Impacts of Climate Change on Urban Infrastructure & the Built Environment

A Toolbox

Tool 1.4: Urban Environments and Climate Change – Statutory Context

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1. Introduction

This report is a Type 1 Guidance Tool (see Toolbox Overview), providing basic background information on the key legislative framework within which climate change effects are managed in urban environments.

At the present time, it is particularly important that community leaders and their advisors remain well-informed and up-to-date with legislative and statutory requirements, and best practice methods of managing urban environments in the face of climate change. This is because of the present phase of relatively rapid change, where effects that may be associated with climate change are beginning to be observed (for example, frequent and widespread occurrence of higher temperatures than in past records) and social, political and technological responses are emerging.

Urban environments are areas of physically concentrated investment in buildings and infrastructure systems. Many of these can be expected to be in place (with or without modification) for a century or longer. Decisions on where and when new urban environments are created will generally last even longer.

The process of urbanisation of an area brings with it significant investment, resulting in very high levels of fragmentation of land, increases in land values and investment in buildings and infrastructure that become a community asset. As a result, urbanisation is largely irreversible and decisions to take land out of urban use (for example to condemn dwellings and other buildings due to natural hazard occurrence or risk) are usually associated with high cost, either to the community or the property owner, or to both.

This tool provides an introduction to the main legislation for managing the urban environment, within which decisions are to be made, with a particular focus on those that are needed to respond to climate change. It also outlines ways to keep updated with changes in knowledge and understanding, and best practice.

Just as urban environments are generally slow to respond to change, largely because of patterns of investment, legislative frameworks tend to be inherently conservative. Local policy development which can take place within some legislation is able to be more responsive. However, the uncertainties surrounding climate change provide challenges to both policy development and decisions on physical investments, including those on community infrastructure.

The remaining sections of this report set out commentary on the key legislation relating to decisions on urban environments under the following headings:

- purpose and function;
- key considerations in relation to climate change;
- further information; and

- updating knowledge.

The material that follows should be read in conjunction with "Climate Change Effects and Impacts Assessment, A Guidance Manual for Local Government in New Zealand – 2nd Edition" (Mullan et al., 2008), which remains the most comprehensive material in relation to local government functions and responsibilities relating to climate change.

2. The Resource Management Act 1991 (RMA)

2.1 Purpose and Function

The RMA is complex legislation which devolves much power and allocates many responsibilities from central government to local government. This reflects the concept that decisions which affect local communities should be made by those communities.

Through this Act, local government is given responsibilities to manage the natural and physical resources within their territory (city or district) or region. The focus of all actions under this legislation is the promotion of sustainable management of the resources "in a way and at a rate" that promotes social, economic and cultural wellbeing, health and safety and takes into account the needs of future generations (section 5, RMA). Since 2004 the principles have included a requirement that decision makers under this Act must have particular regard to the effects of climate change (section 7, RMA).

The RMA has a strong focus on avoiding, remedying and mitigating actual and potential adverse effects on the environment. The environment includes people and communities (recognised as part of ecosystems), natural and physical resources, and attendant social and economic conditions (section 2, RMA). Effects are defined (section 3, RMA) to include:

- temporary or permanent effects;
- past, present and future effects;
- cumulative effects over time or in combination with other effects;
- potential effects of high probability; and
- potential effects of low probability that have high potential impact.

These provisions enable management of climate change effects in urban environments using a risk-based approach.

Management of natural and physical resources under the RMA is undertaken through a hierarchy of planning instruments:

- National Policy Statements;
- National Environmental Standards;
- Regional Policy Statements;
- Regional Plans; and
- District Plans.

The contents of these planning instruments must all serve the sustainable management purpose of the Act, and all have statutory force (with national environmental standards and rules in plans being the equivalent of a statutory regulation, once in place).

The top three levels in the hierarchy must be 'given effect to' in the plans developed at the lower two levels. In terms of climate change and urban environments, land use planning and resource allocation at the level of regional policy statements will be paramount. Amendments to the RMA in 2009 have improved the abilities for councils to prepare joint and combined plans, encouraging more integrated management of all environments, including the urban environment.

Where activities are proposed that are outside the provisions of a plan, applications (including plan changes which may seek to extend urban development into new areas), are subject to the same range of sustainable management and effects-based considerations.

2.2 Key Considerations in Relation to Climate Change

The key considerations are those noted above, including avoiding, remedying and mitigating effects, and the comprehensiveness of effects-based management which includes a long-term view, taking into account compounding effects and effects that will change over time. In many ways, the RMA can be regarded as the primary legislation in managing development in relation to hazards and their effects on people and communities in urban environments.

While National Policy Statements (other than the New Zealand Coastal Policy Statement) and National Environmental Standards were not developed in the first 15 years of the RMA's existence, central government has subsequently begun to develop such tools as an aid in achieving national consistency of approach, and in setting environmental baselines. Both have the potential to assist local government in determining appropriate approaches to climate change and appropriate precautionary approaches to sea-level rise, but have not yet been taken up.

The 2010 New Zealand Coastal Policy Statement (a National Policy Statement) introduces and applies the precautionary principal in relation to climate change in the

coastal environment, and sets out specific considerations for RMA decision-making (Policy 3). Policies relating to the assessment of coastal hazard risks require a risk assessment over "at least the next 100 years" and impose a planning and management framework that avoids increasing the risk of social, environmental and economic harm from coastal hazards (Policies 24 to 27).

There is, in any case, a strong thread through the RMA that relates to the management of natural hazards. The avoidance or mitigation of natural hazards is a stated responsibility of both regional and territorial councils (sections 30 and 31, RMA), and the Regional Policy Statement is required to state which local authorities are responsible for the control of land use in relation to any single, or group of, natural hazards in an area (section 62, RMA). As climate change effects are closely interlinked with anticipated increasing exposure to a range of natural hazards, this is a key consideration in terms of overall effects management.

Subdivision and land development is controlled through the RMA. There is a "backstop" provision (section 106, RMA) which provides that, regardless of the zoning of land, a subdivision consent can be refused if the land is prone to natural hazards. This is an important provision, although it is expected that regional and district plans would incorporate adequate limitations to prevent the subdivision and development of at-risk land, or ensure mitigation methods for any development that does take place. Subdivision is a precursor to more intensive use and development of land, so limiting subdivision can be an effective way of limiting exposure to risks associated with climate change in urban environments.

2.3 Further Information

There is a very wide literature around the RMA, and the techniques and methods that can be applied under that legislation.

Case law, and case law analyses, assist in understanding how parts of the RMA are to be interpreted.

The Ministry for the Environment (MfE) is the central government agency responsible for the RMA, and maintains a substantial on-line resource relating to the RMA, climate change and a range of best practice approaches to planning – for example the Quality Planning Website, www.qualityplanning.org.nz.

The Ministry's main website includes current climate change guidance, along with ideas for adaptation, including urban design and building responses.

Professional journals, such as the New Zealand Planning Institute's *Planning Quarterly*, and the Resource Management Law Association's *Resource Management Journal*, from time to time feature articles on climate change.

2.4 Updating Knowledge

Regular checking of source internet sites, such as those mentioned in section 2.3 of this guidance tool, will help identify new information, published articles, and any changes in case law and interpretation of legislation.

There are also highly effective networks within local government itself. A search of the Local Government New Zealand (LGNZ) website (www.lgnz.co.nz) yields considerable information (for example, there is a Local Government Leaders Position Statement on climate change which was endorsed by the LGNZ National Council in late 2009). In addition, searching specific local government organisational sites (regional, city and district councils) will help identify active and leading organisations and their practices (often under headings of "sustainability", or "climate change" or "community resilience").

Changes in legislation, as well as draft national policy statements or national environmental standards (under the RMA) or new national standards (from the New Zealand Standards Association), which all may influence policy and practice, are usually widely distributed and discussed in local government journals, as well as in the wider media.

Leading law firms who are active in RMA law provide regular electronic newsletters covering items that may be of interest to their clients, including local government.

3. The Local Government Act 2002 (LGA)

3.1 Purpose and Function

The LGA focuses on the function and operational aspects of local government, including financial management and provision and management of community infrastructure. The Act's purpose is, however, one of democratic and effective local government and long-term promotion of community well-being through sustainable development (section 3, LGA). As well as providing for present communities, the reasonably foreseeable needs of future generations are also to be taken into account in all local government activity (section 14, LGA). Core services in performing all roles (section 11A, LGA) are:

- network infrastructure;
- public transport;
- solid waste management;
- the avoidance or mitigation of natural hazards; and
- community infrastructure (resources, recreational facilities, etc.).

There is a thus a firm requirement to develop, understand, communicate and manage risks associated with climate change, throughout local government activity.

The key instrument for developing approaches and communicating messages is the 10 year long-term plan (LTP) (section 93, LGA). The main tool for addressing risk management for key community assets is an Asset or Activity Management Plan. Both the LTP and the Activity Management Plans can now be expected to include (and continue to review) climate change risks on an ongoing basis, using up-to-date information on the extent and likely effects of potential change.

Local government powers for making bylaws can also address a range of issues related to climate change adaptation (sections 145, 146, 149 LGA). While these powers are somewhat limited, as they must be based on a public health and safety rationale, they can relate to waste and waste water management, water supply and land drainage (territorial authorities), and flood protection and control and water supply (regional councils).

Bylaw requirements cannot, however, be more restrictive than Building Act or Building Code requirements.

3.2 Key Considerations in Relation to Climate Change

Through the LTP, a council must establish a vision or set of principles which relate to its responsibilities in respect of community wellbeing. These express the community outcomes developed by the council following a consultation processes. Thus the extent to which a community is concerned about climate change may influence a council's recognition of and responsiveness to these issues. Despite this, a council's responsibilities regarding its community's wellbeing remain under other legislation, regardless of consultation.

The other area of interest and significant involvement is through asset management planning, where prudent management involves consideration of potential climate change effects.

Local government's waste management and other responsibilities, such as activities as a land owner or manager of a community-owned business, also bring it within the scope of the Climate Change Response Act 2002 and the Emissions Trading Scheme (ETS). This is not related to adaptation, but does mean that local government has a further reason to maintain an awareness of climate change issues.

3.3 Further Information

How local government activities are managed and delivered are subject to annual public reporting by each council. Such reporting rarely specifically reports on aspects such as climate change responses, as it is diffusely spread amongst council activities.

LGNZ maintains a general on-line information base relating to council policies and activities about climate change.

Asset or activity management documentation is publicly available on request from all councils.

Some councils have officers whose job descriptions give them specific responsibilities relating to climate change. Such roles enable councils to take an integrated approach to climate change across all functions and responsibilities. Thus, the officer's role will include a responsibility for keeping up-to-date with international information about climate change risks and to advise on appropriate responses throughout council business. Some councils also have elected representatives with specific climate change portfolios. Such people are useful sources of further information.

3.4 Updating Knowledge

Responses to LGA responsibilities are in a continual state of change due to the widespread interest in best practice in relation to climate change adaptation and local government's involvement in the ETS.

The LGNZ website and local government magazines provide items and articles on new initiatives and best practice in governance, policy and practical aspects of asset management. Professional journals for IPENZ, and publications and newsletters associated with the Society of Local Government Managers (SOLGM), are also useful ways of remaining in touch with current and pending developments in such areas.

4. The Building Act 2004

4.1 Purpose and Function

The Building Act includes sustainability in its core purpose – that buildings are designed, constructed and able to be used in ways that promote sustainable development (section 3). Amongst the principles to be applied by those responsible for administering this Act are considerations of suitability for purpose, efficiency and durability (section 4).

Building consents generally cannot be issued unless the activity and building are either permitted under the RMA or have obtained a resource consent.

The Building Act is administered by the Department of Building and Housing, which has an ongoing responsibility for advice to the Minister on all aspects of the legislation.

The Building Code has the force of statutory regulations. Building Code provisions are changed by Order in Council on the recommendation of the Minister. The Code is

required to take account of all physical conditions that may affect a building, including temperature, water, snow, wind, differential movement, time-dependent effects and reversing and fluctuating effects. The Building Code also applies to site works, which must take into account changes in groundwater level, water, weather and vegetation, and ground loss and slumping.

Under the Building Code, structural elements of buildings and elements that are difficult to replace must be designed for a life not less than 50 years. However, the requirement is for protection of life, rather than maintaining the complete integrity of the building in a hazard event. It is also not intended to protect people of building fabric against extreme events, as the Code generally relates to moderate events (e.g. in terms of water flooding habitable building areas).

The legislation is complex, both in its interpretation and in its application. Local government has significant roles in applying the legislation.

4.2 Key Considerations in Relation to Climate Change

The sustainable development purpose and the requirements relating to safety and durability, along with the 50-year minimum life span of a building, mean that those administering the Building Act and Code must be alert to trends and potential local changes associated with climate change scenarios. Project information memoranda can be sought at any time from the local authority, and should contain all available information about risks affecting any property.

Many elements of the Building Code, including B1 (structure), E1 (surface water), E2 (external moisture) and H1 (energy efficiency) require an understanding of local and site-related circumstances. The Code provides for standard means of compliance (acceptable solutions) but also for alternative solutions. When considering building consent applications and elements that relate to local circumstances (such as surface water, and rainfall intensity and duration), local authorities need to keep abreast of the potential for changes over at least the 50-year minimum life of new buildings in an area.

The Building Act includes some provisions relating to natural hazards. In particular, a building consent must not be issued if the land is subject to natural hazards or if the building work would affect exposure to natural hazards on this or other land or property (section 71). Natural hazards of erosion, falling debris (including snow, ice, rock and soil), subsidence, inundation and slippage are covered, all of which may be related to climate change. However, there are limitations to the statutory powers and building consents must, in some circumstances, be granted (sections 71 and 72). In such cases, the land title may be subject to specific notice of the existence of a hazard (sections 73 and 74).

Section 131 of the Building Act requires territorial local authorities to have policies on dangerous and insanitary buildings. This sets out circumstances in which a council can require improvements to be made or a building to be demolished. It can also set out circumstances in which a council itself can take steps to avoid immediate danger. Such provisions are most usually associated with earthquake risk or health conditions in New Zealand, but they may increasingly be used in relation to flood and coastal erosion risks in areas where those risks are considered likely to increase, and areas particularly subject to other hazards.

4.3 Further Information

The Department of Building and Housing is the main source of information on the Building Act. It has a particularly well-developed website – www.dbh.govt.nz/blc-building-act – with links to a wide range of related materials and publications to assist in interpreting the legislation, codes and standards.

Determinations are made by the Chief Executive Officer of the Department of Building and Housing following an application by any person who is dissatisfied with a decision of a territorial local authority. These are equivalent to case law under the RMA. There have been a number relating to the natural hazards provisions of the Building Act.

As with the two acts discussed above in Sections 2 and 3, local authorities have strong and effective networks to share information about practice and administration of the Building Act. LGNZ covers good practice in terms of building legislation administration, and its website provides useful references.

4.4 Updating Knowledge

Building design, materials and consenting are in a constant state of change. The Department of Building and Housing provides two sources of updates – a newsletter publication *Codewords*, and an emailed news update *Building Controls Update*. The Department's website also has a news tab which covers a broad range of relevant information, including practice and determinations.

The Building Act is subject to a review at present (2011) which may bring in some changes, including increasing the anticipated building life. Progress on the review has been interrupted by the Christchurch earthquakes, in particular. As with the RMA review, information is made widely available. Climate change matters were raised in early consultation processes on the review.

BRANZ is a major source of information in terms of methods and technology in building design and use of materials, as well as in broader issues of sustainability in buildings. They have an informative website www.branz.co.nz/cms_display.php. The

magazine *Build* is produced by BRANZ and has features on sustainability in buildings, and references to future requirements relating to climate change.

5. Civil Defence and Emergency Management Act 2002 (CDEM Act)

5.1 Purpose and Function

The CDEM Act is focused on achieving resilient communities which can cope when emergency circumstances occur. It establishes responsibilities at national, regional and city/district (community) levels in relation to the sustainable management of hazards.

This legislation is intended to improve and promote the sustainable management of hazards in a way that contributes to social, economic, cultural and environmental well-being and safety of the public, and also the protection of property (section 3).

It has a broad mandate and purpose in encouraging and enabling communities (under section 3) to achieve acceptable levels of risk through:

- identifying, assessing and managing risks;
- consulting and communicating about risks;
- identifying and implementing cost-effective risk-reduction; and
- monitoring and reviewing processes.

A hazard is defined as something that will cause or contribute substantially to an emergency and includes natural hazards (section 4). The CDEM Act applies a precautionary approach (section 7) when developing civil defence emergency management plans.

This Act can thus be seen as having a complementary role to the three Acts set out earlier in this guidance tool. While it focuses on emergencies and appropriate responses, it also has strong community engagement and risk management thrusts. Local government's responsibilities under the CDEM Act provide for a level of engagement with the community and a role in information collection and interpretation relating to hazards and risks. This role assists in developing an integrated approach to natural hazards across all four areas of legislation outlined in this tool.

5.2 Key Considerations in Relation to Climate Change

With its scope including emergency response to hazards of all types, the CDEM Act is particularly well-placed to identify the implications of combinations of hazards (such as storage of quantities of hazardous materials in areas prone to flash flooding, or development in areas of fire risk). The extent to which these risks may increase over

time due to climate change-related effects comes under the identification, management and monitoring of risks.

The CDEM Act is particularly relevant in relation to existing urban environments, where risk exposure may be expected to increase due to the effects of climate change. It provides essential underpinning to the ongoing use of such urban environments.

5.3 Further Information

As with the other Acts covered in this tool, councils' responsibilities, in association with the national role of the Ministry of Civil Defence and Emergency Management, mean that there are very active professional, technical and administrative communities involved in the implementation of the CDEM Act.

The Ministry of Civil Defence and Emergency Management's web site – www.civildefence.govt.nz – provides a wide range of resources and information, and links to all local authority civil defence web pages. There is a specific tab for those with a professional interest in such matters (for the CDEM sector). Through the Lifelines Projects, this site also links to the MfE resources, including those relating to asset management and climate change.

5.4 Updating Knowledge

The Ministry of Civil Defence and Emergency Management provides a monthly e-bulletin. This is the most readily accessible information resource. It provides current practice information and advises on any anticipated changes and consultation processes which may lead to changes in legislation, and national strategies or requirements.

Reviewing local government websites and associated links also enables identification of variations in approach and the range of current acceptable and best practices.

6. Conclusions

The four key statutes relating to climate change, risk management and local government roles are relevant to the sustainable use and development of urban environments. As described in [Tool 1.1], urban environments are key contributors to the overall wellbeing of people and communities. Sound long-term physical planning of such areas along with provisions that encourage community resilience are a particular responsibility of governments – at national level, but particularly at regional and district/city levels.

Table 6.1 summarises the hierarchy of statutory responsibilities and their respective roles in the urban environment. Together, these statutes provide opportunities and

requirements for ongoing integrated management of climate change effects in urban environments.

Table 6.1: Heirarchy of statutes and their role in the urban environment

Statute	Role of Statute in the Urban Environment
Resource Management Act	Provides for national and regional guidance and requirements through policy and standards; Provides for hazard and land use planning on a long-term basis by regional and local government; Requirement to avoid, remedy and mitigate adverse effects embedded across all decision-making responsibilities; 'First line of defence' in relation to limiting and managing future adverse effects of climate change.
Local Government Act	Identifying community expectations for risk and natural hazard management; Provision, management and maintenance of community assets, including infrastructure services.
Building Act	Application of building functionality / quality requirements at local level; Limited ability to restrict building development in relation to natural hazards.
Civil Defence and Emergency Management Act	Addresses community resilience where the RMA and Building Act have not managed to avoid all risks; Essential information collection, underpinning Acts above.

7. References

Mullan, B.; Wratt, D.; Dean, S.; Hollis, M. (2008). Climate change effects and impacts assessment: a guidance manual for Local Government in New Zealand. MFE07305. Wellington, NIWA. 156 p.

Available from http://www.mfe.govt.nz/publications/climate/climate-change-effect-impacts-assessments-may08/index.html