

## 5.9 Climate change

### 5.9.1 Introduction

Climate change may be the biggest challenge for humanity during the next 100 or more years. The problem is global, the effects are worldwide, solutions must be international and our responses will be national, local and individual. We are all involved in climate change.

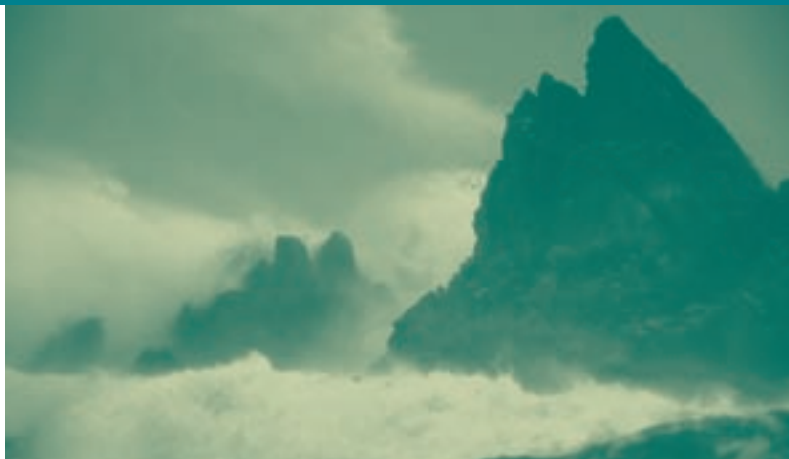
Some say that we need not worry – if climate changes, “Windy Wellington” will become like “Balmy Palmy” and is that so bad? Others say that there’s little point in New Zealanders cutting down on energy use and the resulting carbon dioxide emissions because our contribution to the problem is so small and that changing our economy and way of life will put us at a disadvantage compared with our “competitors”. A few people still think climate change is not happening, not going to happen, or if it is happening, it’s a natural phenomenon anyway and there’s nothing we can do.

The weight of scientific evidence indicates that climate change is already happening and that the unusual weather conditions experienced in most parts of the world during the last decade or two will become more frequent and extreme. No country can escape the consequences, and some low-lying countries may even cease to exist.

New Zealand is expected to suffer drier conditions in the east, wetter weather in the west, but overall, we can expect more frequent drought, intense rainfall and floods. Our coastline is predicted to experience sea level rise, but, of more dramatic and destructive consequence will be the increased frequency of major storm surges threatening people and property.

The effects of changed weather patterns will have profound implications for our economy, our lifestyles, where we live and our biodiversity. In an international context, New Zealand may come under pressure as a destination for climate change refugees. While we may not know exactly how weather will change, or precisely where the effects will be felt, or over what time scale we might experience sea level rise, common sense tells us we need to be prepared.

This chapter focuses more on climate change’s effects than its causes. Nationally and regionally, there are



definite economic and environmental benefits in shifting our energy use away from vulnerable and finite imported fossil fuels. There are also other reasons to manage our greenhouse emissions – to act as a sound role model, to have credibility and to provide leadership (we are in the top five countries in the world for emissions-per-head of population, so we need to do better). But whatever we do to reduce New Zealand’s greenhouse gas emissions, we will not be able to escape the effects of climate change.

To cope with both the causes and the effects of climate change, we may need to make some profound changes to our lifestyles and behaviour. These changes will be far reaching, beyond the time-scale of the Regional Policy Statement, and beyond the ability of local government to dictate what people should or shouldn’t do. Local government does have the authority to make decisions on behalf of the community, and responsible leadership may involve difficult choices that may impact on individuals but have collective community advantage.

### 5.9.2 How successful has the Regional Policy Statement been?

Although the *Regional Policy Statement for the Wellington Region 1995* does not have a chapter on climate change, it does have a reasonably extensive and linked series of provisions recognising the issue and providing a base for action, if agencies choose to take it.

The air chapter has two objectives and at least three policies relating to greenhouse gas emissions and climate change. Similarly, the energy chapter has an objective and specific policies that recognise

the consequences of climate change of our use of fossil fuel energy and the need to shift to greater production and use of renewable energy. Likewise, the built environment and transportation and waste management chapters respectively acknowledge the effects of energy use on local and global environmental systems, and the potential to capture methane for practical use. Finally, the natural hazards and coastal environment chapters recognise sea level rise as a relevant concern when considering development decisions in the coastal environment.

In terms of the management of sources of greenhouse gas emissions from energy use, the Regional Policy Statement has been largely unsuccessful. Greater Wellington's state of the environment report, *Measuring up 2005*, highlights the fact that both the Regional Policy Statement and the National Energy Efficiency and Conservation Strategy's (NEECS) goals for energy efficiency and greater production of renewable energy are not being achieved. Worse, the trends were the opposite of the outcomes sought, with oil-based transport fuel in particular showing an accelerated growth in use.

Managing climate change effects is only really addressed in a place-specific way in the Regional Policy Statement's coastal environment chapter. The coast has been the scene of considerable development during the last 10-15 years, and decisions made about location have been more about maintaining amenity and natural character than about climate change and its associated risks. Recently, climate change effects have been considered in a small number of coastal subdivisions or (e.g. in Wellington) waterfront developments.

Nevertheless, because of our love of the coast and historical development patterns on flat land in river valleys, many of our communities, transport networks and infrastructure are located in an increasingly at-risk proximity to the sea or on floodplains of potentially powerful river systems.

### **5.9.3 What's changed and what are the climate change issues now and for the future?**

When delegates from 150 countries met in Kyoto in 1997 to agree the Protocol on Climate Change, landmark collaboration at international level was achieved. New Zealand ratified the Kyoto Protocol in 2002 and it came into force in February 2005.

New Zealand's target is to reduce greenhouse gas emissions to what they were in 1990, or take responsibility for excess emissions.

Not all countries have signed up to Kyoto, and not all countries are required to try to meet targets for greenhouse gas emission control. However, the world is generally now much more aware of climate change through debate on the Kyoto Protocol and its implications.

The debate about whether New Zealand should participate in the Kyoto Protocol has been vigorous in New Zealand. The economic pros and cons produce column inches in business sections of newspapers. Reports of extreme weather in news sections have produced divergent views on causes, but news coverage of one sort or another has led more New Zealanders to consider the possibility that climate change might be happening.

This shift in attitude and the "mainstreaming" of climate change provide a slightly easier platform from which to more widely debate the consequences of, and adaptation to, climate change.

Amendments to the *Resource Management Act 1991* (RMA) have provided a statutory mandate for addressing the effects of climate change and the closely related matters of energy production and efficient use. Section 7 of the RMA now requires all persons exercising functions and powers under the Act to "have particular regard to" three related matters - the effects of climate change, the benefits to be derived from the use and development of renewable energy and efficiency of the end use of energy.

However, as it currently stands, the RMA also says (in section 104E) that a consent authority must not consider the effects of a discharge on climate change. The intention is that central government would provide the necessary controls for greenhouse gas emissions.

We have already discussed some of the broader issues associated with climate change and other chapters refer to more specific concerns for the Wellington region. Here is a list of concerns drawn primarily from these chapters:

- The cost of dealing with climate change is unknown. This is partly because the scale and location of effects are uncertain so it is hard to price mitigation measures. But it is also because

dealing with the causes of climate change will require a fundamental shift in the way the world does business and the lifestyles we aspire to. The difficulty is that these sorts of costs are incalculable. The cost of not making those changes, however, carries considerably more than economic consequences – there are ethical, social, environmental and huge international implications if climate change has the effects predicted and nothing is done about it.

- We are learning more about climate change and modelling its implications, but there are still many uncertainties about the effects – what will happen, when and where.
- There may be win-win benefits from investing in choices that reduce greenhouse gas emissions and also move us away from an economic dependence on imported fossil fuels to a post-carbon economy and society. More support for public transport and encouragement for renewable energy production (from wind, solar and ocean currents) and use (domestic and commercial) would help, but cannot happen overnight. Government at all levels will need to take leadership roles in supporting and helping finance the transition, but as yet, there is little public acceptance of the need for such public expenditure.
- Climate change will have impacts on rainfall and drought characteristics in different parts of the region, affecting water supply and soil erosion. Too much rain at higher intensity will cause erosion of marginal land and increase the rate of storm water run-off into streams. Too little rain will lead to increased demands for irrigation in a situation of lower water supply.
- Transport-related greenhouse gas emissions are the fastest, and accelerating, area of emissions growth in the region. Agricultural emissions are relatively stable.
- Climate change will reduce habitat for certain species (e.g. mountain species) and put stress on indigenous species to adapt and also face pressure from new pests.
- Sea level rise and an increase in the number and intensity of storm surges will lead to an increased flood risk and damage to coastal property and infrastructure. At the same time, there is an increasing expectation from coastal communities for “protection”.

## 5.9.4 Comments and questions for you to consider

Earlier in this chapter, the wording hinted at decisions that local government might need to take on behalf of the regional community, and that some of these decisions might not be welcome. One difficult area immediately apparent is management of coastal development.

For existing developments, we could construct defences in some locations but this may not be financially viable or physically possible. One response to the threat of property damage and loss of life is to think about medium- to long-term moves away from the areas most at risk. This approach – managed or planned retreat – could be explicitly recognised, so that public and private investment decisions are better informed. Local authorities and utility supply companies, for example, may strategically choose routes or locations for infrastructure that are less likely to be at risk during their economic lifetime (perhaps up to 100 years). When authorities make decisions about infrastructure, they could build into their calculations the scale and frequency of storm events, or drought.

Areas of the coast where there is little or no development could be maintained in their current state, but such an approach would lead to controversy over unfulfilled owner expectations to be able to develop their land. For these areas, district plans may have “no development” zones, to recognise the risks of coastal erosion and inundation. The insurance industry is already signalling an unwillingness to provide insurance cover for an increasing number of at risk locations, both along the coast and on river floodplains.

What provisions could we include in the next Regional Policy Statement to anticipate and guide development and change in the likelihood of climate change effects? This list is a guide about possible areas for coverage as a lead-in to the questions that follow:

- Is climate change and its effects identified as a regional issue requiring a response (in the Regional Policy Statement)?
- Should the Regional Policy Statement have provisions that seek to manage greenhouse gas emissions?
- Should the Regional Policy Statement explain the national policy context?

- Should the Regional Policy Statement specify the time horizon for different types of decisions on climate change and its effects?
- Should the Regional Policy Statement give guidance on the contents of regional and district plans relating to managing the effects of climate change?
- Should the Regional Policy Statement promote a consistent approach towards climate change by local authorities within the region and across boundaries with neighbouring regions?
- Should the Regional Policy Statement promote public education as a way of responding to climate change effects?
- Should the Regional Policy Statement promote avoidance or limitation of damage and costs from natural hazards including those exacerbated by climate change, such as:
  - sea level rise
  - increased rainfall intensity
  - increased incidence or severity of drought
  - wind events.
- Does the Regional Policy Statement include any provision to monitor effects of climate change?

### Question 1:

Do you think we have identified the right sort of climate change issues and considerations? Are there other related aspects we should recognise for the region?

### Question 2:

What role should the Regional Policy Statement play in managing the causes and effects of climate change? Is the informal checklist provided (see above) a suitable range of options? Should the Regional Policy Statement address greenhouse gas emissions in an active way? If so, how?

### Question 3:

Should the Regional Policy Statement have a chapter specifically addressing climate change or should this issue be tackled in chapters addressing energy management, the urban environment, transportation, the coast and natural hazards? What would be the advantages and disadvantages of either approach?

### Question 4:

Do you agree that leadership and collaboration is needed across the region's local authorities, in partnership with central government, to tackle climate change effects? What sort of action and initiatives could authorities take to provide leadership?

### Question 5:

How important do you believe it is to tackle climate change effects? Are there higher priorities for action and investment? What issues or problems do you think would be more important?