

The Chair
CABINET POLICY COMMITTEE

CLIMATE CHANGE: ECONOMIC DEVELOPMENT OPPORTUNITIES

Purpose

1. This paper is the fourth in a series of four papers directed at the ratification of the Kyoto Protocol. This paper reports on progress being made on identifying opportunities for business and economic development arising as a result of the Kyoto Protocol and the Government's response to it, including relevant international linkages, as directed by Cabinet [CAB (00) M 25/4A refers].

Executive Summary

2. New Zealand businesses will increasingly be required to operate in a climate and Kyoto conscious world. Under a Kyoto world, Greenhouse gas emissions will effectively have a cost where previously it was free to release these gases. Similarly, forests grown after the year 1990 will have additional value for the carbon they can store. Such a significant change in the way that we look at these resources will inevitably lead to new opportunities for New Zealand businesses. A failure to address the changing economic environment may lead to New Zealand as a nation failing to capitalise on what are likely to be significant business opportunities. This could include export of existing or new products, services and technologies related to addressing climate change. Making the most of these opportunities is important to ensuring we end up in the best possible position.

3. To take advantage of these opportunities, this paper proposes steps to improve communications and information; achieve greater networking and collaboration amongst relevant firms; and explore certification/branding options.

Scope of Paper

4. The paper describes and draws on workshop discussion with stakeholders about opportunities arising from climate change. Given the importance of exporting to the overall economy of New Zealand, combined with the global nature of climate change, the paper has a particular focus on opportunities to export "climate friendly"¹ goods and services. However we also note that there will be domestic market opportunities and climate change itself will also lead to opportunities related to adaptation (which, in turn, may create export opportunities).

5. Wider issues such as the effects on agriculture or horticulture species habitats, irrigation and coastal infrastructure requirements are also significant, but these issues are not addressed in this paper. The paper does not analyse the costs and benefits of domestic policies related to the Kyoto Protocol, nor does it quantify current or future climate change related business activity.

6. The paper does not specifically address Maori economic development opportunities, however it is intended that the next steps will encompass this aspect.

7. It is also intended to undertake a survey of actions other countries are taking in the realm of economic development related to climate change, and explore the possibility of further research to improve our understanding of the potential scope of business opportunities.

¹ This term is used in the paper to refer to goods and services (including consulting services) which directly reduce or lead to reduced greenhouse gas emissions (eg energy efficiency technology, feedstock efficiency).

Opportunities for Economic Development Related to Climate Change

The New Zealand economic environment

8. An assessment of opportunities relating to climate change must clearly be put in context of the strategic position of the New Zealand economy as a whole. The best gains are likely to be built on our existing strengths. This is likely to involve areas where there is a strong domestic market.

9. New Zealand's competitive advantage is likely to be apparent at a sectoral level. Such areas are likely to include energy technologies or forestry, pastoral and other land-based industries. For example, New Zealand firms based in the hydro or geothermal power or ruminant feedstuffs sectors may be able to build a strongly competitive position as an industry cluster, based on their existing extensive domestic application and associated research and development. Furthermore, New Zealand's unique resources and skills may provide a good platform to adapt established international products and services for use domestically or for export.

10. The further development of such sectors, and their response to the opportunities offered as a result of climate change, are likely to hinge on a small number of key generic factors identified as critical to industry development:

- the need to continually improve the quality of human capital and its application;
- appropriate access to capital in the production process;
- being able to take advantage of rapidly increasing knowledge and rapid technological change - including the ability to acquire and use intellectual property and to foster new linkages outside the firm (i.e. through developing networks and clusters); and
- greater overall efficiency in the use of factors of production - human capital, physical and financial capital, knowledge and technology.

11. It is also important to recognise that this growth will occur within the context of rapid technological change and globalisation of the world economy. This in itself will result in a vast array of changes ranging from increased interdependence and international competition, to higher rates of technical obsolescence / shorter product life cycles, to the emergence of regional trade blocs and an increased emphasis on sustainable development. Changes to the international business environment relating to climate change are only a part of this existing and on-going wider change process.

12. The aim of the Government's sector strategy development process is to work with specified industry sectors to identify and act upon barriers to further the development of potential high growth industries. The focus of sector assistance is to assist the stakeholders involved to fully realise their competitive advantages and generate long-term sustainable growth rather than an attempt to "pick winners". This assistance is therefore focused on improving the factors outlined above and in particular looks to address barriers to progress, where there is an appropriate government role.

13. The government has also adopted a sustainable development approach, which provides a broad and long-term context for decision-making. The sustainable development approach recognises the need to integrate economic, social and environmental issues and objectives.

14. The discussion below on the potential for government action related to economic development and climate change, and the resulting recommendations, are based on the government's approach to sustainable economic development.

Summary of Possible Opportunities Identified by Workshop Participants

15. In addressing what economic development opportunities related to climate change might arise for New Zealand, officials utilised workshops to canvas the views of a wide range of interested parties from the private sector, industry associations, CRIs, universities, and relevant government departments. The opportunities were examined through:

- identifying current activities in New Zealand;
- considering sectors worth investigating for future development;
- identifying barriers to capitalising on these opportunities; and
- considering possible additional government actions.

16. While this has provided a base of information and contacts relevant to economic development and climate change it is very much a preliminary effort. Given difficulties in identifying the wide range of relevant companies and groupings, participants cannot be seen as representative of a “climate change opportunities sector”. Furthermore, given the comprehensive nature of climate change impact and potential solutions, unexpected opportunities could arise in almost any sector, and an attempt to define a specific sector would inevitably be limiting.

17. There are three main sources of new business opportunities:

- Increased domestic and international demand for climate friendly products and services arising from consumer consciousness and/or regimes put in place to meet Kyoto Protocol obligations. The ability of New Zealand firms to meet this demand will be enhanced by the products (and expertise) they develop to abate their own emissions in areas such as improved energy efficiency, carbon sink creation, and waste minimisation (including energy recovery from wastes).
- Demand for methods to implement the Kyoto protocol, such as improved means of monitoring emissions.
- Demand for products and services to prepare for and/or mitigate the impacts of climate change itself, including measures that improve the robustness and resilience of economic systems and infrastructure to increased drought, storms, and sea level rises.

18. Examples of how international climate change policies affect export opportunities include:

- Some governments may subsidise goods and services that reduce emissions and/or implement market-based measures such as emissions trading or carbon charges. Such measures will encourage a substitution of demand to climate friendly goods and services.
- Further opportunities could also be created by the flexibility mechanisms available under the Kyoto Protocol. The principle mechanism is international emissions trading, which will enable entities with emission reduction technologies to provide savings to entities with emission obligations. The Clean Development Mechanism (CDM) is designed to create incentives to export capital and expertise to developing countries, allowing them to skip over the “dirty development” stage and move onto a “clean development” pathway. The CDM would credit New Zealand businesses for contributing to emission reductions in developing countries since 2000 and during the commitment period. Similarly, the Joint Implementation (JI) mechanism would credit New Zealand businesses for abatement projects implemented (during the commitment period) in developed countries that are willing to facilitate JI. New Zealand could potentially also host emission abatement projects funded internationally. These mechanisms and issues are still under discussion.

Existing export activities

19. There is a wide range of New Zealand exports relevant to international demand for products and services involved in addressing climate change, including:

- energy efficiency (e.g. energy-efficient lighting and insulation products, high-efficiency electric motors and heat pumps, industrial process efficiency);
- 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 audits, energy-efficient architecture, infrastructure planning, development and management);
- climate impact-specific consultancy services (climate impacts eg. CLIMPACTS system); regional climate forecasts (eg 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); and
- materials research (e.g. replacing high-energy steel with timber products, superconductivity).

Further product/service opportunities in world markets

20. Workshop participants noted expanded or new product/service opportunities were likely in:

- renewable energy applications² (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);
- industrial (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; and
- eco-system, certification consulting.

² EECA has commissioned a report to provide a preliminary assessment of the economic impacts of new renewable energy industries in New Zealand. The potential benefits are also discussed in a recent Cabinet paper addressing renewable energy issues under the National Energy Efficiency and Conservation Strategy.

21. European markets were identified as being of particular significance given their likely 'early adopter' and 'early provider' status in terms of climate change products/services, with two particular issues being identified:

- the need to assess existing and planned projects in terms of European customer perceptions and demands; and
- the need for New Zealand companies to understand and adopt internationally recognised benchmarking, standards and assessment methodologies.

22. There are clearly numerous companies not involved in our consultation to date with relevant services and products (e.g. NIWA, the Met Service, and Pacific Lithium). Accordingly listings of existing activities and future opportunities should be seen as indicative only.

Possible Themes for Government Action

23. Workshop participants identified a wide range of barriers related to the development of climate change related products and services. While many of the barriers identified tended to mirror more general business concerns (e.g. taxation, depreciation) five themes more specific to climate-change and economic development were apparent where increased Government focus was argued for:

- **prompt clarification and dissemination of government policy related to climate change, once decisions are taken.** The need for a communications strategy targeted at the general public as well as industry was noted. Such a strategy is currently under development. The desire for a higher-level government vision and strategy was also raised;
- **provision of detailed information to New Zealand companies.** This should include material on international opportunities and technical and regulatory information including individual market requirements regarding standards and certification. Information failure was seen to be both qualitatively and quantitatively different from other sectors given the quantum change likely in the physical, regulatory and business environment;
- **enhanced networking and collaboration.** This would include identification of climate change related firms as part of sector strategy development, and an investigation of any groupings which should emerge related specifically to aspects of climate change;
- **exploration of a 'green' certification/brand process to aid entry into key markets including Europe.** This proposal would see the development of an internationally recognised brand to communicate the story of existing and developing New Zealand standards and certification related to being 'climate friendly'; and
- **domestic encouragement of clean technologies.** Domestic policies that affect energy pricing such as emissions trading will assist this as will implementation of the National Energy Efficiency and Conservation Strategy.

Role of Government

24. The Government's role in economic development includes:

- providing vision, strategic leadership and integrated policy making;
- closing information gaps where government is best placed to respond (through both research and dissemination);
- facilitation of collaboration and networking within industry groups and clusters;
- assisting to identify opportunities for sustainable growth and remove barriers to industry and regional development (eg addressing infrastructure issues, improving access to skills and expertise etc); and
- having regard to the economic cost of policies and regulatory regimes.

25. In the case of climate change, a large and rapid change in the business environment domestically and internationally will result from the Kyoto Protocol and New Zealand's response.
26. By virtue of its international involvement in climate change issues, the Government is ideally placed to ensure that New Zealand businesses and consumers are well informed regarding economic implications and business development opportunities arising from climate change, such that they have the confidence to invest in new and emerging technology and marketing.
27. It is Government policy to actively promote awareness of climate change and climate change issues. This is consistent with other policies aimed at fostering frameworks within which business can identify and exploit economic development opportunities.
28. Government is already involved in a wide range of activities in the context of business support and industry and regional development including through Trade New Zealand, Industry New Zealand, Energy Efficiency and Conservation Authority (EECA) and the Foundation for Research, Science and Technology (FoRST).
29. The Government has now adopted a National Energy Efficiency and Conservation Strategy. The Strategy's targets, if achieved, could reduce by 30-40% the excess of New Zealand's CO₂ emissions over 1990 levels.

Actions Government Can Take Within Identified Themes

30. Existing government programmes delivered through Industry New Zealand, Trade New Zealand, and EECA, as well as local government programmes, provide a range of focussed assistance relevant to companies and organisations involved in climate-change related products and services. These go some way towards meeting the five identified themes (para 17). However consideration should be given to further actions the government can take. Several possible options exist to do this, as follows.

Improved communications and information

31. Government has a key role in increasing the availability and accessibility of information related to climate change [e.g. dissemination of information on government policy, export opportunities, details of JI and CDM (see Annex 1), technical data]. This is true both for the wider public and private sectors, which are arguably not well aware of the impacts and implications of climate change.
32. A wide-ranging climate change communications strategy to provide clarity is being developed. These communications will note that there will be business opportunities arising from the international policy and consumer responses to climate change as well as costs.
33. This issue will also form part of the consultation process, inviting comment on how the different climate change policy options relate to and may impact on business outcomes.
34. Enhanced web-based information sources are an obvious option worthy of further investigation. All information provided should be in terms that business can understand and should include material on the potential impacts of Kyoto on various sectors. This is likely to require on-going effort to identify the activities of governments around the world.
35. Work is likely to be necessary to clarify what relevant information is currently available and where gaps might exist. What types of information are required and at what levels? Which entity or entities should optimally be involved in delivery? What further research into business opportunities may be required, and how should this be undertaken?

Greater networking and collaboration

36. Further meetings of the stakeholder group are worthy of support. Such a joint government/private sector approach would also be appropriate for dealing with the need identified for a 'whole of government' approach to the sector. It should however be noted that defining in any exact sense what industries should be included in such a group would be problematic and a policy of self-selection might be most appropriate. In effect there is no such beast as a 'climate change sector'. Multiple, interlinked sectors are likely to exist and/or to develop.

37. The group would include representation from Industry New Zealand, Trade New Zealand, EDANZ, EECA and FoRST as well as representative private sector businesses and organisations and relevant research and government agencies.

38. The purpose of the meetings would be for the participants to identify any further opportunities for enhanced networking and collaboration. The meetings would also assist to identify synergies with sector strategies. Other issues may be addressed, such as:

- effective communication of business opportunities throughout the economy;
- overcoming cultural barriers, particularly in the private sector, to becoming 'climate friendly'; and
- identifying elements of the domestic regulatory environment where there may be detrimental effect on the ability of New Zealand companies to respond to climate change issues. (For example, if application of the Building Act or Local Government Act was inhibiting the use of new climate change friendly technology.)

Certification and branding

39. The issue of establishing a New Zealand climate change brand (or a climate change element to general green/NZ brands, or picking up existing /developing global climate change friendly brands) to assist in international marketing efforts is likely to be worthy of further investigation. This could be combined with an objective of meeting overseas certification requirements. EECA expects the mandatory energy performance standards and labelling regime to be implemented in New Zealand from February 2002. A further series of 'climate friendly' standards (including ISO) are in development.

40. A range of issues would need to be investigated, including the range of products and services involved in current domestic certification schemes and the variability of regulatory requirements in New Zealand's major international markets. Any Government role in this area is likely to involve facilitating and supporting private sector initiatives, in a manner consistent with WTO obligations.

Legislative Implications

41. There are no legislative implications in this paper.

Financial Implications

42. This paper has no financial implications. All proposed initiatives can be funded from within existing departmental baselines. Note, however, that where further exploration is recommended (for example, branding and certification), the financial implications of any options for government action will be identified in the next report.

Consultation

43. The following departments have been consulted and support the recommendations in this paper: the Ministries of Environment, Treasury, Economic Development, Te Puni Kokiri, the

Ministry of Research, Science and Technology, Agriculture and Forestry, Transport, Foreign Affairs and Trade and the Treasury. The Department of the Prime Minister and Cabinet was also consulted in the preparation of this paper.

Recommendations

44. It is recommended that the Committee:

- a) **note** that the planned government communications strategy related to climate change should emphasise that there will be business opportunities arising from any policy changes as well as costs;
- b) **invite** the Convenor, Ministerial Group on Climate Change to explore options for further research into business opportunities associated with climate change, in consultation with the New Zealand Business Council for Sustainable Development, and report back to Cabinet by 15 February 2002.
- c) **direct** officials to facilitate further meetings of interested parties from both the private and public sectors tasked with:
 - identifying any further opportunities for enhanced networking and collaboration;
 - assisting to identify synergies with sector strategies;
 - addressing other issues, such as:
 - effective communication of business opportunities throughout the economy;
 - overcoming cultural barriers, particularly in the private sector, to becoming 'climate friendly'; and
 - identifying elements of the domestic regulatory environment where there may be detrimental effect on the ability of New Zealand companies to respond to climate change issues. (For example, if application of the Building Act or Local Government Act was inhibiting the use of new climate change friendly technology.)
- d) **direct** officials to report back to Cabinet on the findings of subsequent meetings, the investigations into branding/certification options, and actions other countries are taking in the realm of economic development related to climate change, by 15 February 2002;
- e) **note** the private sector's desire for prompt clarification and dissemination of government policy related to climate change;
- f) **note** that the next steps will include a specific focus on Maori economic development opportunities associated with climate change;
- g) **approve** the public release of this paper to facilitate the next stage of collaboration with the business sector and other relevant organisations.

Hon Pete Hodgson
Convenor, Ministerial Group on Climate Change