

## 5. IMPACTS OF CLIMATE CHANGE ON CHRISTCHURCH

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The purpose of this report is to inform the Council of the preparation of a technical report outlining the potential impacts of climate change on the city and to review the Council's policy concerning this issue.

### CONTEXT

In 2001 the Intergovernmental Panel on Climate Change (IPCC) released its third assessment report since 1990. Based on this report the Ministry for the Environment (MfE) commissioned a series of studies and prepared a report on how the IPCC's findings might affect New Zealand. Relevant information from these and other reports has been collated to provide a focus on local effects in a technical report prepared for the Council and entitled "Impacts of Climate Change on Christchurch"<sup>1</sup>. This document provides an update of a 1995 Council report "Implications of Climate Change for Christchurch"<sup>2</sup>, which provided current Council policy on climate change matters.

### CONTENTS OF REPORT

By the end of this century it is projected that coastal Canterbury will have warmed by between 0.8°C and 2.5°C, and that conditions will tend to be drier with 20% less to 5% more precipitation. Over last century sea levels rose by approximately 17cm at Lyttelton. This trend is projected to continue with best estimates suggesting that a rise of between 30 to 48 cm can be expected by 2100, and it won't stop there. Projections suggest that Canterbury will experience warmer winters, more frequent droughts and an increased risk from floods. Management of local water resources will become increasingly important. However, warmer conditions should benefit local tourism and provide opportunities for new crops.

The report discusses global climate change and the role of IPCC. It then looks at climate change projections for Canterbury and discusses the effects of Council activities and the potential impacts on various aspects of the city's environment. These include impacts on ecosystems, the coast, agriculture and business, health and urban infrastructure. This is followed by a review of policy responses.

### COUNCIL POLICY ON CLIMATE CHANGE

The following six policies, adopted by the Council in 1995, form the basis of Council policy on climate change:

1. That the Council acknowledge that climate change is occurring and adopt a precautionary approach when planning for future activities and works.
2. The Council when developing new policies and projects, takes into account the effects of climate change where this is appropriate. Policies that initiate or support activities that counter the causes and effects of those changes, are to be preferred.
3. That the Council's response to climate change combine the limitation and adaptation approaches.
4. That the Council develop a transportation policy which serves to limit greenhouse gas emissions.
5. That the Council support ongoing monitoring of climate change indicators such as sea level rise, greenhouse gas emissions and carbon sinks.
6. That the information in the report be used in assessing submissions on the new City Plan during the review period and in addition the report be reviewed in five years time.

The first five of these policies are still applicable and have been supplemented by a variety of actions and further policy. Together they provide a good framework for decisions where climate change is a consideration.

<sup>1</sup> Ridgen (2002). "Impacts of Climate Change on Christchurch", Christchurch City Council Technical Report 02/1.

<sup>2</sup> Wilkinson & Smith (1995). "Implications of Climate Change for Christchurch", Christchurch City Council Technical Report 94/11.

The fourth policy calls for a transportation policy to reduce greenhouse gas emissions. While a specific policy has not been developed, a series of initiatives, including development of cycling, pedestrian and public transport strategies, have helped to progress this aim. In addition Council vehicle requirements are currently being reviewed, with the aim of reducing energy consumption and a "Green Travel Plan" is being developed. This workplace-related plan promotes environmentally friendly modes of transport and aims to reduce vehicle use by Council staff, which in turn reduces greenhouse gas emissions. In order to make Policy 4 more attuned to what is being, and can be, achieved it is recommended that it be amended as follows: *That the Council develop transportation policies which serve to limit greenhouse gas emissions.*

The Council has also commissioned a study on the effects of sea level rise for the city and has been involved in numerous planting programmes with carbon sink benefits. In addition, a number of policies have been developed which promote the efficient use of energy and as a consequence are likely to reduce greenhouse gas emissions. These include a 1996 policy requirement that an "energy efficiency and sustainability assessment" be carried out for all new projects and major retrofits which have a significant energy component.

The sixth policy (above) is now redundant and it is recommended that it be updated to require a review of this report by 2008, to coincide with the beginning of the first commitment period of the Kyoto Protocol, from 2008-2012.

### CURRENT PRACTICES

Many Council projects have aspects which could be considered "climate change friendly" even though they have been designed with other aims in mind. With an increasing emphasis on energy efficiency and encouraging sustainable practices one of the results is that greenhouse gas emissions are often reduced as a side-effect and sensible long-term solutions are found that will be robust in the face of climate change. For example, energy efficiency programmes save revenue while often also reducing emissions of greenhouse gases. The use of hybrid electric vehicles, such as the shuttle bus, reduces noise and air pollution while also reducing greenhouse gas emissions. Tree planting, for amenity or biodiversity values, will provide carbon sinks and establishing generous setbacks along the coast allows room for coastal processes and ecological values while also providing a buffer for sea level rise.

At this stage no immediate additional actions or policies are recommended other than reconfirming the original five policies (with slight amendments to policy 4) and replacing the sixth policy. It is important that Council staff and decision-makers are aware of climate change issues and mindful of these when developing future courses of action. To this end, copies of the full report will be made available and seminars will be arranged to alert people to what climate change may have in store for Christchurch.

| #                        | CONDITION  | Meets Condition | HOW IT HELPS MEET CONDITION:   |
|--------------------------|--|-----------------|--|
|                          |  | √√-x            |  |
| N1                       | Reduce non-renewable resource use                          | √√              | Encourages energy efficiency and reduction in the use of fossil fuels as a mitigation measure. |
| N2                       | Eliminate emission of harmful substances                   | √               | As above (N1)  |
| N3                       | Protect and restore biodiversity ecosystems                | √               | Encourages planting of trees as carbon sinks   |
| N4                       | People needs met fairly and efficiently                    | 0               | Dependent on national implementation of Kyoto Protocol measures.                               |
| <b>The People Step</b>   |  |                 |  |
| P1                       | Basic needs  | √               | Encourages proactive responses to mitigate against effects of climate change                   |
| P2                       | Developing full potential                                  | √               | As above (P1)  |
| P3                       | Social capital   | √               | Taking a positive approach to a global problem   |
| P4                       | Culture and identity                                       | -               |  |
| P5                       | Governance and participatory democracy                     | √               | Wide community participation   |
| <b>The Economic Step</b> |  |                 |  |
| E1                       | Effective and efficient use of resources economic capital? | √√              | Long term benefits to the Council, the community and the environment                           |
| E2                       | Job rich local economy                                     | √               | Potential for new jobs   |
| E3                       | Financial sustainability                                   | √√              | Encourages proactive responses with long-term financial benefits.                              |

**Recommendation:**

1. That the Council update its policy on Climate Change (as adopted on 26 April 1995) to read:
  - (i) That the Council acknowledge that climate change is occurring and adopt a precautionary approach when planning for future activities and works.
  - (ii) That the Council when developing new policies and projects, take into account the effects of climate change where this is appropriate. Policies that initiate or support activities that counter the causes and effects of those changes, are to be preferred.
  - (iii) That the Council's response to climate change combine the limitation and adaptation approaches.
  - (iv) That the Council develop transportation policies which serve to limit greenhouse gas emissions.
  - (v) That the Council support ongoing monitoring of climate change indicators such as sea level rise, greenhouse gas emissions and carbon sinks.
  - (vi) That the report "Impacts of Climate Change on Christchurch" be reviewed in 2008.
2. That a seminar on the "Impacts of Climate Change on Christchurch" be arranged for Councillors.