Pre-event recovery planning for land-use in New Zealand

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ABSTRACT

This report addresses the issue of recovery after a disaster, and presents a methodology for pre-event recovery planning for land-use in New Zealand.

The Ministry of Civil Defence and Emergency Management currently define 'recovery' as "The co-ordinated efforts and processes to effect the immediate, medium, and long-term holistic regeneration of a community following a disaster".

Even though recovery is something that happens after a disaster, it is important to consider community recovery issues *before* an event occurs. By considering issues and solutions before an event occurs, the process of recovery can be greatly improved, resulting in coordinated, efficient and targeted reinstatement of affected areas.

This report particularly focuses on how land, or a particular land-use, may be affected by a hazard event, and provides a methodology for how it may be 'recovered' or used afterwards. The pre-event land-use recovery methodology is based on the process followed for the Australia/New Zealand Risk Management Standard (4360:2004), and focuses on using existing legislative frameworks and processes already available in New Zealand.

The methodology is aimed primarily at local authority land-use planners who deal with land-use issues on a daily basis. However, the methodology will also be useful for a range of people in professions who may be involved with recovery, including civil defence emergency management (e.g. recovery managers); resource, insurance and risk managers; land owners; and developers.

The methodology is presented in the form of a flow chart allowing users to follow a comprehensive set of steps in completing the process of planning for land-use recovery. These steps include:-

- Establishing the context for land-use recovery and identifying risks
- Identifying gaps
- Analysing risks and developing options for land-use recovery
- Evaluating risks and prioritising options for land-use recovery
- Treating risks (implementation).

Once the risks have been evaluated and treatment options have been prioritised, there needs to be some method available to deliver the options so risk treatment can occur. There are a number of existing frameworks and processes available in New Zealand that could be adapted to accommodate pre-event recovery planning, making it part of everyday routine. These include Regional and District Plans, Civil Defence Emergency Management Group Plans, Long Term Community Council Plans, Asset Management Plans, structure plans, growth strategies and other non-regulatory documents e.g. business continuity plans and risk management plans. This report suggests various planning measures that would assist with pre-event land-use recovery planning, and the frameworks that could incorporate these measures.

KEYWORDS

Land-use, planning, recovery, hazard, disaster, pre-event recovery planning, New Zealand

1.0 INTRODUCTION

Communities can be severely disrupted by disasters physically, socially and economically. Recovering from the impacts of a disaster is a complex process and involves communication and co-ordination with many different parties in order to achieve the holistic regeneration of a community.

The need to consider recovery issues *before* a disaster occurs is advocated widely in both international and New Zealand-based literature. By working through issues and solutions before an event occurs, the process of recovery can be greatly improved, resulting in better coordination, efficiency and appropriately targeted reinstatement of affected areas.

Although there are many facets to recovery, this report focuses on how land or a land-use may be affected by a hazard event, and how it may be 'recovered' or used after an event.

To date, there has been limited focus on recovery of land-use from hazard events. This report discusses the idea of 'pre-event recovery planning for land-use' (hereafter referred to as 'land-use recovery'). The report first defines recovery in the New Zealand context. It then provides a proposed methodology for land-use recovery using existing tools and processes available within local authorities to achieve effective outcomes.

Undertaking land-use recovery and indeed, managing the recovery process, is ideally suited to those who best understand their community. Bearing in mind that this report is focussed on land-use issues, and recognising that every community is different (i.e. differing social needs, resources, requirements and expectations), the methodology is aimed primarily at local authority land-use planners. However, it is likely to also be useful for a range of professions, in particular, civil defence emergency management (including recovery managers); resource, insurance and risk managers; land owners and developers.

2.0 WHAT IS RECOVERY?

Prior to the 1970s limited thought was given to the actual concept of recovery following a hazard event. Most studies were involved with specific case studies of events and how recovery had occurred after these events (Schwab et al., 1998). Haas et al., (1977) made the first advances in defining the concept of recovery by linking a number of earthquake case studies together to show commonalities with respect to the recovery period. In doing so, they identified four major phases of recovery:

1. The emergency period (the initial hours or days following the disaster);
2. The restoration period (the time following the emergency period until services, transportation and evacuees returned and rubble was removed);
3. The replacement reconstruction period (involving initial construction with aims of returning buildings and social and economic activities to previous levels); and
4. The commemorative, betterment and developmental reconstruction period (involving major reconstruction and future development).

Since the introduction of these initial definitions, there has been considerable discussion about the dynamics of recovery models including debate about the exact terminology used to define the different phases of the recovery. Schwab et al. (1998) have simplified the four phases above by breaking the process of recovery into two distinct phases - short term and long term:

1. Short term recovery - that which focuses on the process of restoring services following a disaster but does not include reconstruction of the built environment, although reconstruction may commence during this period.
2. Long-term recovery – that concerned with returning the community, to the extent possible, to the conditions that existed prior to the event, preferably while taking advantage of opportunities to mitigate against future disasters.

2.1 Recovery in the New Zealand context

The likelihood of experiencing an extreme hazard event of some sort in New Zealand (be it geologic, meteorologically, health or technologically related) is high. Communities have suffered repeatedly through history from a variety of hazard events, including storms and floods, earthquakes, landslides, volcanic events and tsunami. The most recent large-scale events experienced have been storms and flooding, including the North Island February 2004 flood event, Bay of Plenty 2004 flood event (July), Matata 2005 flood/landslide event and the labour weekend floods in Gisborne (October 2005). The February 2004 flood and storm event is estimated to have cost at least NZ $30 million alone (NZ Herald, 24 May 2005).

Community recovery from past events such as these have sometimes occurred somewhat haphazardly. In general, the focus has been on restoring normal functioning as quickly as possible, but often this has been at the expense of adopting a long term vision. After the 2004 Manawatu-Wanganui floods, some flood-affected buildings in towns like Fielding and Scotts Ferry were repaired and redecorated in under a year, without any long term thought over whether alternative solutions, such as relocation or changes to the existing structures to minimise the impact of flooding, were viable. Similarly, after the 1931 Hawkes Bay earthquake the focus was on getting structures built again as quickly as possible. As a result, while some improvements were made to the city (Annabell, 2006), Napier was largely rebuilt in the same location and with similar street patterns that had existed prior to the earthquake (McDonald, 2004).

Over the last few years the Ministry of Civil Defence and Emergency Management (MCDEM) have been involved in progressing the thinking around what recovery means to New Zealand, and how New Zealanders might plan for recovery. New Zealand's dynamic natural and social environments and experience gained from hazard events both here and overseas, (see below) have helped shaped MCDEM's thinking about hazard management. Subsequently MCDEM has developed a framework to describe comprehensive risk management for hazard management in New Zealand. This encompasses the 4Rs (risk reduction, readiness, response and recovery). The focus of this report is on recovery - the last of the 4R's - although significant links to the other three are acknowledged.

In the Civil Defence and Emergency Management Act 2002, recovery activities are defined as "activities carried out under this Act or any civil defence emergency management plan after an emergency occurs, including:

(a) the assessment of the needs of a community affected by the emergency; and
(b) the co-ordination of resources made available to the community; and
(c) actions relating to community rehabilitation and restoration; and
(d) new measures to reduce hazards and risks."

While 'recovery activities' were defined in 2002 as part of the CDEM Act, there was no clear definition of the meaning of recovery in a New Zealand context. Subsequently following extensive research and consultation on recovery issues, MCDEM produced "*Focus on Recovery: A Holistic Framework for Recovery in New Zealand"* (MCDEM, 2005a). It provides guidance to local government and CDEM groups, and defines 'recovery' as –

> "The co-ordinated efforts and processes to effect the immediate, medium, and long-term holistic regeneration of a community following a disaster" (MCDEM, 2005a).

The more comprehensive work, *"Recovery Management Director's Guidelines for CDEM Groups"* (MCDEM 2005b) also outlines the components of recovery and provides a practical basis for recovery planning.

The CDEM Act requires that CDEM Groups be formed (based on current regional council boundaries) and that these groups formulate CDEM Plans to address all of the 4R's. These plans (referred to as Group Plans) should be designed to manage the hazards and risks found in a region in a sustainable way, and integrate the agencies that have a role in emergency management.

As mentioned, pre-event recovery planning also has strong links to the first of the 4Rs - 'reduction'. Reduction focuses on reducing the risk to communities - much of which can happen during periods of quiescence. Hence, pre-event recovery planning is a key component of reduction. Although it is expected that CDEM Group Plans address reduction, to date few have gone into any depth over how this should happen (Saunders et al., submitted 2006). While acknowledging that CDEM planning should take reduction into account, there are also other vehicles that can incorporate aspects of reduction. The Resource Management Act 1991 for example requires that local authorities address the management of natural hazards through regional policy statements and district plans (ss30, 31, 62). These documents can provide key methods and policies for addressing hazard risk reduction and can aid significantly in the pre-event recovery planning process.

2.2 International examples of recovery

There are a number of international examples where pre-event planning has supported a community's recovery from a hazard event. In some cases the pre-planning has occurred before an event itself, and in others it has occurred immediately after the event, but before major reconstruction has begun. Examples include:-

- The Tangshan Earthquake, China. While there was no recovery plan in place before the event, a master plan was created immediately following the disaster to guide new development and rebuilding in the city. The rebuilt city was improved and made more resilient to future earthquake events (Mitchell, 2004).
- The Kobe Earthquake, Japan. After the Kobe Earthquake, Kobe city established a "revival" plan. This plan did not merely suggest returning the areas of devastation to their previous state, but set a goal of employing the lessons of earthquake disasters and

disaster prevention in order to create a safe, secure and more comfortable city (City of Kobe, 2005). In his analysis of the recovery at Kobe, Dr. Hauro Hayashi (2003) argued three major lessons from the Kobe earthquake: (1) A pre-event recovery plan is important; (2) This plan must be holistic; and (3) The planning process must be participatory.

- The Asheville Floods, USA. Asheville's pre-event planning for floods included the use of zoning ordinances and sensible planning practices with respect to floodplain management. This prevented a number of buildings from being damaged in floods in 2004 and allowed recovery from the flooding event to be more efficient.
- The Northridge Earthquake, Los Angeles, USA. The city of Los Angeles had prepared a recovery and reconstruction plan for a destructive earthquake, and this was complete at the time of the Northridge Earthquake. However post-event studies suggest that virtually no-one referred to the plan for guidance after the earthquake. Despite this, staff performed most actions that they were assigned to. This implies that the value of the plan lay in the pre-planning aspect, where contacts were made between organisations beforehand and tasks agreed upon (Spangle Associates and Robert Olson Associates 1997).
- The Alaskan Earthquake, March 27, 1964. The town of Valdez in Alaska experienced an earthquake of Magnitude 9.5, severely damaging infrastructure and destroying buildings. After the earthquake, the ground under Valdez was determined to be unstable and it was decided to move the location of Valdez to a new more stable town site - the delta of Mineral Creek. It took up to four years for the new Valdez to be re-established, and approximately 62 buildings were moved to the new town site. While no land-use recovery plan was in place before the earthquake, careful planning after the event ensured that the new town site was more sustainable and made the community more resilient to future events (Valdez Convention and Visitors Bureau, 2006).

The various case studies presented here perhaps emphasise the importance of pre-planning for recovery. By undertaking some prior planning, communities are better equipped to make sensible and sustainable decisions about future land-use. Pre-planning will also assist in the effective co-ordination of resources after an event, allowing effective and efficient recovery to occur.

2.3 Sustainability and holistic recovery

The principle of sustainability is widely referred to in natural hazards management literature (Natural Hazards Centre, 2001). According to Mileti (1999) sustainable communities are able to thrive from generation to generation because they have, among other things, incorporated disaster resilience and mitigation into their activities. This outlook is shared by the United Nations International Strategy for Disaster Reduction (2003) which argues that sustainable and integrated management of natural resources will increase the resilience of communities to disasters by reversing current trends of environmental degradation.

Ideally when planning for recovery, a community should attempt to incorporate the principles of sustainability in every decision about reconstruction and re-development (Natural Hazards Center, 2001; Monday, 2002). Undertaking pre-planning can assist in sustainable recovery because it allows sustainable concepts and ideas to be thought through before a hazard event occurs. Provisions can then be made to allow for implementation of those ideas to take place following an event.

In New Zealand, recovery from a hazard event is likely to be most effective when planning for recovery is integrated with the other parts of the comprehensive risk management framework (Norman, 2004). International examples support this premise and suggest that rather than focus on the immediate task of 'fixing the damage', recovery planning should recognise and incorporate wider concepts and methods that create a sustainable and resilient society (Natural Hazards Centre, 2001; Coghlan, 2004; Mitchell, 2004; Philips, 2004).

Figure 1 shows the integrated and holistic recovery system as promoted by MCDEM. The four key components of recovery are shown as the natural, social, built and economic environments. The recovery activity (the central oval in black) demonstrates the integration between the community and the four environments (MCDEM, 2005b). Land-use recovery has the potential to impact on all of these environments. Figure 2 identifies the range of elements within each of the four environments. A challenge for land-use recovery is to focus on those elements that are most important whilst recognising the role that all four environments play.

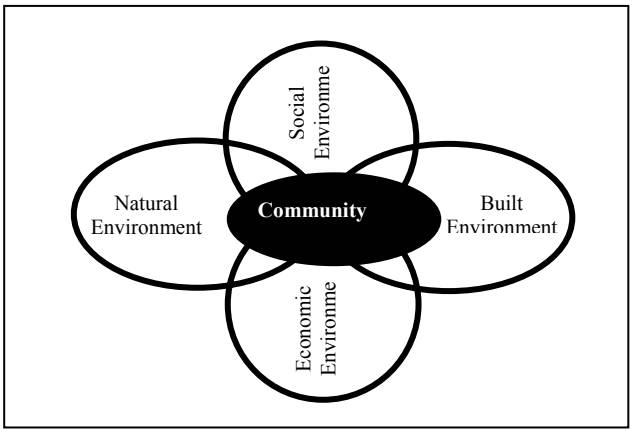

Figure 1 The integrated and holistic recovery system. (MCDEM 2005b, p.4)

Social Environment	**Economic Environment**	**Natural Environment**	**Built Environment**
Safety & Wellbeing	Individuals	Natural Resources	Residential Housing
Health	Businesses	Waste Pollution	Commercial/ Industrial Property
Welfare	Infrastructure	Amenity Values	Public Building & Assets
	Government	Biodiversity & Ecosystems	Rural Farmland
			Lifeline Utilities

Figure 2 Elements of an integrated recovery system - based on the Generic Recovery Structure (MCDEM, 2005b, p.8)

Many of the overall elements in Figure 2 are presently already addressed by local authorities through district plans, regional plans, Long Term Community Council Plans (LTCCP) and CDEM Plans (discussed later in the report). These frameworks should therefore be considered as a basis for incorporating concepts and activities that relate to recovery.

3.0 WHY PRE-PLAN FOR LAND-USE RECOVERY?

Why is planning for land-use recovery important? MCDEM (2005b) states:

> "Pre-event planning is essential to achieve effective co-ordination among agencies ensuring a smooth transition between response and recovery activities".

By working through issues and solutions before an event occurs the process of recovery can be greatly improved, resulting in quicker and appropriately targeted reinstatement of affected areas. Furthermore, pre-planning for land-use recovery means that:

- Recovery is proactive, rather than reactive which can lead to poor decision making
- Recovery can incorporate principles of sustainability
- Recovery can begin without the need to think about and/or plan for land-use changes
- Future hazard risks can be reduced during recovery
- Ideas and plans can be developed and discussed by communities and options analysed for different land-use options before an event
- Landowners are provided with options for reducing hazard impacts
- Consents can be gained in advance for spoil disposal sites, including those for contaminated materials i.e. road slip material, building debris, volcanic ash disposal
- Plans being developed pro-actively to reduce or avoid the level of impact of a hazard event.

In the absence of any specific pre-prepared strategy, a common-sense approach during recovery will help make a community more sustainable than it was before, as tasks such as housing repairs and road restoration can become opportunities for improvement (Natural Hazards Center, 2001).

4.0 METHODOLOGY FOR PRE-EVENT LAND-USE RECOVERY

A methodology for pre-event land-use recovery planning has been developed based on the Australian/New Zealand Risk Management Standard 4360:2004. The objective of the Standard is to:

"provide guidance to enable public, private or community enterprises, groups and individuals to achieve:

- a more confident and rigorous basis for decision-making and planning;
- better identification of opportunities and threats;
- gaining value from uncertainty and variability;
- pro-active rather than re-active management;
- more effective allocation and use of resources;
- improved incident management and reduction in loss and cost of risk, including commercial insurance premiums;
- improved stakeholder confidence and trust;
- improved compliance with relevant legislation; and
- better corporate governance."

The Standard has been used as the conceptual basis for this methodology as it provides a generic and flexible model that allows for the incorporation of risk management into all aspects of local authority governance structures in a logical and systematic manner. Further, given that there are many aspects to consider for pre-event recovery planning (as shown in Figures 1 and 2), the Standard lends itself to the level of analysis needed for land-use recovery planning.

A framework has been constructed to assist resource management planners in undertaking pre-event recovery land-use planning. This is presented in the form of a flow chart (Figure 3) allowing users to follow a comprehensive set of steps in completing the process.

The suggestions in the methodology shown in Figure 3 are prompts only, and are not an exhaustive list of information sources, options or considerations. They are presented to encourage the reader think about the land-use recovery process within their local context.

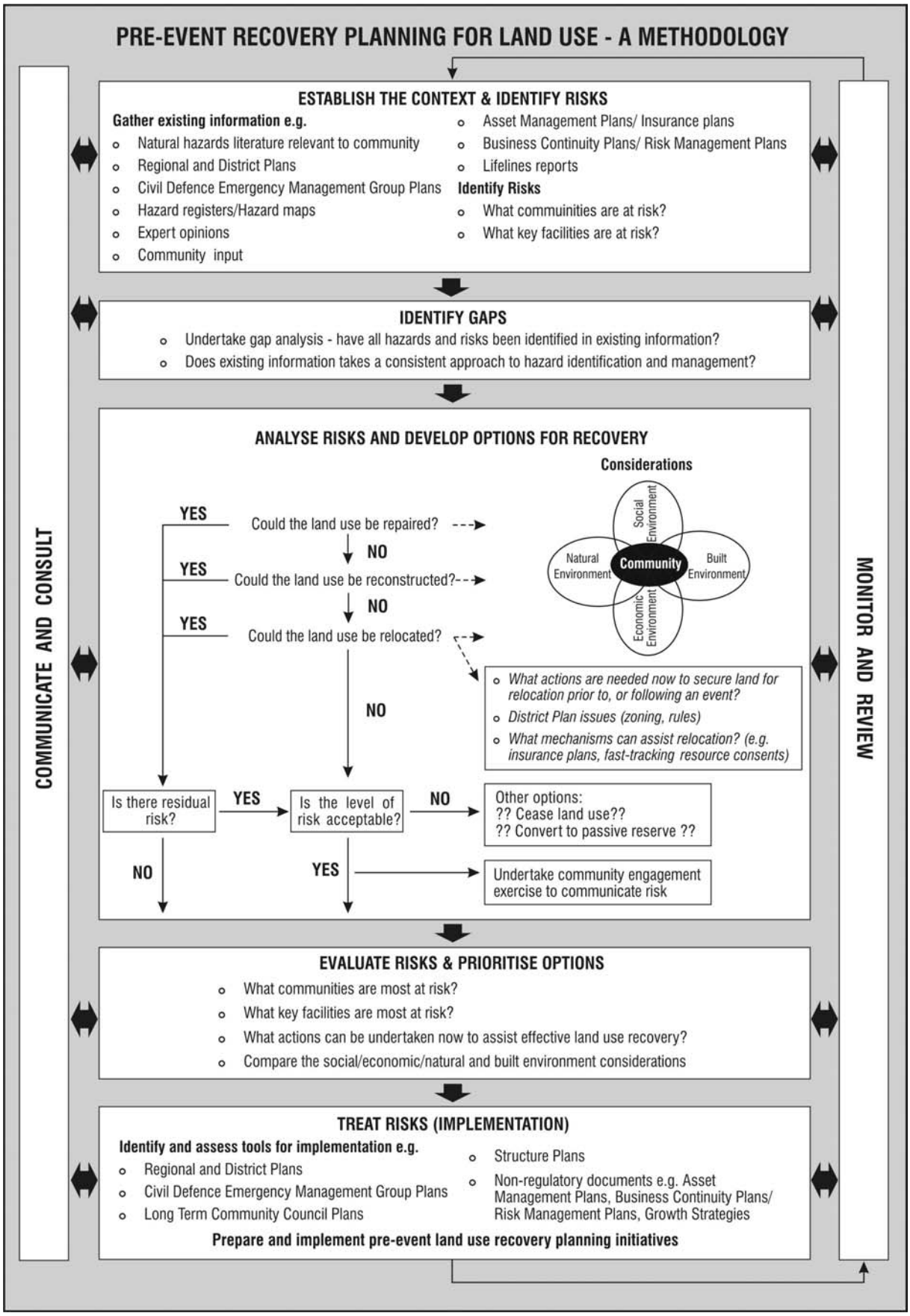

Figure 3 Pre-event recovery planning for land-use - Methodology flow chart

4.1 Establishing the context for land-use recovery and identifying risks

Understanding the context for recovery is an important part of pre-event land-use recovery planning because it requires that local dimensions be taken into account. This includes understanding the different hazards that may face a community, the nature of those hazards, the nature of the community, and the risk those hazards may pose. It also helps identify the stakeholders that may be affected by hazards or involved in the process of pre-event recovery planning.

Establishing the context may be achieved through a number of means including:

- Finding and interpreting existing hazard literature relevant to a community
- Finding relevant information in regional and district plans, community plans, civil defence emergency management plans, asset management plans, insurance plans, business continuity plans and risk management plans
- Finding relevant information from hazard registers or hazard maps
- Asking for expert opinions
- Asking for community input
- Using information from lifelines reports
- Identifying important stakeholder relationships (e.g. intra-council, inter-council, council-government, council-land owner and contractor relationships); analysing whether these relationships are sound; and ensuring that there is a will to implement plans after an event
- Other relevant literature or information.

With a better understanding of the context, gaps can be identified (and filled where possible) and real options for pre-event land-use recovery planning can start to be formulated.

Communities may be subject to a number of different hazards (for example flooding, earthquake, tsunami, pandemic, technological, etc) and to deal with this diversity, considering risk in an all-hazard context is best so the community can evaluate and weigh up the risks from all the hazards it faces. When working through the methodology, each hazard will need to be considered by itself in order to account for the unique characteristics of that particular hazard or event.

4.2 Identifying gaps

Once the context is established, it is necessary to identify any gaps in the information so that these can be filled where possible. When the gaps are filled, it will give a better understanding of the hazards and risks facing a community so that the next stage of pre-event land-use recovery planning process can occur.

4.3 Analysing risks and develop options for land-use recovery

For each consequence of a hazard that impacts on land-use (for example, potential flooding of a specific area of land with houses on) the options for future recovery need to be analysed. This may include asking questions such as:

- Could the land-use be repaired? (e.g. could or should a flooded house be repaired?)
- Could the land-use be reconstructed? (e.g. if the house is destroyed could or should it be

reconstructed on that site?)
- Could the land-use be relocated? (e.g. could you relocate a flood damaged house elsewhere?)

When considering each of these options it is also important to consider:
- The relationship of any decisions on the social, built, natural and economic environment.
- Whether there would be any residual risk and if so, is this residual risk acceptable. If it is not acceptable it may not be feasible to follow that line of action.
- A community engagement/ communication initiative may be necessary if residual risk exists, but is acceptable.
- The practical actions that can be undertaken now to help carry out the land-use recovery options after an event (e.g. district plan zoning, consent issues, etc).

4.4 Evaluating risks and prioritising options for land-use recovery

Evaluating risks and prioritising options for land-use recovery can be a complicated and often subjective (but necessary) process as it requires consideration of all four environments (refer Figures 1 and 2). Cost/benefit analysis is a traditional decision making tool but it focuses primarily on the economic aspects of decision making, often neglecting other important aspects of community well-being and therein the focus of sustainable land-use recovery.

The evaluation of risk, both at the contextual stage and at the analysis of options stage, is also important if options to address risk to communities or key facilities are to be considered for adoption. Further research on hazard management decision-making tools is currently in progress and this report will be updated accordingly.

4.5 Treating risks (Implementation)

Once risk treatment options have been prioritised there needs to be some method of delivering these. A comprehensive plan for holistic recovery is an ideal way to ensure that a community has a sustainable recovery from a future hazard event.

Specific land-use recovery plans could be considered an ideal method of delivering treatment options but they would require a great deal of extra work to create. It is also unlikely successful implementation would eventuate given there are no specific requirements for such plans within existing legislation. In addition, a new requirement within legislation to develop land-use recovery plans is doubtful and has little hope of success given that local authorities are already overburdened with meeting legislative requirements.

Notwithstanding these obstacles, there are a number of existing frameworks and processes available in New Zealand that could be adapted to accommodate pre-event recovery planning, making it part of everyday routine. These include:

- Regional Plans and District Plans - objectives, policies and methods (e.g. rules) which serve to include reduction measures, and take into account operational resource management considerations after an event and which provide direction to district councils with respect to hazard management (including structure plans).
- Civil Defence Emergency Management Group Plans - provide direction for recovery and reduction to CDEM group members, and link to district plans to show where and how reduction measures will be implemented.

- Long Term Community Council Plans - link land-use recovery planning to overall community direction and finance for long term planning.
- Asset Management Plans – link land-use recovery planning with asset management within districts e.g. flood mitigation works.
- Growth strategies.
- Other non-regulatory documents e.g. business continuity plans and risk management plans.

The following tables (Tables 1 and 2) outline some specific measures that can be used to help with land-use recovery after an event. Alongside each measure, the planning frameworks in which these can be incorporated are suggested. If consideration is given to these measures prior to an event, it will allow more efficient implementation after an event has occurred, leading to a more efficient recovery.

Table 1 General planning measures which can be of use for **immediate** land-use recovery purposes after an event (after Schwab et al., 1998)

Measures	**Framework for incorporation**
Damage assessments after an event (which can be integrated with Global Positioning Systems (GPS) and Geographical Information Systems (GIS)).	CDEM (damage assessments)
Identify new lessons discovered during response and initial recovery after the event.	CDEM (damage assessments), RES
Development moratorium, whereby development decisions are halted for a period of time after an event.	DP, RP
Temporary repair permits/consents.	DP, RP
Emergency consents (e.g. for removal of debris).	DP, CDEM Act, RP
Regulations which deal with demolition issues.	DP, BA
Zoning for temporary housing.	DP
Setting priorities for infrastructure repairs before an event.	ASSET, LTCCP
Identify sites for emergency operations.	CDEM, DP, BUS
Feasibility of emergency evacuation.	CDEM
Historic preservation (e.g. What to do with a historic building that has been damaged?).	DP, LTCCP

Key: DP – District Plan, RP - Regional Plan, RPS – Regional Policy Statement, CDEM – CDEM Group Plan, BA- Building Act, LTCCP – Long Term Council Community Plan, HAZ – Hazard Mitigation Plans, ASSET – Asset Management Plans, RES – general research, BUS – Business continuity plans, OTHER – Other non-statutory plans.

Table 2 **Longer term** planning measures which can be used as part of pre-event preparation (after Schwab et al., 1998)

Measures	Framework for incorporation
Acquisition of property in hazardous zones.	DP, LTCCP, growth strategies, Local Government Act
Use of easements.	DP
Infrastructure development policies, which restrict the development or replacement of infrastructure in hazardous areas.	ASSET, LTCCP, HAZ, RP, DP
Floodplain management plans (and flood insurance regulations).	HAZ, ASSET
Assessment of Environmental Effects (AEE's).	DP, RP
Stormwater management plans.	ASSET, HAZ, OTHER
Zoning tools (for example, zoning can be used to prevent new development in hazardous areas, minimise densities in hazardous areas, etc).	DP
Subdivision control and design. Requirements may be placed on an approved development only allowing particular design features, etc, in order to mitigate the risk to hazards.	DP
Design controls may also be placed on the landscape (e.g. retaining a coastal dune) in order to mitigate a hazard.	DP
Re-planning of areas which may be stricken by an event.	DP, RP
Examination of street patterns for access.	DP
Financial tools, such as allocating funds for recovery, ensuring relocation assistance is available, implementing taxation or fee-based systems to collect revenue for the upgrade of facilities or recovery purposes, etc.	LTCCP, ASSET,
Ensuring there is co-ordination between organisations and agencies that may be involved in emergency management.	CDEM
Training programmes for those involved with emergency management.	CDEM
Identification of hazards, and use of that information in planning.	RPS, RP, DP, CDEM, RES, OTHER
Use of GIS and GPS.	DP, HAZ, RP
Community participation and public education (for examples, see Finnis, 2004).	LTCCP, CDEM
Re-evaluation and update of plans.	All plans
Compliance of rebuilding with new regulations formulated from lessons learned (e.g. Account for any new regulations added to the Building Act, Building Standards, etc., after the event, or any completely new Acts/standards created).	When rebuilding, account for any new regulations, as part of the consent process.

Key: DP – District Plan, RP - Regional Plan, RPS – Regional Policy Statement, CDEM – CDEM Group Plan, BA-Building Act, LTCCP – Long Term Council Community Plan, HAZ – Hazard Mitigation Plans, ASSET – Asset Management Plans, RES – general research, BUS – Business continuity plans, OTHER – Other non-statutory plans

Planning documents should be linked in a way that ensures certain issues are not forgotten. For example, the CDEM Group planning process should not simply assume that reduction is covered by the district planning process. There should be communication and agreement between different departments over responsibility, and then the CDEM plan should outline what it means by reduction, whose responsibility it is, what document(s) address reduction, and what issues the document(s) cover. Likewise, the District Plan should outline and elaborate upon those aspects agreed upon (Saunders et al., submitted 2006).

4.6 Other steps

Throughout each of the steps, the information and purpose must be constantly monitored and reviewed for appropriateness and information on new developments, technologies, and threats. At every stage it is also important that the information is communicated to those within the communities and local authority staff. Any feedback from the information given should be considered and included in final recommendations.

5.0 CONCLUSIONS

The majority of towns and cities in New Zealand were established over 150 years ago for reasons primarily to do with convenience, and less to do with the consideration of hazards. Many towns were located and grew with little comprehensive planning, or planning was carried out from afar (for example, from the United Kingdom). There was no targeted pre-planning to avoid living in hazardous areas.

Over the years, as communities have grown, we have expanded even further into marginal areas - into places which original communities often avoided. We have also started to rely on engineering measures to mitigate the hazards that exist. However, instead of solely relying on hard mitigation measures as a solution, we should be looking to the future to plan proactively, and make a conscious effort to avoid hazardous areas where possible.

Pre-event land-use recovery planning is one aspect of this proactive planning. In areas where there is no existing development it provides a chance to take account of hazards, and plan accordingly to avoid them. Where development is already present, it provides us with an opportunity to consider the impacts of future hazard events, reduce any risk, and plan for an effective recovery. Successful examples already exist overseas where communities have chosen to pre-plan for events to reduce risk and to enhance recovery.

In New Zealand there are a number of existing frameworks and processes available that can be adapted to accommodate pre-event land-use recovery planning, making it part of everyday routine. These include Regional and District Plans, Civil Defence Emergency Management Group Plans, Long Term Community Council Plans, Asset Management Plans, structure plans, growth strategies and other non-regulatory documents e.g. business continuity plans and risk management plans.

Planners and emergency management staff can work together and begin planning proactively within these frameworks right now. Certain planning measures (as outlined in Section 4.5) can be effectively utilised to reduce the risk to communities and enhance our recovery to hazard events.

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