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SESSION ONE

A PHILOSOPHY FOR EMERGENCY MANAGEMENT FOR THE NEW MILLENNIUM

MAKING IT MATTER

*Keynote Paper Prepared by
Emergency Management and Civil Defence,
New Zealand*

1 INTRODUCTION

By the end of the twentieth century the fundamentals of conventional organised emergency management will be fifty years old. During that period, the practice of emergency management has changed from an essentially reactive and response-focused command-and-control approach, which grew out of the 1940s World War II and 1950s Korean War eras, to a more comprehensive and integrated approach instigated during the late 1970s. Both approaches reflected society at the time, and the differences between them reflect changes in social, economic and environmental demands over the intervening period.

In the 1990s, different demands are once again necessitating a re-evaluation of the role and direction of emergency management. For example, an area of political thinking now strongly influencing most countries is that of sustainable development. Another area is associated with a heightened public demand for increased safety. These sorts of changes will have a marked influence on emergency management in the decades to come. They not only require new approaches to old problems; they also add different tasks to existing ones. In doing so, they will challenge some long-standing emergency management conventions. In this respect, the new millennium provides us with an opportunity to re-evaluate the social, economic and environmental roles of emergency management and to position it to take full advantage of the new challenges that the twenty-first century will bring.

This paper sets out to undertake four tasks. First, the paper takes stock of some major current issues facing emergency management, both theoretical and practical. Second, a re-definition of the aim of emergency management is proposed that allows a closer fit with wider changes in society. Building upon this, the third task discusses the adoption of a risk management approach within emergency management and identifies key drivers that offer a means for emergency management practice to become an integrated part of a society's make-up. Lastly, the paper outlines the key roles that governments must play in affecting these changes, and suggests the need for central government to lead fundamental reforms in emergency management.

These views are presented as a series of linked questions and are answered as a set of propositions that will form the basis of discussion within Conference workshops and, hopefully, other fora as well. The aim is to both broaden and stimulate thinking about what emergency management should be about in the new millennium.

A point to keep in mind is that just as the social, economic and political institutions within and between countries differ, so too will the specifics of their practice in emergency management. However this fact need not detract from developing a common understanding about the purpose of emergency management, and hence also to establishing a common set of goals and philosophies to underpin practices. The focus of this paper is therefore on high-level commonalities, rather than detailed discussions of particular implementation practices and delivery systems. It is nevertheless intended

to be practical in its ideas, and to provide a basis for ongoing co-operation that is essential for managing national and international linkages that are fundamental to effective emergency management.

2 TAKING STOCK

In most countries, significant thinking and resources are applied each year to a wide range of activities that conventionally fall under the banner of emergency management. These activities range through hazard research, warning systems, environmental planning, response activities and recovery planning and reconstruction/rehabilitation assistance. Since the range of activities is so diverse, listing them is difficult, let alone listing the organisations that undertake them or the total dollars involved.

As a result, we currently have little understanding of the net benefits from the sum of all these activities or where actual costs and benefits may fall, either spatially or temporally. What we do know are general trends. For example in developed nations, such as ours, deaths directly caused by disasters are reducing, while economic losses, and disruptions within impacted communities, are exponentially increasing. We also know there are a range of factors that are markedly changing hazard types, risk levels, and the risk environment generally, that communities within each of our countries are now facing. Key factors can be grouped under two headings: changing hazardscapes, and less 'extraordinary' resources.

Changing hazardscapes

A number of physical and social factors indicate that the hazards faced by communities are changing:

- major shifts such as global climate change (and other changes to bio-physical processes) induced by increasing human demands on natural systems. Coupled with this is increasing scientific understanding of the range of 'normal' oscillations within such systems (that is the variance associated with cyclic or episodic events).
- new technological and biological hazards, and the possible interaction between them and natural hazards, producing 'synergistic' impacts.
- the increasing reliance of our communities on complex systems resulting in greater vulnerability to the loss or incapacitation of lifeline utility services (such as power, communication, sewage). These services are themselves becoming more interdependent, resulting in increased risk of multiple failures, not only in large cities, but also in rural areas.
- changing lifestyles, the increasing intensity of resource use, and settlement patterns, suggest that the likelihood of future hazard events is more certain, the periodicity shorter, and the consequences of those events more intense.

Less 'extraordinary' resources

The trend toward greater reliance on market forces for the pricing, distribution and servicing of resources can result in less than optimal resources being available to manage extraordinary events. Disaster-level events are not easily factored into market thinking. For example, competition may lead to a temporary over-extending of lifeline infrastructure that can precipitate an emergency event, or alternatively limit the capacity of a community to respond and recover quickly to an event.

The factors outlined above can occur in different combinations, and all are highly dynamic in nature. They indicate that we can expect qualitative and quantitative variations in hazard events. Existing management solutions, and solutions to known development problems may not be designed to deal with these factors, both in terms of the new hazards they generate or the changes brought to existing hazards.

3 WHAT SHOULD EMERGENCY MANAGEMENT BE ABOUT?

Changing hazards therefore pose new challenges to all countries as we enter the new millennium. To meet these challenges we need to understand where emergency management fits into a nation's overall governance framework, and what unique features emergency management offers to a nation's development. Hence, the first question we might ask ourselves is *'what part should emergency management play within society?'*

Historically the role of emergency management has been regarded as ensuring the safety and security of a nation's citizens, property and infrastructure from threats of large-scale disruptions, or 'social harms', to communities. These disruptions or harms are associated with non-war episodes and are often labelled mass emergencies or disasters, irrespective of their causative agent.

That they are commonly labelled 'disasters' offers a clue about the function of emergency management within society. Disasters are a special type of crisis situation characterised by community-wide scope of impact, long impact duration, relative lack of social preparedness, and community-wide (rather than individual or group) impact consequence.

These characteristics, are qualitatively and quantitatively different from routine accidents and emergencies. As such, disasters challenge a community's ability to cope because they can not be adequately handled through 'everyday' social routines. Social routines, on the other hand, arise from, are defined by, and explain situations that are common and predictable. Social routines also give rise to the way we shape our environment and utilise its resources.

Similarly, though within limits, the physical world is patterned, much of which is understood and, to a degree, predictable (seasonal weather forecasting is a case in point). As such, these aspects are used to shape our routines. By contrast, extreme

events that result in disaster are not routine, and because of their complexity are not as well understood or predictable.

We must also recognise that risks are inherent within almost all aspects of human endeavour. Any human activity exposes an individual to a potential loss or gain of something they value. However, for many social actions this risk is known and hence, to a greater or lesser degree, is dealt with matter-of-factly or at least tolerated. However the nature of risks associated with a range of potential hazard events are difficult for communities to come to grips with. The order of magnitudes and probabilities, the range of consequences and overall uncertainty surrounding the likelihood of such events are often difficult to perceive. When faced with such situations individuals, and communities, tend to underplay the risks involved.

These facets imply that not all interactions between the social make-up of a society (including its technology) and its physical environment can be managed within 'everyday' routines. Since there will always be extreme events and crisis situations that cannot be managed within routine frameworks, it is necessary for communities to develop specific means to adequately deal with the risks of non-routine occurrences. This is not to say that planning surrounding such means is not undertaken in a routine manner.

We must also be able to justify the steps we take in dealing with the risks of extreme events. These steps must bring about a net benefit to society, as attempts to reduce risk will invariably impose costs as well as benefits. It is therefore essential that emergency management not look solely to minimise losses (of life, property and well being), but rather to maximising the gains from doing so. As such the answer to the question - *what part should emergency management play within society?* is encapsulated in the proposition below.

PROPOSITION 1: Emergency management should aim to enable communities to maximise gains and minimise losses when dealing with potential large-scale unanticipated events that pose extreme risks to them

4 WHAT IS THE BEST WAY OF ACHIEVING THIS AIM?

Clearly emergency management needs to be undertaken within, and in support of, the wider social and economic fabric of communities. In other words we need to be able to justify that the benefits of emergency management activities outweigh their costs. Included in the benefits are intangibles such as the sense of security individuals have knowing that the potential impacts of 'extraordinary' events are being planned for.

This does however pose two major challenges. First, interest in these events is primarily about the probabilities and magnitudes of their consequences when not of an 'ordinary' scale (accepting also that there are inherent uncertainties and gaps in our

knowledge of them). Furthermore, we can not always avoid adverse impacts entirely, but instead must reduce them to acceptable levels. A logical conclusion is that a risk management approach is appropriate for emergency management. While aspects of risk management are not new (for instance risk assessment has been widely used as a hazard analysis tool), the application of risk management as an over-arching framework is in its infancy. Developing risk communication processes that lead to a greater understanding between hazard specialists and the public is likely to be a particular challenge.

Second, the risk management process must include an analysis of various options for dealing with the threats that have been identified. However, options will impose their own costs. Limiting the form and level of development (for example through land-use restrictions or the diverting of resources toward strengthening existing infrastructure) may improve the long-term sustainability of a community but impose significant short term costs. Communities need to be aware of costs such as these, as well as the anticipated benefits now and in the long term. The challenge therefore lies in developing reliable means of assessing the likely social and economic costs of both potential hazard events and the different means of treating them. Information of this type will enable more informed decisions to be made about what mix of emergency management activities may best contribute to a community's social and economic goals.

As such the best way of achieving the aim in Proposition One - *to enable communities to minimise losses and maximise gains when dealing with potential large-scale unanticipated events that pose extreme risks to them* - is, in part, answered by the second proposition below.

PROPOSITION 2: Emergency management should focus on social and economic goals of communities and, through a risk management approach, balance the costs and benefits of different strategies to achieve those goals. In this way communities can choose acceptable levels of risk surrounding 'extraordinary' events commensurate to their needs and circumstances.

5 THE DRIVERS FOR CHANGE - HOW TO MAKE IT WORK?

Proposition Two however does not fully answer the question of how to achieve the aim set out in Proposition One. After all, if this was all the answer why has it not been achieved to date?

Part of the answer lies in the approaches that have been used to promote messages relating to emergency management. Emergency management needs to be an implicit part of 'everyday' decision-making within communities, and not be regarded as an 'add on', or a separate process. In this way, emergency management provides a framework that all levels of society (individuals, families, organisations, communities, governments, and nations) can use to achieve wider goals.

How can this level of awareness and integration of emergency management be achieved? Broader changes in how societies are now viewing the world provide the opportunity. These allow us to identify a number of relevant drivers for emergency management, although there is still the challenge for emergency managers to develop practical mechanisms to implement these drivers. The key drivers currently available are:

Sustainability: Since the United Nations Organisation's *Brundtland Report* of 1987, sustainable development has become an entrenched concept within most countries. It proposes taking a wider or longer-term view of both the spatial and temporal implications of development, so that short-term goals of communities are not achieved at the expense of their longer-term goals.

Sustainability has become a driving principle in most environmental management systems, and provides a means to address resource use as a primary agent in either increasing or lessening a community's vulnerability to hazards. A sustainable approach to hazard management (or sustainable hazard mitigation) should ensure that decisions about economic and social development do not inadvertently increase the risks to current or future generations from 'extraordinary' events. This does not mean that risk exposure in some instances will not increase. However, where it does, it will be through explicit consideration.

Resilience: Coupled to sustainability is the concept of resilience, which concerns the ability of systems to absorb change and to either bounce back, or to shift to new points of stability. For emergency management this means focusing more effort on reducing the vulnerability of a community to 'extraordinary' events (for instance, through planning the built environment in accordance with known hazards so that such events do not arise, or at least, that the impacts are less severe).

It also requires more emphasis on planning for, and undertaking, post-event recovery in order to make communities less vulnerable to future events. It means asking some searching questions and making hard decisions. For example, social cohesion and economic well-being play a large part in determining a community's ability to recover from a disaster. Communities (even in developed nations) with weak or undiversified economies are more vulnerable to hazard events. Similarly, communities with poor social cohesion are less likely to be able to pull together to help themselves in the face of hazard events. Resolving these issues may lie within the broader economic and social policies.

Holistic Management: Both the above concepts underpin the need for holistic decision-making. This means embedding emergency management thinking within all decision-making affecting the wider social and economic goals of communities, so that emergency management becomes an integral part of achieving the goals (rather than an obstacle or as is often the case, an unknown). Equally important is

that reducing a community's vulnerability to one hazard should not inadvertently increase its vulnerability to another one.

Governance: Many 'everyday' decisions add to or lessen the vulnerability of communities. These decisions are often made within the public domain or, at least, are influenced by decisions made within the public domain. Emergency management, in order to be successful, must be accepted as a core part of governance within public institutions and, wherever possible, private institutions as well. Consistent with a risk management approach, decisions should be made:

- following wide consultation and the establishing of a clear mandate;
- by representatives at all levels of government - national aspects of emergency management must be dealt with in a way that allows decisions affecting individual communities to be made locally.

This 'ownership' of decisions should lead to better outcomes through being both pragmatic and by being understood by those affected, and thereby strengthening a community's resolve about them.

Partnerships: Emergency management cuts across all sorts of activities both nationally and locally. As such, effective partnerships must be created and maintained horizontally, between government and various private sector interests and community groups; and vertically, between different levels of government, and private and voluntary sector organisations. The linkages and relationships required throughout the wider community to achieve effective emergency management are significant. However, many emergency management agencies have had difficulty gaining acceptance among other agencies that will be influential in the adoption of a risk-based approach to emergency management. This is primarily due to the continuing misconception, by both the public and other agencies, that emergency management is solely about preparing for and responding to events. It is therefore important that wider interests are signalled, and that those working in the field of emergency management strengthen and unify existing partnerships, and forge new ones.

Economic Efficiency: It almost goes without saying that any public policy developed nowadays must be economically efficient. For emergency management this requires consideration of many issues including intra- and inter-generational equity, transaction costs, incentives for appropriate behaviour, moral hazard issues, and least-cost policy tools.

Paying for effective risk-based emergency management programmes will require governments to tighten up on some disaster practices that are inconsistent with other policy decisions. In many ways, the issues centre upon the 'responsive Vs responsible government' theme. For instance, the 'SBAW effect' ('Sit-Back-And-Wait') by which victims have 'trained' governments to reimburse impact losses in

return for good public relations irrespective of precipitating circumstance, needs addressing. Mechanisms that direct costs on those who impose them (wherever possible) need to be pursued. Providing encouragement for individuals and communities to make decisions that limit the costs they may impose is another approach that merits attention. For example, building owners could be encouraged to strengthen old buildings through rate or rental tax rebates (or soft loans). Alternatively, less interest from potential renters (due to public listing of dangerous buildings) could also encourage such action.

It is important to note that economic efficiency arguments do not preclude regulation where it proves to be the least-cost approach. Similarly, far from undermining the social welfare function of governments, these arguments strengthen the case for having effective, targeted interventions.

The above drivers present a framework within which emergency management can operate. However tensions will exist between the different drivers. For instance, at times decisions promoting sustainability may not always seem the most economically efficient, and vice versa. This does not mean, however, that the drivers themselves are flawed. Rather, they provide a context within which trade-offs can be made that (as far as possible) balance the meeting of different needs and expectations within society as a whole.

To conclude, the second part of the answer on how to achieve the aim in Proposition One that: - *Emergency management should aim to enable communities to minimise losses and maximise gains when dealing with potential large-scale unanticipated events that pose extreme risks to them* - is summarised in the next proposition.

PROPOSITION 3: Key drivers already present within our societies should be directed toward ensuring emergency management is built into routine decision making. These drivers are:

- Sustainable Management and Community Resilience
- Holistic Management
- Good Governance and Partnerships
- Economic Efficiency

6 SO WHERE DO WE START?

Some readers may be thinking - *so tell us something new!* Others will be thinking - *yes, we've tried some of this and it didn't seem to work!* We believe the messages not only are still relevant and that they can work, but that they also are necessary. However it requires a more fundamental effort and greater levels of commitment than anyone has provided to date.

The impetus must come from the higher echelons of government, and the agencies mandated to oversee emergency management generally. It requires a strategic visioning process and preparedness to radically rethink existing philosophies, systems and practices. There should be no 'sacred cows' in the business of emergency management. Change is necessary, not for its own sake, but to ensure that we keep pace with the rapid change in our nations and communities, and the subsequent changes in their vulnerability to hazards.

The need for fundamental change does not mean discarding all that is currently in place. Nor does it ignore the fact that significant progress has been made in various ways in each country. What it does suggest is that attempting incremental change without grounding this change within an overarching framework, and establishing clear goals and principles surrounding it, will result in problems further along the way. For example, bringing other key agencies and the wider community on board necessitates those groups seeing a broader context for doing so.

Central government in partnership with other levels of government (state, regional and local) must lead the way. It is incumbent on the chief advisors to politicians at all these levels of government to spread this message. They must do the hard thinking about repositioning emergency management and present a cogent set of arguments to their political masters. They must also continue to stress that, while response and immediate post-impact recovery are the politically visible parts of emergency management, more is to be gained through greater efforts in mitigation and long term recovery (amelioration) activities. At the same time they must bring with them major businesses to think like mindedly, especially those providing infrastructure and essential services.

Agencies overseeing emergency management must translate the core concepts into practical models, practice guidelines and policy proposals that can be implemented both nationally and locally. There are still large gaps in current knowledge about hazards and risks that need filling. More importantly, much of the available information is not reaching the right decision-makers, and is provided in a form that can not be readily used. As such new collaborative efforts between the research and practitioner communities are required. Associated with this is the need to develop practical tools in areas such as economic analysis, risk modelling, and strategy and plan development. There will also be a need to establish professional development programmes for practitioners that cover a wider range of disciplines than is the case to date.

Also, having set off down this track, it is imperative to evaluate progress in order to confirm that emergency management is actually assisting communities achieve their long term goals in an efficient manner. When the need arises it must be possible to substantiate the anticipated long term net benefits, noting especially that communities may experience significant 'adjustment pain' in the short term. There should also be the flexibility to modify proposals when confronted with contrary evidence that not all endeavours are succeeding.

Finally, while undertaking this reform it is incumbent on governments to ensure that transitional arrangements are well managed. It is impossible to know when the next major event may occur. Furthermore change will cause stress on existing systems. If not handled well the commitment of current professionals and volunteers could be lost, and other agencies and individuals will be reluctant to come on board.

All the above requires some fundamental thinking, careful planning and solid, co-ordinated management. In answering the question - *where to from here?* - we consider that each of our Governments must want and lead this change. As such the fourth and final proposition on making emergency management matter in the new millennium is:

PROPOSITION 4: Emergency management needs to undergo fundamental reform to better meet the needs and expectations of society in the next millennium. The key roles that governments can play are to:

- lead the thinking on the defining of emergency management
- ensure that this thinking translates into effective systems at all levels within society

7 CONCLUSION

As the source of much information and policy advice to both politicians and communities on emergency management, the agencies that those of us here represent have a pivotal role to play in this thinking. We are well placed to lead in the translation of this thinking into effective systems within communities. This is not a responsibility we should take lightly.

Moving toward a holistic and public risk management approach to emergency management will not be easy. There are significant gaps in our understanding of some key issues that must be understood in order for emergency management to be successful. In addition, if the messages are not sold well, public and political pressure will continue to emphasise immediate response and recovery needs and undermine attempts at more comprehensive strategies that offer greater benefits in the long term.

Through linking developments with wider social, economic, and governmental trends, opportunities exist for emergency management to make a more meaningful and efficient contribution. However, there are also gaps in our knowledge and practices that must be addressed if this is to occur.

The immediate challenge facing us is to develop consensus on factors that will influence emergency management in the next decade. We must ensure that mechanisms are in place to promote agreed initiatives through international collaboration.

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SESSION TWO

DEVELOPING THE NECESSARY TOOLS FOR EMERGENCY MANAGEMENT

*Background Paper Prepared by
Emergency Management and Civil Defence, New Zealand*

1 INTRODUCTION

Tools are devices to assist in achieving specified or desired outcomes. For risk-based comprehensive emergency management, emphasis is placed on the means available to gather information associated with hazard and community characteristics, including policy instruments, designed to implement measures that lower risks to acceptable levels.

In this context tools may include technology, information management systems, analytical methods and decision-making aids, the use of regulation and/or other non-structural means of influencing individual and market behaviour, structural methods (physical works) and monitoring and evaluation techniques.

This list is similar to that of public policy programmes in general, and most likely many private sector endeavours. Furthermore, if emergency management is to become part of everyday thinking across state and private sector organisations, then using whatever tools are generally available is encouraged. However, there are gaps in the emergency management toolkit, both in the devices currently available and in the way that we use many existing ones. In particular, there are gaps in two key areas:

- the application of a systematic and all encompassing approach to risk management across all hazards
- the translation of expert and technical information into forms that can be readily turned into emergency management strategies and policies.

This paper examines some key tools that are needed in the immediate future and how New Zealand is currently going about meeting these needs. The role that a lead government agency for emergency management should play to ensure these tools are put in place is also considered.

2 WHAT ARE THE PRINCIPAL TOOLS FOR EMERGENCY MANAGEMENT?

Within the emergency management context there are six areas where new tools and/or an improved means of generating and presenting information are important. These are discussed below, and each case the primary tools or means needed are identified:

The physical, technological, biological and ecological structure and character of the hazards themselves: We do not know all we could about the physical aspects of natural and technological hazards challenging New Zealand. In the past fundamental research has not necessarily been prioritised across all hazard types, or linked to a clear end use. As a result, research has 'clustered' around areas that have already built up resident expertise and resources, leaving knowledge

gaps about other hazards. By contrast, applied research, while intentionally site- and client-specific, has missed marketing opportunities for wider application. A more comprehensive framework that enables the setting of priorities, and the linking of specific research activities, across all sectors, is needed.

Holistic, systems-level understanding of the socio-economic factors driving societal vulnerability; understanding why communities are vulnerable to disruptions from hazards; and why some sectors of the community are more at risk than others: Hazards are as much about human systems, as natural systems. Social sciences research into hazards needs to be factored alongside that of physical and environmental sciences. As such, the priority setting and funding framework for hazard and emergency management related research should be extended to cover social science research outputs.

Improved risk assessment techniques to guide risk reduction: Information on hazard risks and consequences need to be presented in formats that communities can devise and assess treatment options. This information must have meaningful values attached, have on-the-ground applicability and be cognisant of the wider contextual matters that have a bearing on community decision-making processes. In essence, what is needed are processes that elicit general agreement about approaches to risk assessment and communication. Furthermore, this approach should complement an overall risk management framework that can be applied to all hazards.

Public risk management, and in particular risk communication, practices that permit meaningful interaction between specialists and affected populations: This need is at the heart of sustainable hazard management. To help understand the risks faced, community members need frameworks that enable them to set criteria and priorities for addressing risks, and to develop and choose between treatment options. The former incorporates bringing together and presenting packages of structural and non-structural methods for managing risks (including relative costs and benefits), and providing a means of establishing community preferences based on them. This step is the second part of the risk management framework mentioned above.

Investigating ways to improve the implementation of planning mandates, plans and risk reduction prescriptions contained in devices such as building codes and land-use policies, and to link these more firmly with wider risk management practices: Risk management, strategy and planning development for emergency management will have little lasting effect unless the range of structural and non-structural tools within other community management processes are aligned. This requires linking emergency management strategy and plan development processes to the wider policy development and operational processes of public and private systems.

While mitigation activities provide the best means of achieving community resilience to hazards, response and post-impact recovery actions remain important parts of sustainable hazard management strategies: Much effort has been focused in these areas over recent years. A key need now is making effective and efficient use of new technologies for gathering and evaluating information to best target response and relief efforts. Similar to their counterparts elsewhere, New Zealand agencies are making increasing use of GIS and GPS, and remote and real-time monitoring and forecasting systems. Nevertheless, the challenge is to ensure the means exist for sharing information across all agencies, not just in terms of the formats used but also overcoming ownership and funding issues. Central to this, however, is the need to shift the current focus on organisational arrangements to concentrate on resource arrangements based on potential hazard consequences.

3 HOW ARE WE GOING ABOUT MEETING THESE NEEDS?

Research and Technology

The Foresight project currently being embarked upon by the Ministry of Research, Science and Technology is enabling the natural hazards information sector to align its research agenda to fit the needs of the new emergency management environment. Through this process, purchasers, information providers, and end-users can see what research is required, and where research strategies need to head. With applicability, availability and robustness as central themes for all research and information, improving tools in the following areas are considered a top priority:

- *new knowledge:* on realistic modelling; emphasis on loss modelling and social impacts; time-varying hazards to focus mitigation efforts on most appropriate hazards
- *new skills:* in vulnerability modelling, consequence and trend analysis
- *new technology:* emphasising inter-linking of GIS mapping; GPS linked monitoring networks to offer near real-time data of event potential, response and post-impact recovery; 'expert' decision-making tools
- *New relationships:* within broader sectors of the economy that are potentially impacted in emergency events
- *New applications:* practical information on individual vulnerability of assets to natural hazard events; customised plans to assist in lowering risks and raising preparedness; post impact information to assist minimising ongoing losses and help in planning recovery strategies.

The establishment of Emergency Management Groups, offering higher levels of inter-agency co-ordination, resourcing and professional skills should, in time, provide a stronger 'demand pull' for commissioned research. Placing universities and public

research organisations on a business footing makes these resource-holders better placed to respond to new demands, with the added advantage that products are market tested and aggressively marketed elsewhere.

Risk Management Modelling

Risk management is increasingly being recognised by the emergency management sector as a crucial tool for understanding fundamental issues pertaining to effective public safety and environmental stewardship. This is because it provides a framework through which essential issues can be systematically applied. The process comprises management policies, procedures and practices to the tasks of identifying, establishing the context, analysing, evaluating, treating, monitoring and communicating risks can be explored and implemented.

Modelling the processes that give rise to risk is fundamental to the processes of emergency management. Through the use of modelling methods, important characteristics of risk sources and risk consequences can be deduced from more fundamental factors and their relationships.

Strategy and Plan Development

An important role of a strategy and its operational plans will be achieving co-ordination across agencies and functions. Many of the everyday responsibilities and powers of emergency management agencies are found in other legislation, each of which prescribes its own policy development, planning and operational processes. Emergency management must be built into these processes - through statutory requirements and through specialist emergency management agencies offering advice, establishing partnerships and protocols, and having an oversight or audit role. These processes, however, must be consequence focused.

New Zealand is well served by a range of statutes that have managing the effects of hazards (and managing specialist emergency events) built-in, notably in the resource management, building, biosecurity, new organisms and hazardous substances areas. These statutes have a similar style, in terms of their purpose and policy development (planning) processes, in that they:

- have sustainable management (of the environment, and/or the health and safety, and economic and social well-being of people) as part of their general purposes
- aim at avoiding, mitigating and remedying adverse effects of activities (land-uses, hazardous substances storage etc.) simply through setting performance standards, rather than prescribing exact means of doing so.

This legislation also establishes policy development methodologies that are holistic (are cross-media and territory-wide, and cover all industries and like activities), require justification of policies and methods of implementing them (must consider alternatives, assess benefits and costs), and link the costs (of administration activities and service delivery) to beneficiaries or exacerbators (polluters) by equitable and efficient means.

Other legislation has similar useful requirements. For example, core local government legislation (that covers the provision of public works and community services associated with mitigation and preparedness) requires local authorities to rigorously evaluate what works and services to deliver, and how best to deliver them .

While the above points offer positive opportunities for emergency management some issues do exist. For example, practice to date has produce mixed results, especially in clearly establishing (and assessing the costs and benefits of) different policy options. Better information gathering and analysis methodologies are needed, along with higher skill levels among policy staff. There are also some integration issues, not only with the law itself, but having agencies understand the inter-relationships of their functions.

Public consultation

Community involvement is a core component in the approaches discussed above. Local government processes in New Zealand already involve high levels of public participation through both informal consultation (for example issue and options papers) and formal consultation (for example plan notification, hearings and legal review processes). The issue for emergency management planning is less about providing opportunities for public input than it is about making it meaningful.

Democratic processes require an informed public. However generating public interest and encouraging individuals to set aside time to address emergency management issues offers a real challenge in the modern world. Public apathy has been prevalent in other aspects of community management. While aware of the problem we have yet to overcome it.

4 WHAT ROLE SHOULD GOVERNMENT PLAY?

In our scene-setting paper *Making It Matter: Emergency Management in the New Millennium* our concluding proposition was that the key roles that governments can play in emergency management at this time are to:

- lead thinking on the redefining of emergency management
- ensure that this thinking translates into effective systems at all levels within society.

These roles hold true when it comes to developing new tools and ensuring that they, along with existing ones, are effectively incorporated within emergency management. These roles are core tasks of the new Ministry. Among other tasks, the Ministry is to:

- Develop and express emergency management concepts to give strategic direction and leadership to the management of hazards

- Develop practical risk models for use by the sector in evaluating risk and their potential consequences
- Promote awareness in the sector and obtain buy-in to these concepts
- Define and promote research needs for development of the sector
- Build risk management awareness through professional dialogue within New Zealand and overseas
- Evaluate the extent to which Community Continuity, hence effective emergency management, is being achieved.

We are only now beginning on these tasks. In this paper we have outlined where we see this work taking us. Our list of the tool development needed is by no means exhaustive, nor are tools mentioned necessarily well-honed at this time. In fact progress on them thus far raises as many new questions and challenges as it does answers and solutions to existing ones. However we consider that simply asking the right questions now, and highlighting the challenges ahead, will enable us to make significant progress over the next few years.

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SESSION THREE

DEVELOPING THE NECESSARY SKILL BASE

*Background Paper Prepared by
Emergency Management and Civil Defence, New Zealand*

1 INTRODUCTION

In New Zealand, as elsewhere in the world, a focus on sustainable development issues has prompted some emergency management policy makers and researchers to realise that the application of comprehensive emergency management (CEM) is, by itself, not providing sufficient community protection from natural or technological hazards. Thus, the concept of sustainable hazard management (or sustainable hazard mitigation) has arisen based on five elements: environmental quality; quality of life; disaster resilience; economic vitality; and inter- and intra-generational equity. In this context, reducing the risk from hazards, reducing losses from disasters and working toward sustainable communities go hand-in-hand.

The practice of sustainable hazard management is, however, still evolving and growing. It is therefore not clear what the job profile of the archetypical emergency manager might be in ten year's time. Current evidence does suggest that the professional development requirements will be markedly different from that which currently prevails. By professional development we mean the sum of relevant training and education that enables individuals to move within an organisation or industry as it changes and grows. Since large lead times are often required in areas such as accreditation requirements, curriculum development, recruitment practices and career progression programmes, it is timely to consider what those future requirements for professional development may be, and how they might be met.

2 WHAT WILL EMERGENCY MANAGERS NEED TO KNOW?

The five elements of sustainable hazard management point to a wider range of skills and knowledge that are needed for emergency management. There are five inter-linking areas of future activity that emergency managers will need to have a good grounding in. They are:

- assisting in the creation and management of community resilience, development and growth by being able to recognise resources and risks, and help communities choose a level of risk appropriate to their circumstances
- helping to manage communities as sustainable entities, with the understanding that reducing losses from disasters alone is too narrow a goal
- assisting with linking emergency management concepts and practices with sustainability through long-term hazard and loss reduction and through employing risk management processes
- helping to reduce community losses and assist enhance the long-term equilibrium between human and natural environmental interactions

- helping to ensure appropriate emergency management mechanisms are in place, are operable, and are capable of responding to the overall risk environment.

As such the practice of emergency management will be a blend of several disciplinary perspectives and applied approaches.

3 LINKING TO INTERNATIONAL INITIATIVES

We have recognised a number of closely related global initiatives that not only show the way ahead, but also indicate that emergency management is responding to challenge of developing new professional development programmes. The key initiatives are:

A more realistic context for emergency management: An important development is the effort to locate emergency management within a wider frame of reference. Rather than emergency management being regarded as an exclusive preparedness and response-oriented activity, recent efforts have been made to integrate emergency management into a wider policy framework. There is also a growing acceptance that emergency management is an integral part of community decision-making. Recent developments in New Zealand, for example, where Government is re-establishing local-central government arrangements that nest emergency management firmly within the context of environmental stewardship and community planning is an example of this initiative.

Effective links between research and practice: Introducing university-level knowledge-based programmes is encouraging a more systematic introduction and treatment of risk, hazard, emergency and organisational management theory. It has enabled research findings to directly aid practice. In some countries (the USA is the prime example), this development has enabled emergency management to be taken as a university/college-level subject in its own right. Many emergency management agencies are realising that there are distinct advantages from linking operational effectiveness with empirical research. Moreover, many decision-makers are seeing the benefit of recruiting people who are academically trained and familiar with the research literature that underpins risk, hazard and emergency management.

Heightened interest in uncertainty: A third positive development is the increased interest in risk management in many areas of the public and private sectors. This interest has helped legitimise emergency management and hazard management considerations. It has also enabled emergency practitioners to access a greater range of relevant information, to seek advice from wider quarters, and to expand their own perspectives.

Systematisation: There is a noticeable increase in the number and types of areas now being systematically investigated and which are considered essential to the wider safety of the community. Recent studies on business disaster preparedness and

response, and on inter-dependencies in lifeline management are examples. Environmental pollution and ecological damage are other areas that have direct links to emergency management. These linkages between areas are enabling the emergency manager to gain a better understanding of community vulnerability, risk assessment practices, and hazardscape management.

Multi-disciplinary orientation: Disaster research and its close companions (hazard research and risk research), and their application in the emergency management context is becoming more multi-disciplinary and multi-national. There is now a greater likelihood that research and practice can better capture the reality of relevant issues, and their particular social contexts. The field is gaining confidence that it can identify relevant universals pertaining to disaster as a phenomenon, and with it, developing more appropriate methods for managing them.

4 THE FUTURE EMERGENCY MANAGER: THE NZ APPROACH

Defining what is the likely future role of New Zealand emergency managers, and leading in re-orienting emergency management training and education is a core responsibility of the new Ministry. The most pressing issue is to define an all-encompassing emergency management curricula, since this will largely determine the future capabilities of the emergency manager.

Guiding the new curricula development is the recognition that the practice of emergency management would be better served if skills-based emergency response training is incorporated into a wider set of knowledge-based programmes. Since emergency management is an activity that has community-wide influence, and hence requires input from a wide range of specialist areas, the emergency manager needs a range of understandings. Candidate areas for a knowledge-based curriculum under-pinned by skills training could include:

- management and organisation studies
- public policy and administration
- hazard profiling, assessment and analysis
- community profiling and risk communication methods
- land-use planning and management
- risk assessment and risk management
- emergency response and EOC management

- disaster psychology and stress management
- project management
- disaster impact field investigation techniques and research methods.

5 WHAT PROGRESS IS NEW ZEALAND MAKING?

Intense discussions and exchanges of views between emergency services training directors has produced a series of draft goals for the professional development of the sector. Currently, they are:

- identifying and developing emergency management education and training strategies to meet stakeholder needs
- facilitating professional emergency education and training through appropriate tertiary institution organisations
- promoting and maintaining guidelines and seeking best practice for emergency management
- promoting ongoing personal development in emergency management by fostering a culture of learning
- enhancing community responsibility and self-reliance by providing training and exercise programmes focused on risk-based emergency management
- enhancing horizontal and vertical co-dependence by providing education and training that underpins the integrated systems.

Progress has been made in several areas, including:

Linked Curriculum: Any new curriculum needs to acknowledge the requirements of a diverse group. The vision is to provide programmes and qualifications that an individual can enter or leave at any point, building on skills and knowledge as they progress. A tiered curriculum that includes skills-based training programmes (offered in the workplace or by accredited providers), knowledge-based courses (by tertiary institutions) and specialist management courses offered as part of a joint-agency programme. Already a number of agencies in the emergency management sector have tentatively agreed to work toward a shared vision for professional development, to identify goals and protocols for research, and to develop and meet national standards and guidelines of best practice.

Coordinated Incident Management: A 1995 Review of Emergency Services identified fragmentation of the emergency services sector as a key weakness to achieving

safer communities. As a result, plans are currently underway for the establishment of joint venture management, education and training programmes. Joint planning, training and exercising will be the basis for building coordinated and integrated systems, particularly an effective and efficient operational response. Introducing CIMS (Coordinated Incident Management System) is an important step in this development.

Understanding the market: A large number of individuals drawn from a wide range of organisations and agencies in the community require education and training to prepare them to carry out the myriad tasks associated with risk-based emergency management. It is also important to recognise that individuals wish to participate in emergency management for a variety of reasons, some of which can be very narrowly focused. Hence, it is appropriate to distinguish between the education and training options to be offered to some front line staff and volunteers, which will emphasise the requirements of specialist responder functions, from the more general professional development that will assist inter-agency cooperation and other community risk management issues.

6 CRITICAL SUCCESS FACTORS

The challenge ahead is primarily about changing mind-sets. The ability of the new Ministry to bring about the change and oversee the development of a workable framework is fundamental to this. More specifically, the following factors have been identified as the key determinants for success:

- the willingness of Government to follow through on its policy pertaining to risk- and emergency management practices, in the face of conflicting demands, the 'tyranny of the immediate', vested interest groups and the like
- the speed with which specialist and funding agencies are able to re-focus and assist initial development, and continued maintenance, of holistic sustainable hazard management and public risk management approaches
- the capacity of the New Zealand research, science, technology, and education and training communities to develop and promulgate appropriate risk analysis and risk assessment tools
- the ability of local government to develop and implement public risk management tools, especially risk communication practices that will allow vulnerable communities to make informed choices
- the willingness and ability of the emergency services to adopt and implement risk-based emergency management research, education and training programmes within an appropriate timeframe

- the commitment and capacity of local government to engage appropriate land-use planning and management practices that will lead to resilience and sustainability
- the ability of the new Ministry to effectively convey the concepts, principles, frameworks and models to the wider community so as to elicit the necessary changes in behaviour.

A variety of initiatives are either underway or have been recently proposed to expand education for emergency management. The development of sustainable hazards management will require that some future managers be trained across traditional disciplines and in inter-disciplinary ways that will enable them to view the world they manage more holistically.

In the new environment it is vital that available resources are channelled in a common direction for the overall benefit of the community. The more complex the community the more important it is to promote partnerships among various professional groups and across territorial/organisational boundaries in order to reduce the effects from disasters.

Above all else, however, professional development programmes are about capacity-building, within individuals and within systems. The search for increased public safety and community resilience will place ever-increasing demands on emergency management agencies to provide expertise in areas that the traditional approach has not heavily invested in. Technology transfer from specialists to emergency managers, and from them to the community-at-large, will require new base-lines and new course programmes. These prerequisites will provide fertile ground for innovation in the professional development of the emergency manager.