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Climate change

Abstract

The Resource Management (Energy and Climate Change) Amendment Act 2004 introduced a new "other matter" into Part II of the RMA, requiring particular regard be given to the effects of climate change (section 7(i)).

The aim of this Guidance Note is to:

- Promote understanding about the effects of climate change; and

- **Provide best practice information** on how to assess the significance of, and respond where necessary to, the effects of climate change. A particular focus is how this can be done within local authorities' existing risk assessment, policy-making and decision-making processes.

The Guidance Note covers:

- An outline of the Resource Management (Energy and Climate Change) Amendment Act 2004.
- An overview of how particular regard may be given to the effects of climate change.
- Information on expected climate change effects in New Zealand.
- Advice on methods for considering and addressing climate change effects under the RMA.
- Good practice examples of how local authorities have incorporated consideration of the effects of climate change into existing council decisions, activities and plans.
- Current challenges in considering climate change effects.

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Guidance note

Introduction

Resource Management (Energy and Climate Change) Amendment Act 2004

Under the Resource Management (Energy and Climate Change) Amendment Act 2004, three new matters were inserted into section 7 under Part II of the RMA:

"(ba) – The efficiency of the end use of energy;…
(i) – The effects of climate change; and

(j) – The benefits to be derived from the use and development of renewable energy".

In the context of the RMA, there are two ways in which particular regard may be given to the effects of climate change:

1. As an integral part of making decisions on resource consent applications and notices of requirement under the RMA for which the effects of climate change may be significant; and
2. In proactively assessing RMA policy statements and plans, as they come up for review or other changes are proposed, to identify whether more explicit and/or up-to-date policies are needed to address the effects of climate change than are currently provided.

The second point directly relates to **Council's broader strategic planning initiatives**. The effects of climate change can be integrated into local authorities' longer term planning under the Local Government Act, as part of their mandate to take a sustainable development approach.

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Climate change and its effects

Expected climate change effects in New Zealand

The climate is changing. Increased greenhouse gas concentrations have already started to affect the climate in ways that will take time to reverse. Even if significant global action is taken now to reduce these, a degree of climate change is inevitable in our lifetime. New Zealand, as a country heavily dependent on agriculture and tourism for its revenue, can expect to be affected by even small changes in climate.

We cannot predict exactly what climatic changes will occur in New Zealand over future decades, both because of uncertainties around levels of future greenhouse gas emissions and incomplete knowledge about the processes governing climate and natural climate variability. Changes in rainfall, temperature and sea level will also vary from region to region.

However, the trend of change is well accepted. For example, on average, New Zealand can expect the following climate change effects:

- A rise in sea level. It is recommended that councils plan for a 20cm rise in sea level by 2050, and a 50cm rise by 2100.

- Average temperatures across the country are projected to increase about 1°C by the 2030s and about 2-3°C by the 2080s.
- More rain is likely to fall in the west of the country and less in the east.
- Westerly winds are likely to become more prevalent.
- Extreme weather events (e.g. floods, droughts and storms) are expected to become both more frequent and more intense.

Comment

The NZ Climate Change Office of the Ministry for the Environment has developed up-to-date information on climate change impacts for New Zealand by region. It is recommended that councils use this information as a basis for assessing the effects of climate change, unless more detailed localised modelling is available.

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What could climate change mean?

A changing climate is expected to create both opportunities and risks for New Zealand. Both potential opportunities and risks should be considered when making decisions relating to climate change effects.

- Climate change effects are expected to affect a number of key local government functions and operations.
- Responding to the Effects of Climate Change

Assessment of climate change effects

As a general guide, wherever current climate is significant to an activity, hazard or plan, expected future climate should also be assessed for its impact.

Councils should explicitly consider whether the effects of climate change have significant implications for:

- natural hazard management
- land-use planning;
- the design and location of new infrastructure / assets with a lifetime of more than 30 years.

Of especial importance, given their long-term effect, are decisions relating to:

- housing and infrastructure development in areas prone to natural hazards such as river and sea flooding, erosion, slippage and inundation;
- stormwater system capacity and design;
- water allocation and irrigation in areas prone to drought.

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Identification of significant climate change effects

When assessing whether climate change is likely to have a significant impact on a particular activity, hazard or plan, key factors to take into account include:

1 - Duration of activity. Local government decisions have a range of implications in terms of time horizons. Climate change should be considered for all climate-sensitive decisions with a long-term horizon.

2 - Presence of a particular 'driver'. Climate change considerations are particularly important for infrastructure decisions. Any significant investment should be preceded by a risk assessment that includes climate change implications and a cost-benefit analysis. It is worth integrating climate change effects into infrastructure design where the resulting asset 'life-cycle' costs are less than the expected additional costs from premature retirement of the asset or unprogrammed upgrades.

3 - Location of activity.Some locations are particularly vulnerable to climate change. Decisions on significant activities near the coast should consider expected sea-level rise over the next century, as well as other consequential effects such as increased coastal erosion and salt water intrusion into aquifers. Development in flood plains should factor in potentially reduced flood return periods and greater peaks.

4 - Extent of activity. Decisions that involve, for example, a single building are less likely to have fundamental implications than decisions with wider scope. The exception is where a small development sets a precedent, leading to acceptance of subsequent applications.

5 - Nature of activity.An activity may be affected by a single climate change parameter, or by complex parameters with multiple effects and implications over time. The latter can best be addressed at the policy level, with decision-making applied consistently over time.

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Decision-making frameworks

Councils may find it helpful to use a series of 'decision-making steps' of increasing complexity to assess whether climate change is significant for a particular activity, hazard or plan, and how significant its impact might be.

The first step is to identify *qualitatively* whether a specific activity, hazard or plan could be significantly affected by climate change. Special consideration should be given to activities, hazards or plans which are vulnerable at present to climate and climate variability.

If a potentially significant climate change effect is identified at this stage, a brief *quantitative* assessment or 'screening' analysis can be undertaken. This consists of considering the expected climate change effect (for example, a rainfall increase of between 2%-10% by 2030) and any other relevant planning variables that may change over the period in question (for example, a projected population increase of 15% by 2030), to develop *scenarios* in order to test *quantitatively* the likely significance of climate change. From this screening analysis, further analysis can be made as to whether existing planning provisions and/or hazard management responses have a sufficient safety margin to cover any resulting change in risk or resource availability.

If it appears that existing provisions/responses do **not** adequately cover the future change in risk, a more complex technical *risk assessment* can be undertaken, followed by an analysis of response options to manage the risk over appropriate timeframes.

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Integrated assessment

Climate change is not a stand-alone issue. Councils already consider and respond to climate and climate variability as they develop plans, mitigate risks and provide services and facilities to the community. Climate change considerations will therefore not drive or initiate local government action on their own. Rather, they may modify an outcome. It is therefore recommended that, where possible, councils consider climate change within the context of existing resource management, risk-assessment and policy-making processes.

The primary effect of climate change is expected to be in changing the level of risk from weather-related **natural hazards**. Such

hazards are already addressed in district plans and in many regional plans.

Similarly, the methods available to councils to respond to the effects of climate change are generally those contained within the toolbox for natural hazard management. It is expected, therefore, that climate change effects can be assessed and managed through existing hazard management plans and/or other processes which are used to control or manage natural hazards (e.g. section 106 of the RMA, section 36 of the Building Act, the LTCCP planning process, and other RMA requirements to plan for natural hazards).kap

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Response framework

According to a United Nations Handbook (Feenstra et al), responses by decision-makers to a changing climate can be classified into eight different categories (also known as '*adaptation measures*'). These categories are listed below in descending order from no action to proactive response:

- Bear losses – "Do nothing". The costs of adapting to climate change effects are considered too high in relation to the risk/expected damages.
- Share losses – Work with the wider community to share the costs of any losses (ie through private insurance schemes, post-hazard reconstruction and rehabilitation of land)
- Modify the threat – Exercise control over the risk e.g. modify flood prevention works or seawalls.
- Prevent effects – Avoid exacerbating/creating new risks by "down-zoning", increasing restrictions/imposing prohibitions to avoid intensification or commencement of at-risk development, and designing assets to cope with future climate conditions.
- Change use – Encourage or require changes in land use away from high-risk use to uses not susceptible to a changing climate.
- Change location – Direct development away from areas susceptible to a changing climate.
- Research – Support research into new technologies to minimise risks from a changing climate and new methods of adaptation.

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Strategic responses

Responding to the effects of climate change will involve the planning sections of councils (possibly both policy and consents sections, where these are separate). A number of operational arms within a council may also need to be involved, such as those responsible for:

- Infrastructure and asset management (roading, water supply, wastewater, stormwater);
- Reserves management and planning;
- Finance (particularly where there are likely to be implications for capital or operational expenditure).

Strategically, a regional-local or cross-council approach is the best way to ensure that climate change is adequately considered in line with RMA requirements.

Such inter- and intra-council consideration of the effects of climate change under the RMA can also occur as part of wider planning and programming processes. Coordination will ensure the most effective strategic and cost-effective combination of response actions, including in terms of both public investment and the management of private development.

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Response options

The methods available to councils respond to the effects of climate change are generally those contained within the **toolbox for natural hazard management**.

There are a number of **regulatory methods** available under the RMA and through RMA plans, e.g.: building setbacks, minimum floor areas and levels, restricted development areas, special zones or management areas, consent processes, and designations.

Outside of the RMA context, councils may use a number of other **non-regulatory methods** to facilitate consideration of and response to climate change effects. These include:

- Structure and development plans;
- Emergency Response Plans/Recovery Plans;
- Protective works;
- Local authority asset and infrastructure management;
- Community initiatives (for example, coastal dune care programmes);

- Codes of Practice; and
- Integrated input into other plans and strategies

Individually, none of these methods will be fully effective in addressing the effects of climate change and the effectiveness of each method will vary according to the circumstances. An integrated approach, which incorporates a number of these methods, is likely to be needed. The choice of methods that are used will be determined by a number of factors, such as:

- The nature of the hazard (both at present, and in light of expected future climatic conditions) and the level of information available;
- The nature and values of the area (developed vs. undeveloped);
- The assessed level of risk;
- Community expectations and levels of acceptance of risk;
- Costs and benefits; and
- Existing assets in use to mitigate the hazard (for example, seawalls).

Good practice for developing **strategic response frameworks** for *any* natural hazard generally includes some or all of the following aspects. They are equally applicable for consideration of climate change effects, which are primarily linked to a changing level of hazard risk:

- Management strategies are an effective way to coordinate and integrate actions on area that require particular focus, especially where ongoing public investment is needed to be coordinated with regulatory framework under the RMA. Any strategic response can be developed within the framework and context of the broader community outcomes sought through a Council's Long Term Council Community Plan, prepared under the Local Government Act 2002.
- Ideally, a strategic management framework should be in place before the review of RMA planning policies. This framework would identify priorities, allocate funding for specific works and programmes, and identify community aspirations, expectations and roles
- A programme of consultation must be undertaken with the community and key stakeholders before instituting changes to RMA Plans. Given the increasing property values the consultation process on this issue is unlikely to eliminate controversy about including climate change effects in the Plan-making process, particularly if there are new restrictions proposed (e.g. coastal setback zones for areas expected to be at risk under a rising sea-level). The strategic management

process will provide additional robustness and support for the RMA policy-making process by placing the regulatory framework within a wider programme of action that is put to the community for input.

- Sound technical input may be required from experts with knowledge of the expected localised effects of climate change to address the complexity of the methodologies involved. Technical input may also be useful from other relevant statutory bodies, where appropriate, including regional councils, other territorial authorities, the Department of Conservation, etc.
- The widely-used Hierarchy of Natural Hazards Management Options is a useful tool when considering how to respond to the effects of climate change. The Hierarchy recommends starting with avoidance and preventative methods, moving through to reactive methods, with hard defence mechanisms usually considered to be least preferable. This correlates with the priorities expressed through the New Zealand Coastal Policy Statement, which seeks to avoid the use of hard protective mechanisms as much as practicable.
- An ongoing monitoring programme is key to an effective and responsive strategy to address hazard risk. Even in areas with well-known risks from natural hazards, there is often a lack of comprehensive, long-term information on which to undertake risk assessments and consequentially to develop robust response policies. As climate change can make itself felt over a long period of time, any response strategy to address the effects of climate change should include the development of a regular monitoring programme that can be sustained over the long term.

A number of local authorities have already undertaken studies or strategic planning exercises that take account of climate change effects – for example, Kapiti Coast District Council, Hawke's Bay Regional Council, and Environment Waikato.

Comment

The NZCCO Guidance Manual on Coastal Hazards and Climate Change recommends a risk assessment process to evaluate the level of risk from coastal hazards under a changing climate. Such an approach could be adopted for developing strategic responses to other forms of natural hazards affected by climate change, including discussions about whether a response is warranted now or can be deferred until later.

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Development and review of local government plans

A checklist has been developed to help councils consider climate change effects in a more strategic way during the development and review of statutory plans, policy statements and reports developed by councils, including those required under the Resource Management Act.

RMA policy-making

Where climate change effects are expected to be significant (e.g. in areas where coastal erosion along a heavily developed foreshore is expected to exacerbate under a changing climate), a precautionary approach is appropriate, reflecting the direction set by the New Zealand Coastal Policy Statement (PDF 91KB) (for example, see sections 3.3 and 3.4).

While climate change may appear a gradual process the impacts of which are difficult to determine with accuracy, the development and use of land usually brings about long-term changes that are difficult to reverse once the effects of climate change manifest themselves. For example, an area may not be susceptible to the effects of climate change (e.g. sea level rise) for the next twenty years, but may subsequently become at risk after that time. If the effects are significant, this could create lock-in problems for future generations.

Land use planning decisions should integrate consideration of future climate, and cover a sufficiently long-term horizon, particularly given the permanency of structures and the expectations and values inherent with increased development. Both territorial and regional authorities can mitigate some of this risk by ensuring that there are robust land use policies and provisions within their plans, and that current policies and strategies are reconsidered as necessary.

The tools for managing natural hazards are well known and developed, and can be found in district and regional plans throughout the country. For many district and city councils, the impending ten-year review of their first generation RMA Plans provides a timely opportunity to review policies and provisions in light of the new section 7 matter.

- When plans or relevant part of plans are proposed to be reviewed, studies should be programmed to ensure the necessary data and supporting technical information is

available for the policy analysis. For example, studies on how sea-level rise might affect local coastal inundation and erosion risks in highly developed areas may be necessary if the information-base is not sufficiently current or comprehensive to provide for robust analysis and policy development.

- In areas where the effects of climate change are expected to be significant, particularly those in which coastal and flooding hazards are expected to worsen, it is recommended that explicit policies be formulated and contained within the relevant regional and district plans – including the regional coastal plan.
- A review of significant resources within the local authority that may be affected by climate change may assist in understanding what are the likely resources to be affected, the extent to which impact is likely, what priority resources need protecting, and what avoidance or mitigation measures may be practicable. These may need to be taken into account in the preparation and review of LTCCPs, Annual Plans, and asset management plans, for example.
- Community education about the expected effects of climate change is an important early element to any policy-making process particularly in the lead up to consultation where it is important that those consulted have adequate sound information upon which they can make informed decisions.

Several policies in the New Zealand Coastal Policy Statement (PDF 91KB) (NZCPS) address the effects of climate change.

- Policies 1.1.2 to 1.1.5 (which address features and components of natural character);
- Policies 3.2.1, 3.2.2, 3.2.4 (which consider appropriate subdivision, use and development of the coastal environment);
- Policy 3.3 (which addresses the precautionary approach); and
- Policy 3.4 (which recognises natural hazards, and makes provision for avoiding or mitigating their effects).

All of these policies relate to the assessment of response options to coastal hazards, including sea level rise.

The NZCPS is currently under review, and these policies may change. However, as the NZCPS must also now take account of the effects of climate change, future policies are likely to continue to provide explicit direction to local authorities on this matter. See the Department of Conservation website for more information and updates (www.doc.govt.nz).

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Regional policy statements

Under the RMA, regional and district plans must be consistent with the relevant Regional Policy Statement. Taking account of the effects of climate change will be an explicit consideration in the review of the first generation Regional Policy Statements, which all have policies on natural hazards and groundwater resources.

- Where the effects of climate change are likely to be significant resource management issue, effective responses to addressing the effects of climate change and changing natural hazards may require a coordinated approach between regional and territorial local authorities. As an example, coordination is recommended to address coastal hazards and flooding risks, for which both authorities have a role to play.
- Cooperative regional-district partnerships can be promoted and expressed through Regional Policy Statements, particularly in areas where climate change is expected to significantly impact on natural hazard risks.

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Regional and district plans

All district plans have policies and provisions on natural hazards. In addition, regional coastal plans also address natural hazards, while flooding hazards and soil erosion are usually addressed in district plans, other regional plans, or both. The effects of climate change could be appropriately addressed largely by reviewing current policies, updating the information base to include information on expected climate change impacts, and reassessing the effectiveness of current methods to implement such policies.

Regulatory controls managing the development and use of land are a principal, but not exclusive, method for addressing the effects of climate change under RMA Plans. This is especially so in areas where existing development is under threat from, or potentially threatened by, exacerbated natural hazards. For example, such regulatory controls include building setbacks, development prohibitions, building floor level requirements, and limitations on land use activities. Where a coastal erosion risk or flood risk is expected to worsen as a result of climate change, regulatory methods may have even greater relevance to limit the exacerbation of risks through further development.

In addition, other commonly used **non-regulatory** methods include:

- Provision of reserves (for example, esplanade reserves) to act as buffers, or as substitute land uses in place of more vulnerable land uses;
- Guidelines and codes of practice (which may, for example, be used to promote appropriate design specifications for stormwater disposal systems);
- Community education and involvement (for example, dune care programmes to improve resilience to sea level rise, siting and designing buildings); and
- Covenants and consent notices on the title (for example, identifying "no build" areas, or vegetation retention requirements).

Other statutory instruments also need to be considered.

Strategic management planning initiatives are often an effective way of developing an integrated approach to addressing natural hazards. Management plans directly link with other council services and programmes outside the RMA that can be reviewed, updated and revised as progress requires and resources permit, without amending the RMA Plan. However, given that the process of developing strategic responses has to link with the Plan (which has its own formulation process), an iterative approach may be necessary.

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RMA plan 'example provisions'

The linked RMA Plan example provisions have been prepared to illustrate how the effects of climate change relate to various resource management issues. They are based on a fictitious region/district, and are therefore general in nature. That being the case, while the examples can provide direction for those developing plan provisions, it is not advisable to 'cut and paste' the provisions into plans without modification for local circumstances.

No example rules have been proposed, although comment has been made. This is because responding to climate change will most likely influence how other rules (such as those relating to natural hazard management) work and where they apply, but they are not the ‘driver’ for the rule.

In some cases however, councils may wish to insert additional provisions into their plans after considering how to respond to the longer term effects of climate change. Such changes could include, for example:

- Adding additional or new setbacks in areas expected to be prone to erosion or flooding;
- Introducing or extending areas that are subject to minimum floor area requirements;
- Introducing or extending the areas where geotechnical reports are required before development takes place (such as on erosion prone or unstable hillsides).

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RMA decisions on resource consent applications / notices of requirement

While there has always been an implicit requirement under section 104 of the RMA to take into account the effects of climate change as relevant, there is now an explicit obligation under the Act to consider these effects.

Environment Court decisions have demonstrated that decisions on proposed subdivision and land developments need to give due regard to climate change effects where those effects are likely to exacerbate natural hazards (for example, *Bay of Plenty Regional Council v Whakatane District Council A003/94*, or *Skinner v Tauranga District Council A163/2002*, or *Kotuku Parks Ltd v Kapiti Coast District Council A73/2000)*. It is important that plans up for review are amended appropriately to incorporate the effects of climate change.

Those preparing or assessing resource consent applications, particularly for proposals in areas susceptible to natural hazards, should consider whether the expected effects of climate change are a potentially significant issue to address for design and location, and what consequent mitigation measures might be required. Most Plans specify information that must be provided with applications for subdivision or development in locations that are likely to be affected by hazards.

- As a guide, the development of assets and land-uses with a life-span of more than 30-years may have particular vulnerability to being affected by climate change impacts, given the long-term nature of the issue. Decisions relating to these activities will require particular care.
- Where plans have not incorporated the effects of climate change, it may be appropriate to explicitly assess the effects of climate change through the resource consent process in terms of:

    - Subdivision and developments in floodplain areas, close to rivers, or within or over river channels; close to or within the coastal foreshore (cliffs, beaches or low-lying areas); on or close to steeper hillsides (including at the top and bottom of the hill);
    - Lifeline infrastructure components in the above locations;
    - Subdivision and developments that rely on rain water or ground water for supply;
    - Earthworks in hazard prone areas (coastal dunes, erosion-prone hill country, and floodplains); and
    - High density or essential community uses in identified hazard areas (for example, schools, and hospitals).
- Determine whether the Plan under which consent is being sought has explicitly incorporated the effects of climate change into the setting of hazard management areas and/or associated development standards. For applicants, this may mean making enquiries with the local authority concerned, as, even with recent plans, it may not be obvious whether the plan is based on current data and scientific assumptions.
- Where the effects of climate change may be a significant issue, it is good practice to demonstrate how a proposal takes the effects of climate change into account as an integral part of the hazard assessment, along with measures incorporated to avoid or mitigate such effects. For example, in locations where flooding and coastal erosion are likely in future, information may be needed on risk levels, building setbacks and siting, floor levels, and contingency response plans. Information to support applications may include existing ground levels and 50 and 100-year flood levels or erosion levels from district/regional councils.
- Provide information and resources to people within the community about the effects of climate change, and the types of responses that communities can take (refer to NZCCO guidance materials – see Relevant Publications section of this note).
- In terms of climate change impacts on the coast, the increasing values of coastal property strengthen the need to have this matter addressed quickly and effectively. More specific guidance for local authorities on coastal hazard management can be found at the NZ Climate Change Office's website, particularly the "Guidance Manual on Coastal Hazards and Climate Change"

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Best practice examples

A number of local authorities have already begun to incorporate the effects of climate change into their strategic planning processes, hazard management plans and RMA Plans, including:

Effects of climate change on natural hazards

Meteorological Hazards and the Potential Impacts of Climate Change in Wellington Region - A Scoping Study (PDF 4.4MB)
Date: 2002/06
This study summarises the analysis of the potential impacts of climate change on the Wellington region. The report also identifies the likely impacts of climate change on meteorological hazards over the next 50 to 100 years.

Hutt River Floodplain Management Plan 2001 (PDF 8.8MB)
Date: 2001/10
This document provides detailed information in design considerations and level of protection, taking into account climate change, and addressing responses required at regional and territorial local authority levels.

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Coastal hazards and climate change

Coromandel Beaches: Coastal Hazards and Development Setback Recommendations
Date: 2002/05
This report summarises the findings of a study by Environment Waikato using recent information on coastal erosion and flooding hazards to revise setback positions for development on Coromandel beaches. The setbacks, developed as a tool to assist District Councils in managing coastal erosion and flooding in the short and long term, are designed to allow for new development while at the same time not disadvantaging public use of the beach and coast. The first type of setback (Primary Development Setback) delineates land at risk from fluctuations in natural beach erosion under existing conditions. The second setback (Secondary Development Setback) delineates additional land at risk from the effects of sea level rise and climate change over the next 100 years.

Strategies for Managing Coastal Erosion Hazards on the Kapiti Coast
Date: 2003/05
This consultation document outlines the recommended long-term strategy for managing the risks from coastal erosion along the entire District's coastline. It summarises the preceding technical

studies (which incorporates allowance for the effects of climate change on coastal erosion risks), the features and costs of the principal management options, and community feedback.

Wairoa Coastal Strategy - Te Maahere Taatahi ki te Wairoa
Date: 2004/07
An integrated strategy for managing Wairoa District's coastal environment, including coastal erosion. Written in a brief, easily read format, the strategy recommendations drew on an extensive consultation programme, which included nine public meetings/wananga held across the district in September and November 2003. The strategy uses structure plans as a method for addressing the protection, use and development of land and resources in a local area or community. The Strategy embeds consideration of expected coastal erosion, and as such is considered to be a useful document.

Hastings Coastal Environment Strategy
Date: 2000/07
An integrated strategic approach to managing the District's coastal environment, including coastal hazards in a changing climate. It uses area-specific strategies for the District's coastal settlements, with each locality having its own long-term objectives, which are to be achieved through the recommended implementation programme.

Hawke's Bay Coastal Hazard Assessment Report
Date: 2004/02
An assessment of coastal hazard risks along the Region's coastal margins, with recommended coastal hazard zones. The report recommends three hazard zones for 'soft-shores' – a Current Erosion Risk Zone for areas subject to storm erosion, short-term fluctuations and dune instability, a 2060 Erosion Risk Zone to include erosion due to climate change to 2060, and a 2100ERZ. It also recommends a retreat zone for cliffs where appropriate, and two risk zones for areas subject to coastal inundation (moderate and extreme inundation risk).

Tauranga Operative District Plan
Date: 2005/03
The operative Tauranga District Plan contains policies (Chapter 6) and rules (Chapter 17) for hazard management that incorporate the effects of climate change. The methodology used in determining coastal hazard management zones and harbour flooding risk areas takes into account the effects of climate change on sea level rise. While these provisions are under appeal for one section of the coastline (Papamoa), the provisions are operative for the remainder of the coastline. In addition, flood hazard levels around the edges of Tauranga Harbour have been updated and mapped in the district

plan, via operative Plan Change 13, to take into account the effects of storm surge events and sea level rise, incorporating the effects of climate change.

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RMA provisions

s.7(i) and s.7(j)

s.70A

s.104E

Case law

Case law prior to the introduction of a new climate change matter in section 7(i) indicates that it was already best practice to consider and address the effects of climate change as part of the management of natural hazards prior to the 2004 Amendment Act under discussion. The case law listed below, while pre-dating the Amendment, is therefore still largely relevant for local authorities considering the effects of climate change, even where climate change effects are not specifically referenced in the decision(s):

Canterbury Regional Council v Christchurch City Council [1995] NZRMA 452 – The reference in sections 30 and 31 to the avoidance or mitigation of natural hazards means the effects of natural hazards and not the hazards themselves. The control of the use of land for the avoidance or mitigation of the effects of natural hazards is within the powers of both regional councils and territorial authorities under sections 30 and 31. A territorial authority's plan must be consistent with the regional policy statement, or any regional plan of its region. However, beyond that, the territorial local authority has full authority in respect of the matters set out in section 31.

McKinlay v Timaru District Council C 24/2001 – In this case, a Proposed District Plan rule provided that the erection of buildings within a 'coastal inundation' area was a prohibited activity, including the reconstruction of any existing buildings which happened to be destroyed. However, the Court held that existing buildings within the area had existing use rights and reconstruction would be allowed if it met the tests contained in section 10(1) of the RMA. The Court noted that section 20 (now section 20A) provided for a parallel but different system of existing use rights which applied to regional plans, but did not determine the extent of such rights as no

regional plan existed. The Court, however, noted that section 20A provides a more limited timeframe for existing use rights than section 10.

In ***Save the Bay v Canterbury Regional Council C6/2001***, the Environment Court said that regional and territorial authorities need to recognise that planning for natural hazards is a significant function. The Court specifically drew attention to the need to plan for infrequent but catastrophic events.

With respect to planning horizons, in recent cases the Court has accepted a 100-year planning horizon as reasonable for coastal planning purposes rather than a 50-year horizon, although this was specifically noted as being in the context of the circumstances of the cases concerned (refer ***Bay of Plenty v Western Bay of Plenty District Council 8 ELRNZ 157*** and ***Skinner v Tauranga District Council A163/02***).

Common law property rights to protect land from erosion are inconsistent with and override the Resource Management Act's scheme of plans and resource consents for any protection work (refer ***Falkner v Gisborne District Council (1995) 3NZLR 622***). The voluntary acceptance of risk by private property owners does not abrogate the Council's responsibility to control the use of 'at risk' land for the purpose of avoiding or mitigating the effects of natural hazards (refer to ***Bay of Plenty v Western Bay of Plenty District Council 8 ELRNZ 157***).

In ***Opotiki Resource Planners v Opotiki District Council A15/97***, the Court declined to prohibit building where the whole existing commercial area was exposed to the same level of risk from potential flooding hazards as the proposed building.

The Court has rejected arguments that controls under the RMA do not need to be applied because the Building Act regulates building in areas subject to natural hazards. Both Acts regulate building in zones subject to natural hazards according to each Act's purpose (refer ***Bay of Plenty v Western Bay of Plenty District Council 8 ELRNZ 157***).

The Court has determined that the precautionary approach should not be applied wherever there is scientific uncertainty or lack of information, but in circumstances where there is a plausible basis for adopting that approach (***Transpower New Zealand Limited v Rodney District Council A85/94***). There needs to be evidence to establish that the precautionary approach is appropriate, including whether the effects of not taking a cautious approach are significant

(see also ***McIntyre v Christchurch City Council [1996] NZRMA 289***; ***Golden Bay Farmers & Ors v Tasman District Council***).

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Related guidance notes

The following guidance notes are related:

- Policy Framework

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Work in progress

Guidance Note on Energy Efficiency and Subdivision

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Relevant publications

Guidance for Local government

Planning for Climate Change Effects on Coastal Margins
Author: RG Bell, TM Hume & DM Hicks of NIWA [Ministry for the Environment]
Date: 2001/09
This report addresses the potential impacts of climate change on coastal margins. The report aims to assist resource managers and planners to understand the impacts of sea level rise, and to provide guidance on the development of mitigation strategies for coastal communities. This part examines the scope of the global warming problem for coasts, coastal drivers and climate change projections for coastal drivers.

Coastal hazards and climate change: A guidance manual for local government in New Zealand
Author: Rob Bell, Terry Hume, Darren King and David Ray (NIWA), Don Lyon, Steven Taylor, David Papps, Amelia Linzey and Neil Beattie (Beca Consultants), Derek Todd (Dtec Consultants), and Sally Marx (Tonkin and Taylor)
Date: 2004/05
This guidance manual is intended to help local authorities manage coastal hazards by providing information on the effects of climate change on coastal hazards, presenting a decision-making

framework to assess the associated risks, and providing gudiance on appropriate response options.

Preparing for climate change: A guide for local government in New Zealand
Date: 2004/07
This is a guide to help councils across New Zealand assess the likely effects of projected climate change during the 21st century and plan appropriate responses where necessary.

Impacts of climate change on New Zealand

Climate change impacts on New Zealand
Date: 2001/06
This report examines the possible impacts of climate change in New Zealand. The report updates the last government-led assessment of climate change impacts carried out in 1990 and concentrates on areas where new knowledge has been gained over the last decade. This report gives projected New Zealand climate changes and discusses its effects on coastal processes, native ecosystems, health, the urban environment and climate change impacts on Maori.

Climate change: Impacts on New Zealand (PDF 314KB)
Date: 2001/06
An information sheet on the impacts of climate change on New Zealand.

How might climate change affect my region?
Date: 2001/06
Information sheets about the predicted impacts of climate change on a region-by-region basis.

Linkages Between Climate Change and Biodiversity in New Zealand (PDF 289 KB)
Author: Landcare Research [Ministry for the Environment]
Date: 2001/09
Advice to Government on linkages between biodiversity and climate change.

Climate Change: Likely Impacts on New Zealand Agriculture (PDF 490 KB)
Author: Gavin Kenny - Earthwise Consulting Ltd [Ministry for the Environment]
Date: 2001/09
This report discusses the possible effects climate change may have on New Zealand agriculture due to changes in climate variability and climate extremes. The information in this report is largely

based on case studies investigating pasture production and subtropical grass distribution, arable crops, kiwifruit and apples. The report identifies that climate variability has a very strong influence on seasonal variations in production, and planning for future climate change is imperative to ensure benefits are realised and costs minimised.

Climate change policy and forestry
Date: 2001/11
A series of reports on the effects of New Zealand's climate change policies on the forestry sector.

Planning for Sustainability: New Zealand Under the RMA
Author: Ericksen, Berke, Crawford, Dixon [University of Waikato]
Date: 2004/06
The findings of the five year research into the quality of New Zealand's first generation plans under the RMA.

Climate change impacts is a useful starting point for information on climate change effects and a number other overview reports and technical papers can also be found the NZCCO's website.

Other references

Climate Change 2001: Impacts, Adaptation and Vulnerability
Date: 2001/06
An international overview is provided by this contribution of Working Group II to the Third Assessment Report of the Intergovernmental Panel on Climate Change.

The International Global Change Institute at the University of Waikato is at the forefront of climate change research and modelling internationally.

Other countries are also initiating research and programmes in adapting to the effects of climate change – for example, refer to work being undertaken by the Planning Institute of Australia, The Australian Greenhouse Office, the UK, USA, and Canada.

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Current challenges in practice

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Public understanding

There is still a considerable lack of understanding about the effects of climate change among the community at large. In addressing the effects of climate change, local authorities may encounter doubt and cynicism, particularly if policies impose development controls on valuable land or other resources under threat from natural hazards exacerbated by the effects of climate change. As part of the development of climate change-related policies, it will be a challenge for local authorities to overcome community doubts by raising awareness of the effects of climate change and clearly communicating what these are in a local context. One key message may be that incorporating climate change variability into the assessment of risks from natural hazards is now a standard approach, and that climate change effects can be effectively managed via conventional mechanisms and tools.

Resistance to controls

Implementing any policies requiring restrictions on land use and development, particularly in dealing with the rapidly increasing value of coastal properties, will likely encounter resistance and challenges to further controls. This may slow down the process of reviewing policies and controls through RMA plans.

Achieving coordinated responses

Consistent and effective planning for, and responses to, the effects of climate change are best achieved through close coordination between the different agencies involved (eg. regional and territorial local authorities, Ministry for the Environment (which includes the NZ Climate Change Office), Ministry of Civil Defence and Emergency Management, and the Department of Conservation). Such coordination is recommended both at the policy level (for example, ensuring consistency between district plans, coastal and other regional plans) and in terms of clarifying responsibilities and undertaking relevant programmes and operations. While Triennial Agreements required under the Local Government Act 2002 may promote formal arrangements, it may still be a challenge to achieve a consistent and coordinated approach to climate change at the local or regional level over the long-term.

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