Policy development and design for fire and emergency management

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Abstract

Fire and emergency managers have generally been more concerned with undertaking their immediate, vital mission than longer term, strategic policy development. This paper draws on a recent book by the authors to suggest a process for developing and implementing robust policy for fire and emergency management. Different approaches to policy development are discussed. The case is made that there are distinct types of policy problems in fire and emergency management, each requiring distinct approaches. The need for thought on policy implementation style, the advantages of multiple problem framing and the challenge of policy instrument choice are set out.

Introduction

Disasters, even if not large, are often treated to intense media coverage with the consequent need for political involvement and public sympathy. The media, political and local constituencies generally endow special status on those who show leadership and empathy with the affected, while the less visible process of strategic policy development and implementation for disaster reduction may carry little political reward. Ironically, less visible success in reducing the impacts of events that might otherwise have become disasters carries the risk of budget cuts and reduced status and profile for those involved. This is because media and political rewards are, not surprisingly, skewed towards the heroes of response, rather than towards behind-the-scenes strategic planners.

This points to the desirability of developing policy that serves a number of aims – national and local; social, economic and environmental; focused on preparedness, response and long-term recovery – and that is flexible enough to cope with shifts in community and political priorities, while ensuring a high positive media and political profile. Such strategic policy is dependent upon the suitability of the institutional settings within which policy is formulated, developed, implemented and monitored, and within which it evolves. Fire and emergency management is constrained or enabled by these policy and institutional settings.

Our aim is to provide a framework to help achieve this and to widen the focus to include not only the disaster event but to encompass longer-term thinking about the disaster process, including issues such as vulnerability, resilience, preparedness and recovery – and the frequently overlooked area of policy.

'Policy' might be one of the most overused and least understood words in contemporary governance. Policies appear to exist for almost everything, but are rife with ambiguity, indifferent support, and implementation problems. We are not advocating specific policy instruments here, but examine processes for developing and implementing robust policy. The paper suggests a definition, examines the adaptation of Bridgman and Davis' (2004) Australian policy cycle to fire and emergency management, and identifies some fundamental issues and pitfalls. To do this it draws on aspects of a recent book by the authors (Handmer and Dovers 2007). Note that only some aspects of the material set out in the book are covered here: defining policy; making policy; aligning policy with the problem; strategic implementation style; and choosing specific policy instruments.

Defining policy

Public policies are positions taken and communicated by governments, in more or less detail – they are 'avowals of intent' that recognize a problem and state what will be done about it. Policy documents should set out the rationale, evidence, approach, responsibilities, monitoring and implementation instruments. (Private or community organisations also develop, communicate and seek to implement policies, however the focus here is on public policy). Policy statements would usually be preceded by wide public debate – the argument being that this brings broad ownership and support for the policy easing implementation.

Mr Phil Koperberg former Commissioner of NSW Rural Fire Service with the media at a daily press briefing.

Policy programs are specified and substantial manifestations of a policy, comprising elements of implementation as well as of intent. Beneath this level, for an applied policy, there will be specific, practical projects. For example, a policy on community flood preparedness might include, a program of community-based flood protection and evacuation plans, and within that program a number of discrete projects, implementing this program in different locations.

Making policy

Policies emerge through complex and variable policy processes that include both government and non-government players. Although reflecting the institutions of governance in a jurisdiction, policy processes vary greatly across issues, sectors and over time. The term policy cycle is often used as synonymous with policy process, emphasizing the cyclic and reiterative nature of policy making. Policy system is a related term, and policy sub-systems refers to the fact that, within the broader landscape of public policy in a jurisdiction, distinct sets of processes and actors exist for specific sectors or issues. That is, one can delineate the policy sub-system concerned with emergency management, as opposed to public health policy (but also recognise links).

There are many views on policy and policy making. The following are some of the main perspectives (for a more detailed discussion, see Howlett and Ramesh 2003).

Policy making is often seen and discussed as a rational evidence-based exercise. This 'rational-comprehensive' view sees policy making as an exact and well-informed problem-solving exercise, where an issue or problem is thoroughly investigated, all possible options considered, and the optimal policy choice made. It is usually unrealistic, as sufficient information is rarely available, and political values would normally play some role.

This 'rational' view was challenged by the 'incremental' view encapsulated in Lindblom's famous phrase 'the science of muddling through' (Lindblom 1959, 1979). This view argues that policy change occurs in small steps, taking possible rather than ideal measures, dealing with discrete parts of larger problems. In the context of US flood risk management policy, Gilbert White has argued that progress was "two steps forward, one step back" in the face of political and other difficulties. This is realistic in many circumstances, but can be criticized as not very strategic.

Other models include that proposed by Etzioni (1967) who suggested a compromise, 'mixed scanning', where an initial more superficial scoping exercise reduces the policy choices, which can then be analysed and compared in depth. March and Olsen's (1979) 'Garbage can model' may be depressing, but is also perhaps realistic where ends and means are mixed in a rush for answers to emergent problems or sudden demands. It is indicative of a complete lack of policy preparedness.

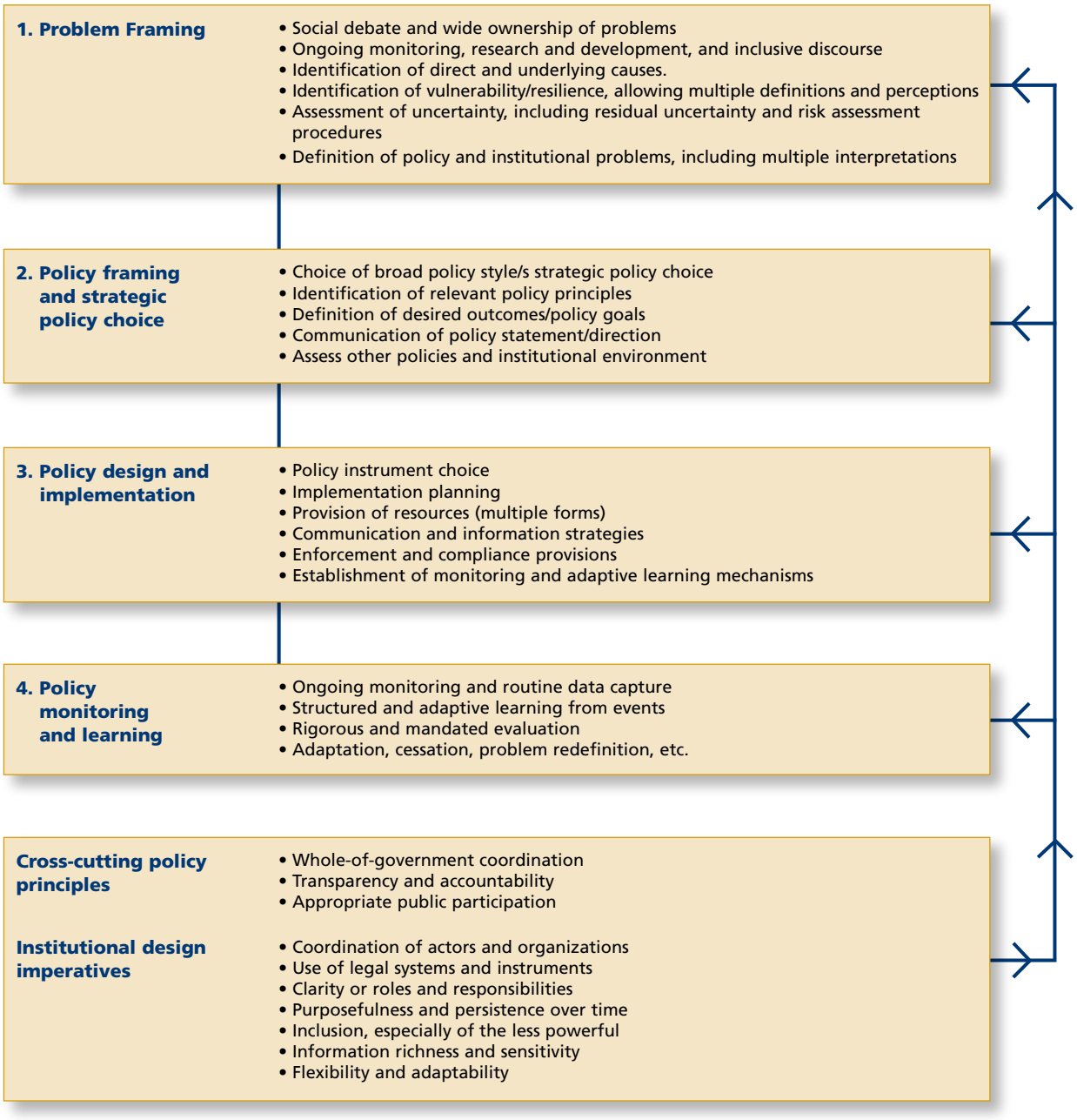
The above views represent only four of many different ways of thinking about policy and policy making. In Australia, the Australian 'policy cycle' approach has come to dominate as an answer to, and reaction against, the linear logic of the rational-comprehensive model. It recognizes the iterative and cyclic nature of policy processes, and the importance of monitoring and review of policies. Rather than staged 'models', much contemporary policy literature emphasises political negotiation and the discursive and contingent nature of policy-making (Jenkins-Smith and Sabatier 1994; Healy 1997; Fischer 2003).

Despite these recent and well-argued shifts in understanding, all four of the linear approaches set out above are evident in practice with most, under the right circumstances, being valid.

For the purpose of fire and emergency management policy, we suggest a framework informed by elements of (i) Bridgman and Davis' (2004) Australian policy cycle and similar models (see Dovers 2005) and (ii) the emergency risk management process (EMA 2000), itself based on the Australian/New Zealand Risk Management Standard (Standards Australia (current version - 2004).

The framework for emergencies and disasters policy and institutional analysis combines an understanding of both policy and disasters. It does not say 'how' to design specific policies and institutions, but rather represents a comprehensive and integrated framework and checklist, not a prescriptive model or sequence. The lines between the elements of the framework recognize that, while neither in theory nor in practice strictly a cycle, the elements are nonetheless tightly interdependent (Figure 1).

Figure 1. Framework for emergency management policy development (Handmer and Dovers 2007)



The following summarises the framework:

Problem framing (stage 1).

Problem framing emphasizes the importance of how we arrive at an understanding of policy and institutional problems in emergencies and disasters. Damaging events or natural phenomena such as floods are not policy or institutional problems, but they serve to define such problems, along with the characteristics of human systems. The approach should include the different frames of multiple stakeholders, and an open assessment of risk and uncertainty (including for example distortion, taboos, unknowables and probabilities). How a problem is defined will determine ownership of the problem, and circumscribe our search for solutions and may lead to important issues being ignored, for example by focusing on what we know well or find easy to measure. Where multiple stakeholders are involved they will bring distinctive ways of problem framing with them; ignoring this may lead to stakeholders failing to understand each other's positions. Some drivers for different ways of framing problems include:

- Legal requirements and the need to avoid liability and legal risk;
- Disciplinary perspectives or different worldviews;
- Political considerations, where disasters create political risk, political opportunities to be generous to specific groups, or to blame identifiable groups or nature (eg climate change);
- Economic and commercial opportunities and constraints;
- Fear, and perceptions that disaster is likely may stigmatize an area.

Policy framing and strategic policy choice (stage 2).

The policy response can be reactive or proactive, involving the choice of general policy styles, based on clearly understood principles and aimed at achieving agreed and clear objectives; and addressing conflicting or minority concerns. Strategic policy choice defines the parameters within which policy design and implementation occur – that is, what and who is included or excluded.

Policy design and implementation (stage 3).

Ideally, achieving policy objectives involves the choice of specific policy instruments chosen transparently from a wide menu of options. To implement these instruments, resources are required (financial, informational, human, administrative, statutory, etc.), and mechanisms for monitoring should be put in place to allow evaluation, learning and adaptation.

Policy monitoring and learning (stage 4).

Learning from experience demands ongoing adaptation and improvement, which requires policy monitoring after initial policy design and implementation. The link between this and stage 1 begs the integration of policy and basic monitoring to enable separation of the impact of policy interventions and other variables.

Beyond the four stages above, there are a number of principles and imperatives that need to be accounted for throughout any exercise of policy or institutional analysis or design:

Cross-cutting policy principles.

The policy process should be informed at all stages by: the need to coordinate or integrate activities across the sectors and portfolios of government; transparency and accountability to improve policy formulation and trust; and appropriate and genuine forms of public participation.

Institutional design imperatives.

All that occurs will be enabled or constrained by the institutional system within which policy is formulated and implemented. Institutional arrangements should allow coordination across organizations; reflect agreed principles and directions (purpose); balance longevity of efforts (persistence) with the ability to adapt (flexibility); and there should be effective use of information and wide social inclusion.

Handmer and Dovers (2007) go into each step in considerable detail. Here we simply highlight some of the more strategic aspects of the framework.

Aligning policy with the problem

A well entrenched view appears to be that there is only one type of policy problem, and one way of framing emergency management policy problems. This approach can lead to consideration of only one set of solutions for policy problems that vary enormously and that include problems that are not amenable to a standard approach. Here we suggest some attributes or dimensions of policy problems within fire and emergency management, and drawing on these attributes set out a typology of such problems with their implications for management (Table 1). The attributes were developed by an EMA funded project, The Science of Surprise, by Handmer and Proudley (2005). Each attribute can be thought of as a continuum from low to high, small to large, or easy to very difficult. Some attributes are:

- Scale (in space and time)
- Uncertainty (probabilities to ignorance)
- Visibility (low to intense media interest)
- Problem solving approach (see Table 1)
- Tractability (well practiced, few players to no experience, whole of society)

Drawing on these, we suggest that emergencies can, as a usable first approximation, be placed in three categories: routine, non-routine, and complex unbounded (Table 1):

- The attributes of *routine emergencies* will generally be at the lower end of the attribute continuums. Responsibility is clear and there is agreement over the problem. Risk reduction in the context of routine incidents is relatively straightforward as the dimensions of the risks are usually well understood and solutions are a matter of resources and clear trade-offs. Recovery would normally be concerned with restoration to the pre-impact state.
- *Non-routine emergencies* lie in between routine and complex emergencies. Flexibility and adaptability are called for in response and prevention, the capacity of emergency services is stretched during such events, and resources from outside the affected area are likely to be needed. But the problems do not pose overwhelming challenges to existing emergency management policy and practice, or to technological capacities. This category could also include policy processes or decisions across a suite of routine problems, such as establishing a multi-hazard policy process or national floodplain management standards.
- *Complex emergencies* are characterized by attributes at the higher, more difficult end of the continuums. Response will need maximum flexibility and adaptability, and would have to provide the needed leadership to make decisions, harness society's resources and have the capacity to expand critical facilities, such as casualty care, identification and handling of the dead, and transportation and rationing of food supplies. This is especially critical: even if there is spare capacity, it may not be sufficient to make a difference. The gap in capacity will have to be filled by harnessing all of society's resources – government, commercial, civil society and international assistance. Recovery planning for coordination of resources, rather than command and control, is the key as normal response capacity will almost always be overwhelmed. Institutional capacity

Table1: Emergency management typology by attributes. (Handmer and Dovers 2007)

	Attributes				
	Scale	**Uncertainty**	**Visibility**	**Problem solving approach (Funtowicz and Ravetz 1993)**	**Management attributes (eg. tractability)**
Typology					
Routine	Modest and well defined in space and time. Small impact	Known and quantified	Recognised, but low visibility	'Applied science'	Known, anticipated and well practiced
Non-routine	May be large, but defined	Known, but less quantified	High visibility	'Professional consultancy'	Medium, some planning
Complex	Large and/or ill-defined in space and time & may appear unbounded. High impact. Possibly irreversible	Large or unknown in many dimensions. May not be quantifiable	Often very high profile with intense and long lasting political and media interest	'Post-normal science'	Low. Often well outside previous experience

for adaptability and for whole-of-government and whole-of-society response is needed. Restoration is unlikely to be possible. The emphasis will be on transformation and seeking advantage from opportunities presented by the disaster.

There could be more categories, but the intermediate classes could be difficult to distinguish clearly. The classification unintentionally illustrates the issue of language – the same term is sometimes used to describe an event whether it is 'routine' or 'the largest ever'. For example, the term 'flood' covers every event from a centimetre deep surface flow with nuisance value, to an inundation of Biblical proportions which threatens a regional economy; similarly with wildfires (although there is now an attempt to distinguish very large fires as 'megafires', eg Williams 2007).

This typology reflects a categorization of policy problems by Dovers (2005), and also draws from an emergency management interpretation by Tarrant (2006) of the three way classification developed by Funtowicz and Ravetz (1993). In their own words, Funtowicz and Ravetz's (1993) work places problems where values are central, facts are in dispute, stakes and uncertainty are high and there is little agreement about what to do, into a category that demands a form of understanding and knowledge they term 'post-normal science' (PNS). Their other categories are 'professional consultancy', applicable to non-routine problems, and 'applied (or normal) science' applicable to routine problems. PNS problems include situations where there is conflict over how to approach a risk, or even over how to define the risk. Where the physical dimensions of the risk are well defined and agreed, the response and event management may take the form of a PNS problem, as with Hurricane Katrina.

Note that complex emergencies may be so because they have emerged after periods of low visibility as conditions worsen. (See, for example, the European Environment Agency's report *Late Lessons from Early Warnings*, 2001).

Policy implementation styles

Decisions are needed on the policy style or styles to be adopted. Here policy style describes the strategic nature of policy implementation in jurisdiction, government or political systems, ranging from legal or rule-based, coercive styles dominated by government, through 'corporatist' traditions where policy is negotiated with major interest groups, to a reliance on local communities or commerce. Style will vary according to the nature and severity of the issues faced, such as in the case of a rapidly emerging threat. Routine emergencies tend to use rule based approaches, while complex problems demand a range of approaches emphasizing negotiation. Policy styles also vary by jurisdiction and over time as conditions and social values change or as administrations change their political persuasions.

Typically an agency or higher level government authority develops policy which requires officials, lower levels of government or the public to implement it. The challenge is how to achieve implementation (see May and Handmer 1992; May et al 1996). In the hazards and disaster domain, policy implementation style can be classified into three classes:

- *Coercion* (eg. through regulations, threats of punitive measures), and instruments termed in the general policy literature as regulatory instruments. Coercion comes from mechanisms for monitoring the actions of local entities and others required to implement the policy, and in the form of penalties for failure to comply. Limitations with coercion stem from the need for adequate monitoring and penalties to force compliance, which often do not exist or are very difficult or costly to apply. One reason for this difficulty is the potential for a political backlash that may threaten the whole policy (eg see Handmer 1986);
- *Cooperation* (eg. financial incentives, assistance with planning, or negotiating tradeoffs to accommodate multiple objectives), also known as incentive or collaborative instruments. Typically, incentives are offered by higher levels of government for cooperation by lower levels, in contrast to the penalties used in coercive policy design, and may comprise money, technical assistance or even immunity from legal liability (on this last point, see, for example, NSW, 2001, p30). Cash or technical advice for retrofitting buildings, making gardens more fire resistant or the installation of smoke alarms, or the provision of a facilitator to help those at risk reach decisions on what to do are typical examples. A cooperative approach is inherently flexible.
- *Exhortation* such as public education and other information provision, otherwise known as moral suasion or educative instruments. Most preparedness and planning rely on exhortation through awareness-raising and education programs. The approach has two essential logics underpinning it, which suggest two forms of communication:
  - appeals to the self-interest of a community, individual, business or other organization, and/or to their sense of community obligation. These tend to be motivational, as in the "moral suasion" of anti-litter and safe driving campaigns; or
  - an assumption that there is a knowledge deficit. If people have the knowledge provided by an awareness campaign, the assumption goes, they will do what is thought to be appropriate by officials; although this assumption holds in some circumstances there is little evidence for its general applicability (Sims and Baumann 1983).

Table 2: Criteria for selecting policy instruments (Handmer and Dovers 2007)

Criteria	Question, relative to other instruments
Dependability	How certain is it that the instrument will lead to achievement of policy goals?
Timeliness	Can the instrument be designed and applied within the necessary time frame?
Cost and efficiency	What is the likely gross cost and efficiency of the instrument, relative to the stated goals?
Systemic potential	Does the instrument address underlying causes, rather than only direct causes and symptoms of vulnerability?
Information and monitoring requirements	Is the necessary information available to design, implement and monitor the performance of the instrument, or can it be feasibly made available?
Distributional impacts	Will implementation of the instrument have uneven or inequitable impacts across the affected population, and if so can these be managed in an acceptable manner?
Political and institutional feasibility	Is proposal and implementation of the instrument feasible in terms of (i) political support and (ii) institutional capacity?
Enforcability and avoidability	Can implementation/uptake of the instrument be enforced, can it be avoided easily?
Communicability	Can the logic, detail and implementation requirements of the instrument be communicated to those responsible for implementation or affected by it?
Flexibility	Is the instrument capable of being adapted and adjusted in the face of changing circumstances?

In practice, a combination is often used. Policy programmes utilizing multiple approaches and instruments are common, if not always successful, in emergency management. Mixed instrument packages fit with changes in thinking around policy and regulation that generally argue for a more flexible approach that includes self-regulation and incentive-based policy mechanisms as well as, or in place of, straight 'command' regulation (see Gunningham and Grabosky, 1999; Braithwaite and Drahos, 2000).

Regardless of the policy style there are certain prerequisites. If any one of these is absent the policy is unlikely to be effective. These can be seen most simply as:

- those responsible for implementation must want to do it, that is they must have commitment to the policy objectives, and that commitment must be matched with a recognized and respected mandate;
- they must have the ability or capacity to implement the objectives, in terms of human, financial, information resources, etc, and the organizational capacity; and
- cutting across both these attributes, there should be a process to deal with conflicts between the different interest groups, in particular the actual and perceived conflicts between the imperatives of emergency management, economic development, and environmental amenity.

These attributes apply to implementation in many areas outside emergency management, which however are linked and relevant. For example, private sector regulation, intergovernmental relations, and the criminal justice system.

Specific instruments for policy implementation

Actual implementation requires specific tools or instruments. Policy makers and policy communities have at their disposal many instruments, all of which will be useful in different situations and combinations. And, we can remind ourselves that all instruments are forms of information, aimed at changing individual or collective behaviours. Whether the 'message' is a threat, a plea, an incentive or disincentive, or a signpost, policy instruments are messages. A massive tax impost, crippling fine or a prison sentence are all threatening messages, whether considered market or legal mechanisms. An educational instrument may be subtle and respectful or, as some health programs do, use shocking and confronting images. Choosing policy instruments is a matter of choosing the most appropriate medium for the message in a given situation. Viewed like this policy instrument choice should contain an objective component, based for example on the criteria set out in Table 2. Too often, the choice is more a matter of disciplinary and ideological argument over, for example, the relative generic merits of economic versus legal versus educational instruments.

These criteria have two uses. The first is to aid analysis and discussion of the most suitable policy choice for the purpose at hand. They do not make an answer necessarily obvious or easy, in fact consideration of multiple criteria will complicate the process. But they do encourage a more sophisticated, defensible and more easily communicated process of choice. The second use arises from the observation that 'perfect' choices are rare:

a chosen instrument will rarely score highest on every criterion, but the process highlights possible weaknesses that can be addressed (eg strengthening institutional capacity, attending to monitoring needs, etc). Table 3 sets out some examples of instruments.

In addition to the issue of policy style mentioned above, instrument choice for fire and emergency management may also involve other strategic decisions. Given limited resources, should the focus be on short-term measures that focus directly on the hazard, such as education and flood walls, or to build longer-term community resilience through wealth generation and improved livelihood security? Concentrating solely on measures to alleviate the impacts of specific disasters is unlikely to address the avoidable causes of disaster, even though many such measures alleviate the symptoms of disaster and have high political credibility – and rightly so given that they save lives and property. They may also sometimes be the only solution, other than emigration.

Conclusions

The above brief discussion, and the book it is drawn from, seeks to provide some ideas for making emergency management more effective by improving the policy and institutional system EM operates within. But however careful, objective and strategic we are, the political context should not be forgotten:

> 'Politics is the essential ingredient for producing workable policies, which are more publicly accountable and politically justifiable ... While some are uncomfortable with the notion that politics can enhance rational decision-making, preferring to see politics as expediency, it is integral to the process of securing defensible outcomes. We are unable to combine values, interests and resources in ways which are not political.' Davis et al (1993: 257)

All policy is political – though not necessarily in the sense of party politics or expediency - especially strategic disaster and emergency policy that addresses the distributive issues of the vulnerability and resilience of people and communities.

Given factors such as population increase, wealth, trends in settlement patterns and climate change, it is inevitable that the future will bring more emergencies and disasters, and it seems similarly inevitable that the severity of these will increase. The fire and emergency management field faces escalating challenges and expectations. The rewards for successful policy may seem nebulous compared with those from high profile operational action, but events of the last few years in Australia and overseas highlight the need to develop more effective strategic policy processes that address the future rather than respond well to the past.

Table 3: A menu of selected illustrative policy instruments for emergencies and disasters

Class	Selected, major instruments	Style
Research and monitoring	Increase knowledge in a general or specific sense, re hazards, vulnerability, success of policy initiatives, community awareness, etc.	Exhortation, Cooperation Coercion
Training and education	General public education, education targeting sub-sets of community; formal curricula in schools, universities; specific skill development and training.	Cooperation, Exhortation
Intergovernmental agreements	Intergovernmental agreements/policies, memoranda of understanding, etc between countries or within countries, for cooperation, joint response, information sharing, etc.	Cooperative, Coercion
Legal	(i) Statute law: statutes or regulations under existing law to: create institutional arrangements; prohibit certain activities; zone land and control development; (ii) Common law: applications of doctrines such as negligence or nuisance to prevent or punish, for example, risk-creating behaviours.	Coercion
Community participation	Community-based risk assessment and management; public participation in higher level policy formulation; freedom of information laws; community monitoring of hazards;	Cooperation
Market and economic	Taxes/charges; use charges; subsidies; rebates; penalties; performance; competitive tendering.	Cooperation, Coercion, Exhortation
Institutional change	New or revised institutional system or organizational features, to enable implementation of other instruments.	Cooperation, Coercion, Exhortation
Do nothing	Inaction is usually seen as a policy failure, but may be justified, after reasoned analysis.	n/a

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