouse gas emissions it was producing in 1990, or take responsibility for any excess emissions.

Land management/land management sectors

This discussion document deals specifically with how the land is managed on-farm and in-forests. It does not deal with transport and manufacturing operations in the agricultural and forestry sectors. Land management sectors include pastoral and arable farming, horticulture and forestry.