CHAPTER TWO

THE CURRENT AUSTRALIAN DISASTER MANAGEMENT SYSTEM

Chapter One examines the nature of disaster;

Chapter Two reviews Australia's existing counter-disaster organisational structure and associated management arrangements;

Chapter Three searches for intelligent effective and efficient organisational structures, system designs, and associated management arrangements with a view to designing, developing, and implementing an IDMS;

Chapter Four assesses inter-organisational relationships among selected emergency service related personnel in New South Wales and Queensland with a view to designing, developing, and implementing an IDMS;

Chapter Five investigates political and bureaucratic impediments with a view to designing, developing and implementing an IDMS;

Chapter Six investigates economic impediments with a view to designing, developing, and implementing an IDMS; and

Chapter Seven is the outline of an IDMS and conclusion to the research project.

INTRODUCTION

Australian disaster experience identifies strengths, weaknesses, opportunities, and threats associated with the system. Opportunities to advance the development of the system have been generally erratic, slow, and incremental in their realisation, particularly when one compares the state of disaster management and planning in other countries. Having said this, it is acknowledged that there have been advances in the capabilities of organisations directly responsible for 'emergency' management, and in the coordinating arrangements at State and Territory levels. However, it is the argument of this Chapter, and indeed, this thesis, that Australia has been largely trekking at the edge of effective disaster management practice. This is to suggest that in 1996, we are no further nearer establishing a 'disaster' management system, based on inter-State and Territory intergovernment and interorganisational coordination, than we were in 1986. It is accepted that some Australian disaster practitioners and researchers may disagree with this assertion. Nevertheless, it is rather worrying when assessment of the current success of 'disaster' management arrangements (see Hodges, 1996) is apparently based on events (see Table 2.1), of which the majority, could be said to be questionable as constituting disaster, if one accepts the

'definition of disaster' presen ed by Britton (1986b), and the author, which were discussed in Chapter One.

Table 2.1

A Listing of Maj or Disasters - The Catalysts for Change in Aus tralian Disaster Management

EVENT	YEAR
Major floods QLD/NSW	1983
Bushfires SA/VIC/NSW	1985
Wind & Hailstorms BRISBANE	1985
Bushfires CANBERRA	1985
Tropical Cyclone Winifred QLD	1986
Bushfires Jerilderee NSW	1987
Bushfires Bredbo NSW	1987
Major floods QLD/NSW	1988
Floods & Tropical Cyclone Aivu QLD	1989
Major floods QLD/NSW (April/May)	1990
Major floods NSW (July/August)	1990
Cook Island Fire VIC	1991
Severe storms NSW	1991
Floods QLD	1991
Floods NT	1991
Floods SA	1992
Floods WA Kimberley	1993
Floods VIC	1993
Bushfires NSW	1994
Tropical Cyclone Rewa QLD	1994

Source: Hodges (1996:5)

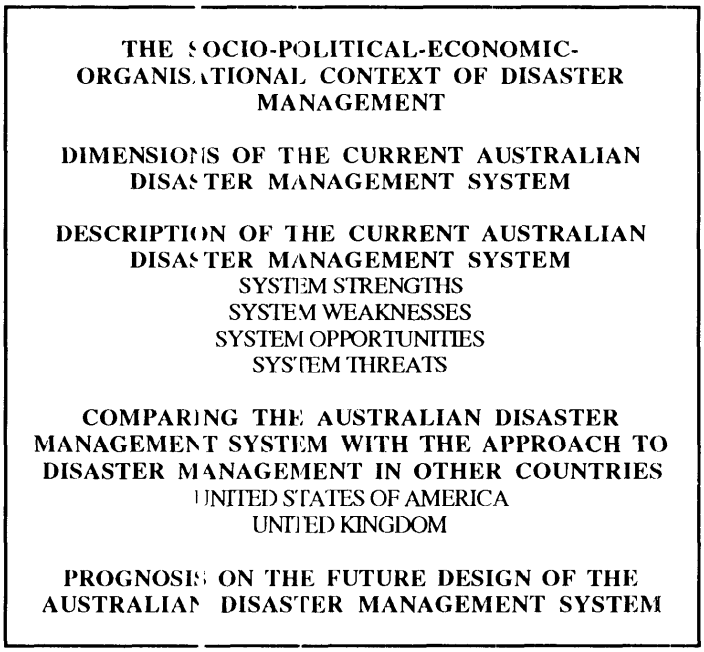
If one cannot accept that advances in disaster management practice have come about through systematic thought into what defines successful disaster management, then there is a strong temptation to believe and indeed conclude, that improvements have resulted purely by accident. This would suggest an incremental process in disaster policy making.

Australian post-disaster investigations into disaster preparedness, response, and recovery (for example, Wettenhall, 1975 [Tasmanian Bushfires of February, 1967]; Chamberlain et al., 1974 [Brisbane River Flood of January, 1974]; Task Force Ash Wednesday Bushfires, 1984 [Victorian Ash Wednesday Bushfires, February, 1983]; Stretton, 1976 [Tropical Cyclone Tracy, December, 1974]; Howard, 1991 [Newcastle Earthquake, December, 1989]; Sinclair, 1990 [Nyngan Flood, April-May, 1990]; and Cunningham et al., 1994 [Sydney Bushfires, January, 1994]) reveal a very complex picture in terms

of: societal hazardousness and vulnerability; hazard perception and awareness; resource allocation; jurisdictional divisions and fragmentation; public policy administration and implementation; political decision making processes; dominant social structural patterns and processes; organisation specific factors; and current official hazard and emergency management practices, attitudes, and conventions. This constitutes the environment in which a disaster management system is expected to function effectively.

The diagram below outlines the sequence of discussion in Chapter Two.

ORGANISATION OF CHAPTER TWO



THE SOCIO-POLITICAL-ECONOMIC-ORGANISATIONAL CONTEXT OF DISASTER MANAGEMENT

Few disasters in recent Australian experience can boast to have tested so harshly and rigorously State and Territory counter-disaster measures like the Victorian Ash Wednesday Bushfires in February 1983, with the possible exception of Darwin's Tropical Cyclone Tracy in December 1974. This is because bushfire conflagrations are, by their very nature, diffuse and spreading disaster impact events (Wenger, Quarantelli, & Dynes, 1990). Australian post-disaster investigations (see Wettenhall, 1975 [Tasmanian Bushfires of February, 1967]; Chamberlain et al., 1974 [Brisbane River Flood of January, 1974]; Task Force Ash Wednesday Bushfires, 1984 [Victorian Ash Wednesday

Bushfires, February, 1983]; Stretton, 1976 [Tropical Cyclone Tracy, December, 1974]; Howard, 1991 [Newcastle Earthquake, December, 1989]; Sinclair, 1990 [Nyngan Flood, April-May, 1990]; and Cunningham et al., 1994 [Sydney Bushfires, January, 1994]) identify repeated shortcomings in counter-disaster arrangements and/or relevant State and Territory Disaster Plans (DISPLANS). This is particularly in terms of:

- Planning and organisation;
- Mitigation and preparedness;
- Legislation;
- Public awareness and education;
- Communications;
- Warning and information systems;
- Provision of shelter;
- Evacuation procedures;
- 'Combat' operations;
- Relief measures; and
- Evidence of research.

These listed shortcomings cover just about all aspects of disaster management. Moreover, a number of post-disaster investigations (see Chamberlain et al., 1974 [Brisbane River Flood of January, 1974]; Stretton, 1976 [Tropical Cyclone Tracy, December, 1974]; Howard, 1991 [Newcastle Earthquake, December, 1989]; and Sinclair, 1990 [Nyngan Flood, April-May, 1990] have tended perhaps misguidedly to explain shortcomings using extreme weather conditions and/or the dynamic behaviour of the hazard event (rather than blaming shortcomings on inherent internal 'system' failures). In this regard, extreme weather conditions and the dynamic behaviour of the hazard [creating uncontrollable conditions] explain why initial deployment of emergency service units can often be inadequate; why communications can become congested; why difficulty may be experienced acquiring situation reports concerning the nature of the hazard; why there may be difficulty deploying and utilising reinforcement units; and why there may be shortcomings in information management systems. But, are these problems unavoidable given extreme conditions? Cannot the problems be the result of a failure to develop organisational capacity to effectively deal with disaster? Realisation that disaster management functions in a complex socio-political-economic-organisational context often appears overlooked in these post-disaster investigations. Table 2.2 outlines the respective socio-political-economic-organisational considerations.

Table 2.2

The Socio-Political-Economic-Organisational Context of Australian Disaster Management

Jurisdictional divisions and fragmentation;
Political decision making processes;
Public policy administration and implementation;
Organisation specific factors;
Resource allocation;
Current official hazard and emergency management practices, attitudes and conventions;
Societal hazardousness and vulnerability;
Hazard perception and awareness; and
Dominant social structural patterns and processes.

DIMENSIONS OF THE AUSTRALIAN DISASTER MANAGEMENT SYSTEM

The current Australian disaster management system is consistent with Australia's physical, social, and political geography. The size of Australia, distances involved, distribution of population, and the like, all reinforce why the approach taken to disaster management in Australia is fragmented, or of a decentralised nature. An emphasis on regional and local counter-disaster planning in Australia further reinforces this situation. This trend appears logically sustainable given that one can expect disasters to affect local communities, and that there is a dependence on volunteer workers. Moreover, local knowledge and experience of disaster events in Australian communities is a valuable management resource under crisis conditions; something which perhaps is even more profound than for the United States of America or United Kingdom.

This section identifies the dimensions of the Australian disaster management system (Table 2.3) as identified by the author from their research. A discussion of these dimensions will follow in the next section, and serves to provide a general overview, rather than an indepth analysis. Indeed, time and thesis manageability dictate that a comprehensive and critical analysis of each dimension is not possible. Although, it should

be stated at this point that a number of the dimensions receive attention in later Chapters. The dimensions can be categorised in a number of different ways, but to avoid complication, the dimensions have been separated into internal and external system considerations. The dimensions are not necessarily in any particular order. Rather, the important fact to note is that the dimensions are complexly interwoven. As a result, there is some repetition and reinforcement of particular ideas/concepts across dimensions.

Table 2.3

The Dimensions of the Australian Disaster Management System

External System Considerations:

- Societal Hazardousness and Vulnerability;
- Hazard Perception and Awareness;
- Jurisdictional Division and Fragmentation;
- A Prepared Local Community;
- A Range of Hazard Events, Characteristics, and Impacts; and
- A Continuum from Natural to Social Disaster.

Internal System Considerations:

- Current Official Hazard and Disaster Management; Practices, Attitudes and Conventions;
- A Disaster-Relevant Organisational Network; (Coordination of Inter-Organisational Support)
- Diversity of Organisational Involvement;
- Different Types of Organisational Behaviour;
- Public Policy Administration and Implementation;
- Bureaucratised Organisational Culture;
- Weak Focal Points;
- An Inappropriate Practice Ideology In-Use;
- Comprehensive Disaster Management;
- A Consistent and Equitable Approach;
- Command and Control;
- Police as Controllers;
- Volunteer Support;
- Resource Allocation;
- Information Management;
- Communications;
- Logistics;
- Disaster Management is Principally a Government Responsibility; and
- Specialist Training and Education.

The dimensions identified in Table 2.3 will now be discussed further in the context of strengths, weaknesses, opportunities, and threats to the system.

SYSTEM STRENGTHS

It was stated in the Introductory Chapter, and at the beginning of this Chapter, that there have been advances in the capabilities of organisations directly responsible for emergency management and in the coordinating arrangements at State and Territory levels. The author does not dispute that for accident and emergency management, the current state of planning is reasonable, and the emergency social system is generally capable.

However, notwithstanding the improvements in accident and emergency management, the author does dispute that for dealing with disaster, the current state of planning is reasonable, and the emergency social system is capable. Quite clearly, any reading of State and Territory Counter Disaster Plans reveals the use of an inappropriate practice ideology. Moreover, informal observation of actual disaster operations by means of the media, as well as mutual-aid training sessions further highlights the use of an inappropriate practice ideology. This is an ideology which is not based on disaster management.

Having made the above assertions, it is encouraging to see that most Australian States and Territories, in what is the International Decade for Natural Disaster Reduction, question and reflect on their organisational arrangements/capacity to deal with emergencies (eg. Steering Committee, [Assessing Victoria's Emergency Management Arrangements] 1992). In many cases, such reflection has resulted in considerable organisational restructuring of emergency service organisations and wider systems. Only time will tell, however, whether such restructuring results in more effective and efficient disaster operations.

Significantly, the Commonwealth launched a Senate Select Inquiry into Disaster Management in 1994. This should have been the catalyst for change, but, unfortunately the charter seemed to be based more around the search for general economic efficiency, rather then operational effectiveness in dealing with disaster.

Occasionally, the system surprises us with evidence of disaster management thinking, and it is perhaps fitting, to conclude this section examining system strengths by acknowledging the importance and relevance to Australia, of the Conference on Natural Disaster Reduction 1996. This was the second such conference after the passing of some twenty years! Understandably, there is much learning to be had for disaster practitioners and researchers alike.

SYSTEM WEAKNESSES

External Considerations

Societal Hazardousness and Vulnerability

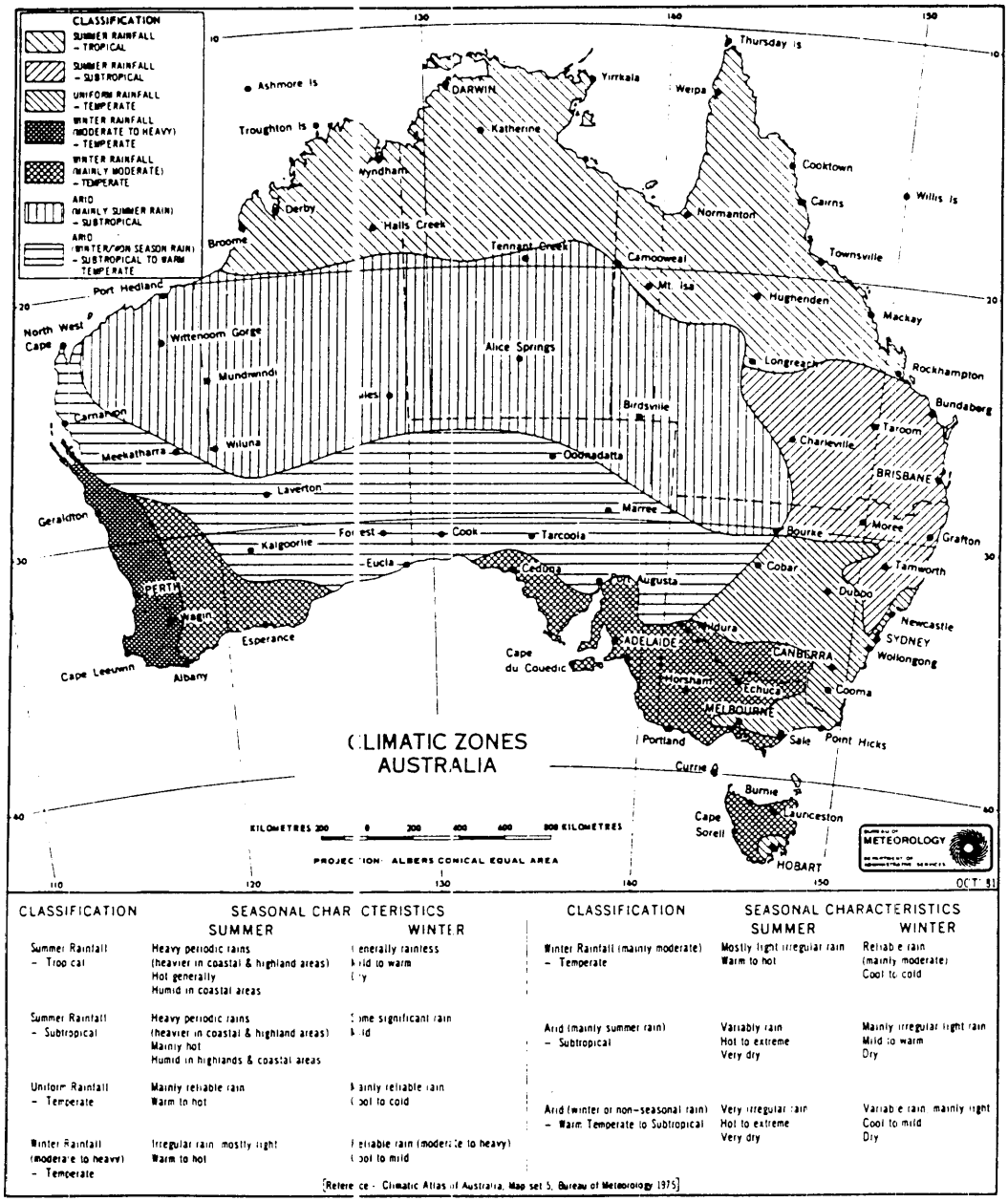
- Physical Environment

Australia's physical environment challenges the development of an integrated disaster management system. Australia has a total land area of 7,682,300 square kilometres, and the area is almost as great as the United States of America (excluding Alaska), 50% greater than Europe (excluding CIS), and 32 times greater than the United Kingdom (Castles, 1992).

The climate of Australia is varied, with the continent subject to several climatic regimes: tropical regions in the north, arid expanses in the interior, and temperate regions in the south (Figure 2.1).

Figure 2.1

The Climate of Australia



Source: Climatic Atlas of Australia (1975), Map Set 5, Bureau of Meteorology

The continent is considered fairly dry (Castles, 1992). The low relief of Australia's terrain presents little obstruction of atmospheric systems which control climate. Having said this,

Australia's history demonstrates the view that the continent's climate is capable of producing devastating natural hazards.

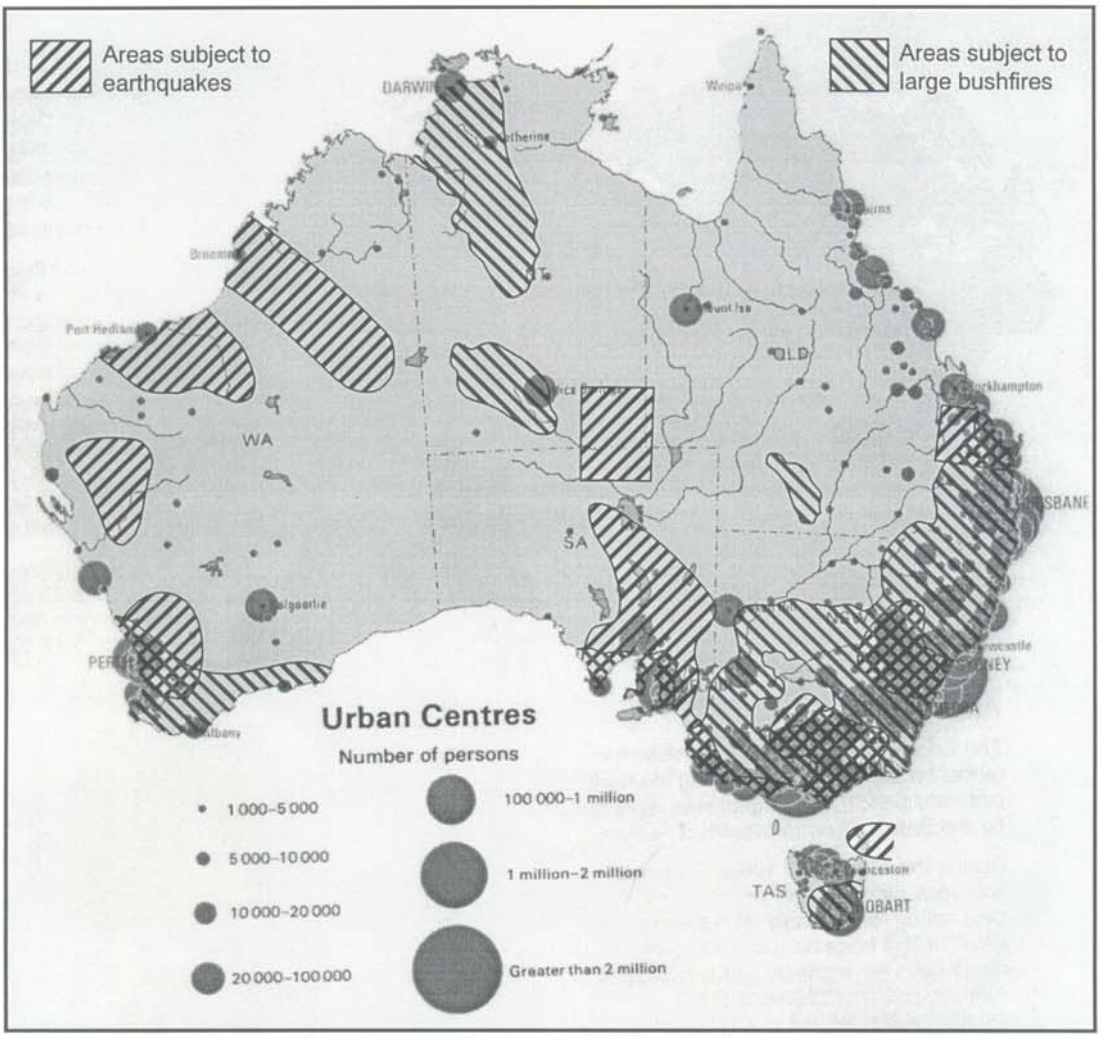
Over the past 200 years of white settlement, Australia's bio-diversity has been affected by a number of human activities including agriculture, urbanisation, clearing, draining of wetlands, the introduction of exotic species, and pollution (Castles, 1992). These human pursuits have not only profoundly affected Australian ecosystems, but also increased the propensity for technological hazards and technological based disaster; something which the current Australian disaster management system has been slow to recognise.

Moreover, the Australian coastline measuring 37,000 kilometres with its diverse marine environment is particularly vulnerable and fragile to unsustainable human activities. In this respect, the potential impact of technological hazards (particularly those associated with the transport of hazardous material) on the physical and social environments is enormous, and should be a major consideration in community hazard analysis and vulnerability assessment. Australia's physical geography and jurisdictional State and Territory fragmentation has made the development of a National disaster management system difficult. In fact, widely dispersed urban, rural, and remote settlements have necessitated regional, district and local counter-disaster planning arrangements (James, 1991). Distances and isolation of settlements, intensifies the need for local communities to be self-supporting and/or have well-developed self-help mechanisms in place to deal with disaster (James, 1991).

- Demography

Map 2.1 shows the distribution and concentration of Australian population in relation to two hazard threats - bushfires and earthquakes. There is a clear correlation between population distribution and concentration and areas of greatest hazard risk. A low average population density in Australia of two persons per square kilometre masks the pattern of population distribution; and this is something peculiar to the Australian continent (Castles, 1992).

Map 2.1:
Distribution and Concentration of Australian Population in Relation to Two Hazard Threats - Earthquakes and Bushfires



Source: Based upon Denham, 1979 and Cheney, 1979

The proportion of the population aged 65 years and older is steadily increasing, 8.3% in 1971 to 11.4% in 1991 (Castles, 1992). Similarly, the aged dependency ratio (population aged 65 and over per 100 population of working ages 15-64) has risen from 13.2% in 1971 to 17.0% in 1991 (Castles, 1992). A growing population aged 65 years or more, with increasing aged dependency, requires specialised disaster welfare and health recovery planning. Moreover, expectations on the part of disaster managers with regards to community preparedness and response, and in particular, individual householder preparedness and response may need to be reviewed in the light of an ageing population.

Net overseas migration to Australia of non-English speaking migrants, particularly in the late 1980's (Castles, 1992), has created a legacy today which could hold serious implications for an effective Australian disaster management system. Similarly, changes in migration targets, allowing the acceptance of increased numbers of Indo-Chinese refugees as settlers to Australia (Castles, 1992), may further complicate the picture. Effective community preparedness, response, and recovery from disaster is directly dependent on an ability to successfully communicate hazard risk and vulnerability. An inability to communicate effectively in the English language, is a major barrier to facilitating effective community preparedness, response, and recovery from disaster. This circumstance underlines the need for English language interpreter services to be part of the disaster management system. English language communication problems may also have implications for the success and approach taken in community/public hazard awareness programs.

Net interstate migration has seen net gains and net losses to and from some States and Territories (Castles, 1992). Such movement of population has in some cases increased and/or intensified the potential hazard threat in some high risk areas (eg. Gold Coast, Queensland). An intelligent flexible disaster management system, is needed under such circumstances. This trend reinforces the need for a system which is capable of adjusting disaster planning as required. Changes in disaster planning could include: logistics (equipment and personnel), and recovery (ie. provision of shelter, medical, and welfare services).

Tourism has experienced unprecedented growth in Australia. Indeed, the number of domestic trips has risen approximately 9% annually, and the number of international visitors has risen at a rate of 25% annually in the last few years (Castles, 1992). The

implications of tourism on disaster management arrangements are well recognised in the United States of America (see Drabek, 1994). Significantly, Greenway (1996) outlines preliminary results from a survey conducted with Cairns, Australia tourist accommodation managers concerning their participation in hazard preparedness planning. Greenway's results indicate that while accommodation establishments are receptive to hazard management activities, they nevertheless fear that information concerning natural hazards will scare away potential customers.

Australian demography, then, highlights a number of notable issues that must be factored into disaster planning: growth in population, masked by low density; increased levels of internal continent migration; an ageing population; increased levels of overseas migration (particularly of people from non-English speaking countries); and growth in tourism. Each of these demographic factors presents the disaster planner with challenges. For example, just how does one adequately resource disaster management in order to deal with large dispersal of population and/or urban, rural or remote settlements. The logistics are very complex. Clearly, an innovative and intelligent approach to disaster planning is required under such circumstances. Uncertainty, and the lack of forward thinking, is a major cause of system failure in disaster management (Dror 1986; 1988). It follows, then, that the design of a disaster management system would benefit from building in a capacity for organisations to self-evaluate (Wildavsky, 1972). For this to happen, however, organisations, and thus the system, would have to become more intelligent (Pinchot & Pinchot, 1993). Identifying the parameters for the rise of an intelligent disaster management system is no easy feat. Chapter Three searches for these parameters in terms of intelligent organisational structures and management arrangements.

Hazard Perception and Awareness

The patterning of human values and beliefs in Australia is a major force affecting human perception, behaviour, and environmental awareness (Najman & Western, 1988). The way in which these values and beliefs are communicated shapes the culture of Australian society. Socialisation and the development of human values and beliefs is of critical importance for the development of community hazard perception and awareness, and ultimately disaster management and planning. For example, complacency on the part of the public and officialdom towards their personal and/or community risk and vulnerability to the threat of disaster, has seen disaster managers hard-pressed in arguing and justifying their expenditure levels in the face of more immediate and visible needs (Drabek, 1990).

Socio-cultural norms, values and beliefs create a series of stereotypical attitudes which the disaster manager has to overcome. Such attitudes include: that the general public is largely apathetic and/or complacent when it comes to understanding hazard risk and vulnerability. This is embodied in attitudes of: "It won't happen to me!" "It won't happen here!" and "She'll be right mate!". Additionally, the public has been socialised into believing that in the event of disaster, government will logistically know when, how, and what to do. There is an expectation in the community that government will prevent disaster, prepare for disaster, respond to disaster, and assist a community to recover from disaster (Millican, 1994). These expectations are perhaps understandable and logical, given that one could surmise that the majority of the Australian population has not experienced a disaster.

Linked to socio-cultural norms, values, and beliefs are community hazard perception and awareness. Hazard perception and awareness are determined by the frequency and intensity of particular events. In this respect, high magnitude hazard events that could result in disaster in Australia are infrequent by world standards. This circumstance shapes hazard perception and awareness accordingly, and sees low issue salience on the part of the public, including officialdom. Lack of direct hazard, and more importantly disaster experience, is a major cause of low issue salience (Irby, 1972; Douglas, 1975; Greenway, 1992; Mugford, 1975; Raseta et al., 1987; and Pagram 1989; 1992). Migration of people between hazard prone settlements does little to foster an awareness of hazard threat and risk, and this has implications for public education (Learmont, 1971). Research by Toft & Reynolds (1994) has shown that migration of people tends to impede general organisational learning, as well as the development of local community knowledge and experience; knowledge and experience, which clearly assists effective disaster response and recovery.

Hazard perception and awareness also affects the design and implementation of structural and non-structural mitigation measures (Smith & Tobin, 1979). Indeed, in the United States rarely can decision making processes concerning disaster mitigation be considered rational, when policy makers are faced with limited information and the difficulty of trying to assess all the relevant variables (Kunreuther, 1982). Kunreuther (1982) further argues that there is limited time available to analyse longterm planning options required for mitigation policy, due to the number of daily decisions requiring immediate action. In this regard, disaster mitigation requires complex and controversial decisions to be taken

through extensive consultation with stakeholders (Godschalk, 1989). This process takes time and money; due in part, to the fact that information required to make rational cost-benefit calculations is not available, or is disputed by different stakeholders (Godschalk, 1989). Sinclair Knight & Partners (1981) identified similar constraints affecting disaster mitigation in their Gascoyne River (Carnarvon, Western Australia) flood study.

Overseas experience, and in particular, the United States of America reveals that communities which have developed an awareness of their disaster risk and vulnerability, and as a consequence have developed counter-disaster plans, have also tended to focus more on disaster response and recovery operations to the detriment of disaster mitigation and preparedness measures (Godschalk, 1989). In this respect, the more pressing tactical issues of disaster response and recovery have always been more amenable to the 'quick-fix' syndrome.

Public education of disaster potential in Australia is restricted by the fact that Local Government has traditionally not been overly concerned about 'disaster' as a policy issue (James, 1991). State and Local Government officials reinforce this perception by failing to recognise the fundamental differences between accidents, emergencies, and disasters (Britton, 1986b; 1991b).

Jurisdictional Divisions and Fragmentation

In Australia, the disaster management system is expected to operate efficiently and effectively across three tiers of government. Australia has a single National Government, six State Governments, two Territory Governments, and some 800 Local Governments. Under the Australian Constitution, responsibility for counter-disaster matters rests with the individual States and Territories. In assessing the extent of jurisdictional fragmentation, it is important to note that Australia has a hybrid governmental administrative system taken from the British system of parliamentary institutions and the American concept of a Federal framework (Corbett, 1992). Painter (1988), challenges the appropriateness for Australia of adopting 'borrowed' ideas, and/or whether this hybrid governmental system is the root cause for unreconciled tension between Federal, State, and Local Government.

The Commonwealth plays an indirect role in disaster management (discussed in Chapter Five). The State-Local Government relationship is by far the most important for the effective administration of disaster management (Britton, 1991b). Constitutional

accountability for Local Government rests with the States who have the legal authority and responsibility to determine Local Government legislation. In this respect, there exists in Australia, unlike in the United States, a political weakness of Local Government (Balmer, 1989). This has implications for the development of disaster policy at local level. State governments justify maintaining the political weakness of Local Government on the basis that there is a diversity of them and they exhibit limited professionalism.

The fragmented system of government and decision making in Australia across three political levels has done little to effect productive inter-governmental or inter-jurisdictional arrangements or agreements (Britton, 1990a; 1991a; 1991b). Inadequate provision of disaster specific legislation and authority bases across the States and Territories has also not helped foster an appreciation of the importance of planning for disasters (Britton, 1986b). Britton (1991b) appraising State and Local Government involvement in large scale social crises had this to say

> ...the Australian disaster management system has been described as "a study of fragmentation (Wettenhall 1980; Pickup and Minor 1980), comprising "administrative traps" (Heathcote 1980), set in an "administrative subculture" [containing a] disaster-related set of administrative arrangements (Wettenhall 1980), which is fostered by the "inertia of both bureaucracy and politicians" (Britton, 1989b) and is "secretive" (Britton 1989a; Britton and Wettenhall 1991), "complacent" (Wettenhall 1984), "compromised and constrained" (Britton 1984, 1985), which should be more directed to "fulfilling mission objectives rather than administrative means and ends" (Britton 1989a). These various appraisals have been summarised by Britton (1989a) as evidence of an enduring "bureaucratic imperative" within the disaster management system (p5).

Interestingly, May et al. (1996) evaluated coercive and cooperative intergovernmental approaches in respect of flood hazard management in Florida, United States of America and New South Wales, Australia. Their findings found that when Local Governments are not committed to State policy objectives, the coercive policy (as in Florida) produces better results, but when Local Government commitment exists (as in New South Wales), the cooperative policy produces substantive results that are at least the equivalent to the coercive policy. This adds further confusion to attempts to overcome jurisdictional fragmentation and division.

A Prepared Local Community

Local counter-disaster planning is not assisted by poor individual and community hazard/disaster awareness and perception and/or cognitive dissonance (Festinger, 1957). Wilful ignorance towards hazard risk and threat threatens the development of a prepared community. Disasters, however, in the first instance affect local communities. Local Government in Australia has a responsibility to ensure it is prepared for disaster (Emergency Management Australia, 1995). Inevitably, some Local Governments will prove to be better prepared than others for some hazards, depending on vulnerability. As was stated in the previous section, Local Government in New South Wales is committed to adopting State flood policy objectives (May et al., 1996). Australian research into flooding, flood disaster, and associated State and Local Government response has been extensive and impressive. The work of Dr. John Handmer is particularly worth noting (see Handmer, 1985a; 1985b; 1985c; 1986a; 1986b; 1987; 1989; Handmer & Milne, 1981; Handmer & Ord, 1986; Handmer & Partlett, 1987; Handmer & Penning-Rowsell, 1987; Handmer & Smith, 1983; 1985; 1989; Handmer, Lustig, & Smith, 1986; 1988).

A Range of Hazard Events, Characteristics and Impacts

The Australian disaster management system is expected to be able to deal with a range of hazard threats. Each of these hazard threats have peculiar characteristics in terms of degree of severity, length of event, total areal extent, total loss of life, total economic loss, social effects, long-term impacts, suddenness, and occurrence of associated hazards (Bryant, 1991). Every Local Government Authority is expected, through a comprehensive hazard analysis, to identify its vulnerability to various hazards and plan accordingly. Adding to the complexity, however, is the dilemma of deciding when it comes to training, whether to adopt an all-hazards approach, or train specifically for those events most likely to occur. Economic constraints may inadvertently dictate the outcome here.

A Continuum from Natural to Social Disaster

The Australian disaster management system has to operate effectively in an environment where the distinction between natural disasters and socially-created disasters is becoming increasingly unclear and complex (Hood & Jackson, 1991). The uncertainties associated with the use of high-risk technology intensifies this situation. In the future, hazard specialists will be increasingly called upon by the disaster management system to provide

the necessary intelligence, and thus the strategic plans necessary to prevent, prepare for, and more importantly, combat and recover from disaster (Britton, 1991d; 1992).

Internal Considerations

Current Official Hazard and Disaster Management Practices, Attitudes and Conventions

There are a number of inherent problems with current official hazard and disaster management practices, attitudes and conventions. These problems are listed in Table 2.4, and are discussed in further sub-sections.

Table 2.4

Problems of Current Official Hazard and Disaster Management Practices, Attitudes and Conventions

. A lack of standardisation of definition, terminology and practice;
. A lack of uniform training/education;
. Inappropriate command and control techniques;
. A lack of inter-organisational communication establishing prior arrangements based on mutual assistance and support;
. A lack of inter-organisational cooperation and coordination;
. A perceived reality that 'emergency services' can cope equally well with a 'disaster' situation;
. A failure to factor in rural and remote area differences into disaster management and planning;
. A political and bureaucratic incremental approach taken in disaster policy making, whereby there are 'flavour-of-the-month' attitudes to disaster management; and
. An inappropriate focus on police as the movers and shakers of disaster management.

A Disaster-Relevant Organisational Network
(Coordination of Inter-Organisational Support)

A system is defined as a "...a collection of interrelated parts which is unified by design to obtain one or more objectives (Luchsinger & Dock, 1982:1)". More specifically,

Luchsinger & Dock (1982:1) suggests the term 'system' embodies five fundamental concepts:

- The system must be designed to accomplish an objective;
- The elements (subsystems) of a system must have an established arrangements;
- That interrelationships must exist among the individual elements of a system, and these interrelationships must be synergistic in nature;
- The basic ingredients of a process (the flows of information, energy, and materials) are more vital than the basic elements of a system; and
- The organization objectives are more important than the objectives of its elements, and thus, there is a de-emphasis of the parochial objectives of the elements of a system.

Applying these concepts, saw Britton (1985b) criticise the existing disaster-relevant organisational network for its apparent lack of a 'system' structure and focus. Britton (1985b) stated that:

> ...while the present interorganisational disaster structure is referred to here as a "network", the notion that the organisations are tied together is more a reflection of an ideal state. A more appropriate description of the existing arrangements would be to label them a structure of individual components (p112).

This statement was made eleven years ago. Since 1985, all Australian States and Territories have undertaken some kind of review(s) of emergency and disaster services, disaster-relevant legislation, and/or engaged in disaster-relevant organisational re-structuring (Britton, 1991b). This process has continued through to 1996. Reviews and disaster-relevant organisational restructuring has resulted in legislative changes, changes in disaster-specific functions and roles, changes in the role of local government authorities, changes in disaster planning functions, changes in post-impact recovery and rehabilitation, and changes in inter-agency cooperation and coordination (see annual reports of emergency service organisations, 1985-1995).

The search for greater efficiencies and operational effectiveness by most disaster-relevant organisations has also meant a shift to more corporate-based management principles (see annual reports of emergency service organisations, 1985-1995). Despite these shifts and advances in inter State/Territory cooperation and inter-organisational coordination, highlighted by Hodges (1996) disaster management is still lacking a 'system' based counter-disaster structure and culture. A simple memorandum of understanding between

States, Territories, and emergency service organisations has not effected long-standing relationships. Why you might ask? Because, the desire of disaster-relevant organisations to retain their independence within the Australian disaster management system remains strong (Britton, 1993).

The disaster management system, then, does not exhibit an appropriate inter-organisational counter disaster structure (Britton 1983; 1984a; 1984b; 1985a; 1985b; 1986b; 1988; 1989b). A central part of this problem is the fact that the current disaster management system is highly bureaucratised and this appears to be because the structure has grown out of old civil defence arrangements (Britton, 1991a). History and tradition therefore play a large part in the current structure and operations of the disaster management system.

History and tradition have seen the establishment of individual disaster management system member units with no sense of responsibility with regard to their inter-organisational role. Indeed, Britton (1986b) has questioned the notion of a 'network' in the disaster management system, suggesting that the idea that organisations are tied together is a reflection of an ideal state, and that a more appropriate description of the disaster management system is a structure of individual components. Britton (1986b) argues further in suggesting that the majority of problems facing Australia's disaster management system are structural, caused by: "..the problems of inter-organisational conflict, boundary rigidity and other organisational jealousies (p112)." Maintenance of individual emergency service organisation independence, establishment of steadfast boundaries and jurisdictions during disaster, doubtful domain consensus among emergency service organisations, and competition for control of events by participating organisations plays a large part in adding to the crisis and stress of a disaster situation and the loss of effective counter-disaster operations.

Current disaster management system operations and inter-organisational relationships are indicative of a particular organisational culture, a machine bureaucratic culture (Britton, 1993) one which by its very nature promotes inflexibility, a degree of routine, a degree of formalisation and centralisation in decision-making. The culture is very much socialised into disaster managers, trainers and educators who in turn influence the thinking and understanding of new recruits. Organisational division and differentiation is fostered between police, fire, ambulance, State and Territory Emergency Service and Armed Services personnel. History and tradition have encouraged the respective disaster

management system member units to differentiate themselves from one another and carve a societal niche for themselves. This situation rather than providing for inter-organisational cooperation and coordination within the disaster management system, provides for mis-understanding, chaos, and confusion. Indeed, this problem was identified by the Task Force investigating the 1983 Ash Wednesday Bushfires and Cunningham et al. (1995) investigating management aspects of the January 1994 Bushfires in New South Wales.

Diversity of Organisational Involvement

Adding to the problem of inter-organisational cooperation and coordination, is the diversity of State Government departments, authorities, and agencies (Table 2.5) that have a role in disaster management and therefore need to be incorporated in the disaster management system (Britton, 1991b). The same is true of Local Government (Table 2.6).

Table 2.5

State-Level Organisational Involvement With Disasters

ORGANISATION	DISASTER SPECTRUM ACTIVITY			
	Mitigation	Preparedness	Response	Recovery
Emergency Serv Board[1]		+	+	
SES		+	+	
Bushfire Services[1]	+	+	+	
Police		+	+	
Fire	+	+	+	
Ambulance		+	+	
Medical/Health Serv	+	+	+	+
Welfare[1]			+	+
Public Utilities[2]	+	+	+	+
Veterinary Services	+	+	+	+
Agriculture	+	+		+
Forestry	+	+	+	+
Housing Dept		+	+	+
Planning	+	+		+
Business/Consumer Affair		+	+	+
Transport[3]	+	+	+	+
Legal Services[4]	+	+		+
Premier's Dept.		+	+	+
Employment			+	+
Occ Health & Safety	+	+	+	+
Public Works	+	+	+	+
Education		+		+
Insurance	+	+	+	+
Admin Services			+	+
Auditor-Gen/Treasury	+	+	+	+
Env. Protection Agency	+	+	+	+

Notes:
(1) The names given to these departments/units will vary between states and territories.
(2) Includes water, electricity, sewerage, waste management, and the like.
(3) Includes road, rail, air and sea transport systems.
(4) Includes Attorney-General, crown prosecutors, law courts, corrective services etc.

Source: Britton (1991b:9)

Table 2.6

Specific Powers and Functions of Local Government Associated With Disaster and Emergency

	NSW	VIC	QLD	WA	SA	TAS	NT
	FUNCTION						POWER
Emergency Services							
civil defence/emergency	-	p	-	p	-	p	-
fire fighting	p	p	p	p	p	p	p
fire prevention	p	p	p	p	p	p	p
joint defence activities	p	-	-	p	-	p	-
Economic Services							
land development	-	p	-	-	-	-	p
Environment							
env. protection	p	p	p	-	p	p	p
Health							
ambulance	-	-	-	p	-	p	p
hospitals	-	p	-	p	-	p	-
infect disease control	-	p	-	p	-	p	-
Town Planning							
building regulation	p	p	p	p	p	p	-
compulsory land acquisition	-	p	-	p	-	p	-
zoning/planning	p	p	p	p	p	p	p
Works							
flood prevention	p	p	p	p	-	p	-
stormwater drainage	p	p	p	p	p	p	p
Regulation							
air pollution	-	p	-	-	-	p	p
storage/transport of dangerous goods	-	p	p	-	-	-	-
water pollution	-	p	p	-	-	-	-

Notes: (1) "p" designates local government power to undertake a specific function.

(2) "-" signifies an absence of power.

(3) Information for the original table was provided by Local Government Associations and State Departments of Local Government. Data for the Australian Capital Territory was unavailable at the time this table was compiled.

Source: Britton (1991b:9)

Different Types of Organised Behaviour

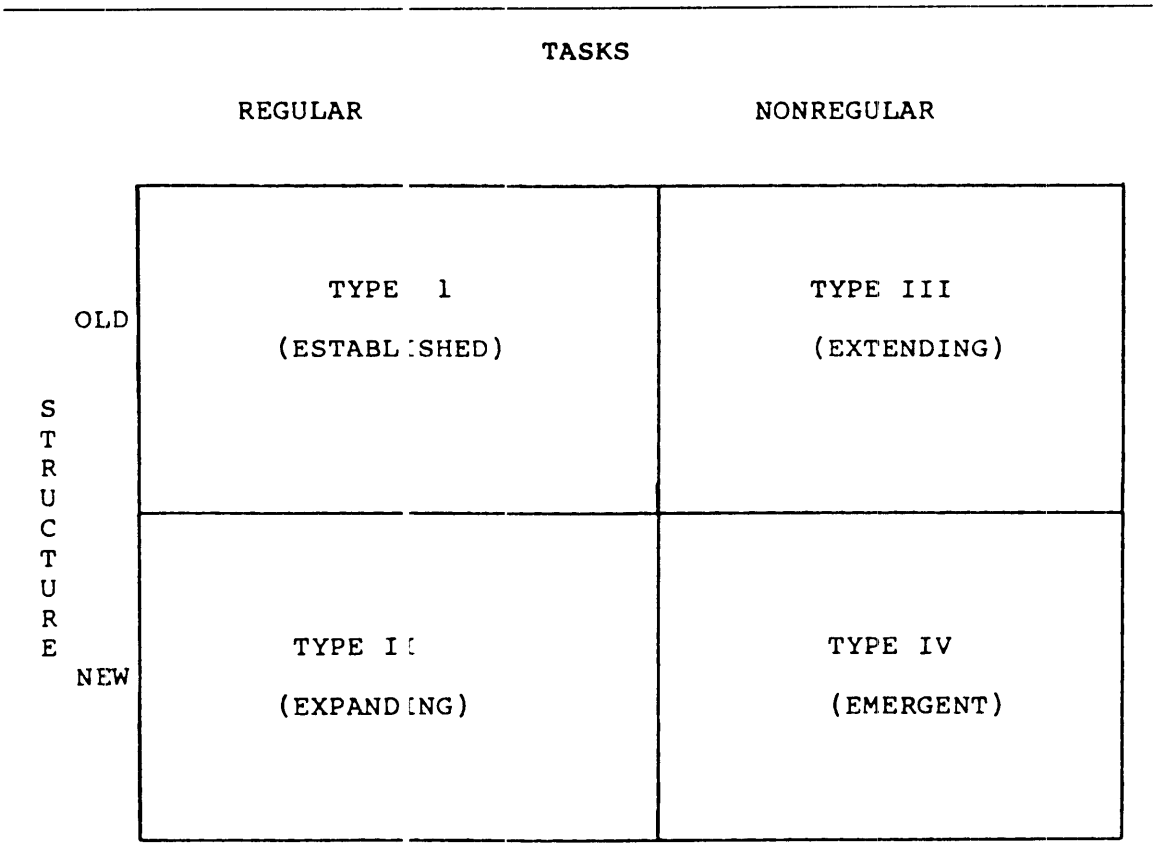
Disaster response and recovery in Australia sees the establishment of a large complex organisation which is expected to function immediately and effectively under exceptionally

difficult crisis-like conditions. In crisis situations four types of organised behaviour (see Dynes, 1970 and Tierney, 1989) can be identified (Figure 2.2):

- Established;
- Extending;
- Expanding; and
- Emergent organisations.

Figure 2.2

Types of Organised Behaviour



Source: Dynes (1970:23)

Type I behaviour is where organisations (established) perform the same tasks during disaster as they do in normal times (eg. police, fire and ambulance).

Type II behaviour is where organisations (expanding), including those which may be small and fairly inactive outside disaster situations, increase in size during crisis and become involved in activities which are different from their everyday tasks (eg. Red Cross).

Type III behaviour is where organisations (extending) retain their pre-disaster structure in terms of membership and management, but commence disaster-related tasks which they are unfamiliar (eg. Social Services, Health Services).

Type IV behaviour is where organisations (emergent) are private citizen groups who work together in pursuit of collective goals relevant to actual or potential disasters but whose organisation has not been institutionalised.

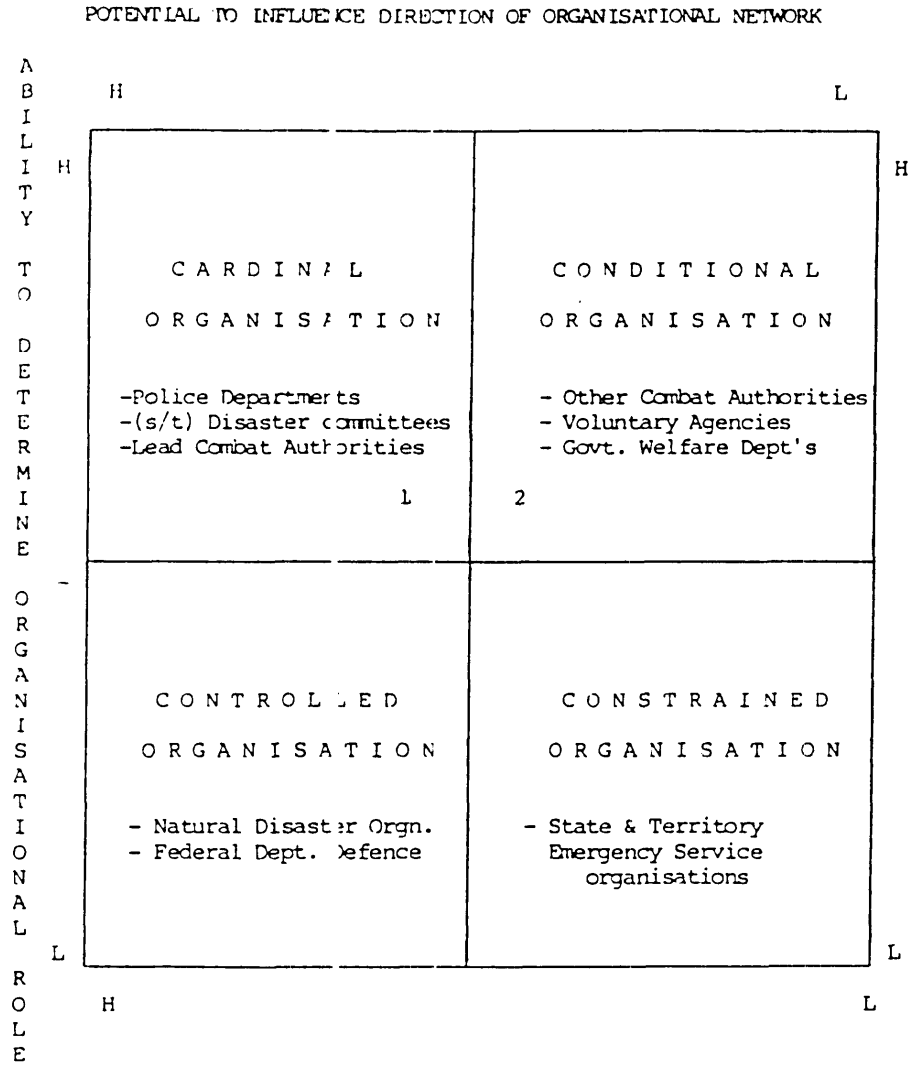
Extending the work of Dynes, Britton (1985b) categorised emergency service organisations according to their potential power to determine their own role (Figure 2.3), as well as influence the direction of the disaster-relevant organisational network:

- Cardinal;
- Conditional;
- Controlled; and
- Constrained Organisations.

This model proves useful for understanding how differing levels of organisational power, position, and influence among emergency service organisations, effectively controls inter-organisational cooperation and coordination within the disaster management system

Figure 2.3

Potential to Influence the Direction of the Disaster-Relevant Organisational Network



Source: Britton (1985b:296)

Cardinal Organisations (eg. State and Territory Disaster Councils, police, fire, ambulance) are the most powerful organisational type within the counter-disaster network, and as such, senior officials determine the role their organisation will perform during all aspects of the organisation's functions, including a disaster situation (Britton, 1985b:293). These organisations also by virtue of legislation or their standing within the network, have the power to influence the direction that the network will take. Conditional Organisations (eg. other combat authorities, voluntary organisations, and government welfare departments)

have a high degree of determinability to specify the role which it will undertake, yet does not have as much influence within the organisational network (Britton, 1985b:293). Controlled Organisations (eg. Emergency Management Australia, Department of Defence) have the ability to influence the direction of the network, and dictate their own role within the counter-disaster organisational network. However, these organisations are restricted from doing so by legislation and political considerations, and therefore said to be 'controlled' (Britton, 1985b:293). Constrained Organisations (eg. State and Territory Emergency Service Organisations) are relatively newcomers to the network and as such their role within the network is less rigidly defined, and the organisations functions are not as entrenched as some of the other types can be (Britton, 1985b:294). The role of these organisations is to a large degree determined by the other organisations in the network either directly or indirectly (Britton, 1985b:294).

Typically, the more established emergency service organisations tend to function well in Australia when dealing with routine accidents and emergencies. This fact is not surprising, given that it is for these functions that the organisations are designed. Dynes & Aguirre (1979) suggest that established organisations for short periods of time are more than capable or performing reasonably effectively as extended organisations operating in an unfamiliar task environment. However, disasters by definition result in response and recovery operations that are beyond the capability of existing organisations and it is because of this, that one sees the development of expanding and emergent organisations.

Public Policy Administration and Implementation

> Precision, speed, unambiguity, knowledge of the files, continuity, discretion, unity, strict subordination, reduction of friction and material and personal costs - these are raised to the optimum point in the strictly bureaucratic administration (Blau, 1963:1).

Blau (1963:1-2) citing the work of Max Weber specified the following requirements that an organisation must meet to be considered a bureaucracy:

- The regular activities required for the purposes of the bureaucratically governed structure are distributed in a fixed way as official duties;
- A specified sphere of competence...has been marked off as part of a systematic division of labour;
- The official is subject to strict and systematic discipline and control in the conduct of their office;

- All operations are governed by a consistent system of abstract rules and consist in the application of these rules to particular cases;
- The organisation of offices follows the principal of hierarchy; that is each lower office is under the control and supervision of a higher one;
- Officials are subject to authority only with respect to their impersonal official obligations;
- Candidates [for bureaucratic positions] are selected on the basis of technical qualifications; and
- Being a bureaucratic official constitutes a career.

Traditionally, a bureaucratised setting for Australia's disaster management system has brought constraint, conflict, ineffectiveness, and inefficiency into the counter-disaster network. Indeed, Britton (1984a, 1984b, 1985a and 1985b) analysed the constraint within the disaster management system, particularly that placed upon the State and Territory Emergency Services. The disaster management system, suggests Britton, is characterised by hierarchical relationships and unequal power and authority bases which combine to affect the direction of the system and individual roles of organisations within the network. Britton's 1985a doctoral study identified a poorly defined disaster management system which exhibited long term problems of inter-organisational coordination, cooperation, hierarchies of control, and poor determination of individual network unit responsibilities and accountability.

Newnham (1991) appraising Australia's present system of disaster management suggests that it can be likened to "disastrous management". In this respect, the bureaucratisation of disaster management has led to 'mismanagement", where:

> ...the disaster field has, particularly in recent times, become a new and burgeoning area for the public service where they can theorise ad infinitum and when the theory has complicated the issue, there is a position which, suitably looked after will ensure a comfortable and relatively lucrative position within the government system The position then makes them an authority on disaster management, and authority brings power and somehow power seems to lessen the output of real work...To ensure the position is permanent and one of importance, long complicated disaster plans are devised, primarily to confuse, so that eventually the municipal and State hierarchies are not comfortable unless they have a series of 3 inch-thick, hard-covered volumes of disaster plans ensuring the safety of their bailiwick (p408).

Local disaster management arrangements are also constrained by a bureaucratic imperative. In this regard, James (1991) addressing new disaster management arrangements in New South Wales whereby local government has been made more responsible and accountable, suggests that the new measures:

> ...are a veiled attempt to localise emergency management but maintain a centralised State control...[it has] produced a system that does not address the broad community issues but instead relies upon the 'tech-fix" and "command and control" model...(p23).

This finding appears to challenge the more recent statement presented earlier in this Chapter by May et al. (1996) that Local Government in New South Wales willingly cooperates in its endorsement of State flood policy.

The political and bureaucratic environment determines the preferred approach, decision-making process, and implementation of policy as it relates to disaster management (discussed in Chapter Five). Inherently, however, bureaucratic and political change is a slow and incremental process, unless given a parametric shock, in the form of a disaster. The political and bureaucratic environment, then, constitutes a major impediment in the design, development, and implementation of an Intelligent Disaster Management System (IDMS).

A Bureaucratised Organisational Culture

The search for intelligent disaster management arrangements has also to contend with conflicting, strongly embedded (and perhaps unavoidable) long-standing organisational cultures on the part of emergency service organisations. Organisational culture is a system of shared meanings, patterns of beliefs, symbols, rituals, myths, and practices that have evolved over time. Schein (1986) explains further:

> Organisational culture and leadership is regarded as the most comprehensive and integrative statement of organisational culture...culture is a pattern of basic assumptions - invented, discovered, or developed by a given group as it learns to cope with its problems of external adaptation and internal integration - that has worked well enough to be considered valid, therefore, to be taught to new members, as the correct way to perceive, think, and feel in relation to those problems (p9).

Britton (1993) identifies a number of caveats pertaining to the culture of Australian emergency services:

- The phrase 'emergency services' encapsulates many different agencies and departments;
- That different agencies response to different phases in the crisis sequence;
- There are different social crises, with specific qualitative and quantitative characteristics (moreover, with each crisis type, there are specific lead combat and support authorities which have particular responsibilities; further the various services have specific attributes which enable them to carry out their specialist functions, which in turn require purpose-designed training and equipment);
- The emergency services differ from one another;
- There is marked potential for variation between the emergency services due to the six States and two self-governing Territories each having their own legislation, regulations, prescriptions, and so on; and
- There is a pecking order - a hierarchy - within the disaster-relevant organisational network (position in the hierarchy is based on the ability of a specific emergency service organisation to determine the role it has within the disaster-relevant organisational network and the potential of specific organisations to influence the direction of the disaster-relevant organisational network [this aspect is discussed in Chapter Two]).

Britton (1993:11) likens the culture of Australian emergency services to that of a 'machine bureaucracy', in which there is:

- A highly specialised organisation;
- A plethora of routine operating tasks;
- A plethora of formalised operational procedures;
- A proliferation of rules and regulations;
- A highly formalised system of communication channels (usually upwards);
- A centralised power and decision-making structure;
- An elaborate administrative structure with a sharp division between line and staff;
- An in-use para-militaristic model of operation and thinking; and
- An orientation towards 'command and control' of civilian impacted populations.

Police, Fire, Ambulance, State and Territory Emergency Services, and Defence Services are all examples of machine bureaucracy.

Weak Focal Points

In the context of disaster management, focal points are central organisational structures that act in a 'parent' capacity to provide leadership and facilitate cooperation, coordination, and collaboration among members of the disaster-relevant organisational network. In the United States of America, the Federal Emergency Management Agency performs this role. In Australia, Emergency Management Australia (formerly, the Natural Disasters Organisation), performs the role of a National focal point, albeit weakly (Britton & Wettenhall, 1991). This is discussed further in Chapter Five.

Emergency Management Australia has its origins in civil defence (see Baker, 1978; Vardanega, 1978; and Britton & Wettenhall, 1991). Emergency Management Australia's mission statement is:

> To promote and support comprehensive, integrated and effective emergency management in Australia and its region of interest (Emergency Management Australia, 1996a:3).

This mission is achieved through adopting measurable key strategic goals (Emergency Management Australia, 1996a):

- To strengthen and foster emergency management partnerships;
- To develop, maintain and review emergency management policies and doctrine;
- To develop and deliver emergency management in education and training and undertake related activities to promote best practice in emergency management;
- To develop and deliver emergency management information services; and
- To improve structures, systems, an a work environment that foster staff commitment, flexibility and effectiveness.

Patterns of control in Emergency Management Australia have traditionally followed the bureaucratic and military model. Britton & Wettenhall (1991) make the point:

> Until very recently, NDO was not within the operational section of the Defence Force. In the latter part of 1990, however, NDO was moved from being one of a small number of outrider organisations to come within the jurisdictional ambit of the Chief of Defence Force. This has consolidated the militaristic approach. The "chain of command" requires staff at both the Canberra-based headquarters and the Australian Counter Disaster College [renamed Australian Emergency Management Institute] (ACDC--in Victoria) to answer directly to the NDO Director-General (ACDC has its own Director) who in turn is answerable to the "military" branch of the Department of Defence. The NDO Director- General is an active serviceman and since its creation the position has been spread reasonable evenly between the three services (air, army, navy) when the position becomes vacant every three years.. ACDC Directors have all been recruited through the Defence System. The Armed forces connection can also be witnessed in state-level appointments at the level of S/TES Director (p24).

Emergency Management Australia as a focal point for disaster management has its critics. In this regard, Britton & Wettenhall (1990; 1991) state:

- That Australia's constitution has allowed the federal system to create a "pattern of pluralistic jurisdictions" that has led the States and Territories to "seek their own focal points";
- That the individual State and Territory Emergency Service organisations through which the NDO functions are of declining importance in the disaster management system;
- That the NDO is not a centre of professional excellence which is a necessity for the success of a focal point organisation; moreover, NDO does not actively attract disaster specialists to its staff;
- That the NDO is located in the Department of Defence and therefore operates in a militaristic framework; this is not a flexible and innovative organisational form that will encourage innovative behaviour or the need to improvise; and
- That the NDO is not characterised by strong leadership.

One must accept the first two criticisms, not as a weakness of the current disaster management system, but an inevitability, consistent with Australia's geography and polity. With the Commonwealth's role in disaster management potentially diminishing, it makes sense that States and Territories should seek their own focal points. With regards to the State and Territory Emergency Services declining in importance, there is no reason why this should be seen as a negative thing. Indeed, Britton (1985a) argued strongly for a reorientation of the State and Territory Emergency Services, in which the organisation

would establish a niche, which would not interfere with the task domains of the established emergency organisations; the proposal being, that the State and Territory Emergency Services became a Disaster Management Organisation (DMO) whose principal task lies in disaster planning. Queensland Emergency Services have taken on-board this re-orientation for the State and Territory Emergency Service, by establishing a Counter Disaster Management Division, that includes the State and Territory Emergency Service.

In part, focal point problems and difficulties are a function of inadequate Federal and State funding (discussed in Chapter Six). Forsyth (1984 [cited in Britton & Wettenhall, 1991]) state:

> By the end of the first decade federal government allocation to NDO was an annual budget allocation of $5.1 million (1982-83) for the national combined counter-disaster and civil defence capability, or about 36 cents per citizen (p17).

State-level financial commitment to disaster management is viewed similarly (Britton, 1986a; 1989a; 1989b; Britton & Wettenhall, 1991). Indeed, Britton & Wettenhall (1991:17) - using the above figures as extreme approximation, and assuming each State and Territory allocated a similar amount (which they do not) - determined that "funding provided solely for the purpose of maintaining a disaster management system throughout the nation would be no more than $30-35 million per year". While Britton & Wettenhall (1991) accepted that these figures perhaps over-estimated the situation, Britton (1988) contrasted the figures with the estimated average Australian annual hazard losses (resulting in disaster) of $118 million for insured losses alone, "...a figure which obviously under estimates the actual total disaster losses possibly by as much as half" (p16). Although 'rubbery' figures (Britton & Wettenhall, 1991) they nevertheless underscore the disparate nature of financial support for counter-disaster mitigation, preparedness, response, and recovery activities.

An Inappropriate Practice Ideology In-Use

Much has been made of the assertion in this thesis that Australian disaster management is characterised by an inappropriate in-use practice ideology. On a continuum of collective stress, one can identify accidents, emergencies, and disasters (in that order). Complexity and uncertainty increases with each type of event. As a result, planning must reflect this. Planning, however, traditionally has failed to recognise the peculiar approach needed for

effective disaster management (Britton, 1986a; 1991b). Disasters, are much more than merely "...big accidents..."!

Comprehensive Disaster Management

The Australian disaster management system is expected to take a comprehensive approach to disaster management, and this requires planning for disaster mitigation, disaster preparedness, disaster response, and disaster recovery (Emergency Management Australia, 1995). Adding to the complexity, is the fact that a diversity of State Government departments, authorities, and agencies will have an involvement in one or more of these areas, depending on the type of hazard or disaster (Britton, 1991b).

Consistent and Equitable

Jurisdictional division and fragmentation at the government and organisation level make it difficult to effect consistent and equitable inter-organisational cooperation, coordination, and collaboration. Part of the reason for this, is that emergency service organisations have different abilities to determine their own disaster management role, and/or influence the system as a whole (Britton, 1986a).

Command and Control

Prior to a disaster, the responsibility for overall control of a disaster situation and for the command of each organisational element involved will need to be clearly specified in either legislation or the disaster plan; it cannot be left to chance and nor can decisions on these issues be left until a disaster occurs (Emergency Management Australia, 1995:9). This unfortunately, however, usually tends to be the case. In this respect, Australian disaster experience (especially, Task Force Ash Wednesday Bushfires, 1984; & Howard, 1991) demonstrates repeated confusion regarding command and control relationships.

Command responsibilities tend to be executive in nature (Irwin, 1989). They require attention to organising and managing. Command responsibilities are designed to develop, direct, and maintain a viable organisation and to keep that organisation coordinated with other organisations, elected officials, and the public (Irwin, 1989:143). Command responsibilities for Irwin (1989:143) include:

- The organising to meet the needs of the incident;
- The establishing of incident control objectives;
- The setting of priorities for work accomplishment;
- The assuring development of command-approved action plans;
- The approval of resource orders and releases;
- The approval of public information outputs; and
- The coordination with public officials and other organisations.

The command and control approach to disaster management has been criticised by a number of researchers, including Quarantelli (1995b) for its lack of flexibility, innovative ability, and inappropriate assumption that creating order in chaos can only be achieved through a centralised decision making top level structure (discussed further in Chapter Three).

Police as Controllers

Police as Controllers of disaster response operations has not been without criticism. Newnham (1991:410-411) criticises the use of senior Police as Controllers on five fronts:

- Police do not always have a thorough understanding of disaster needs and the management to achieve these needs;
- Police are not always fully conversant with their local district and its resources in both personnel and equipment;
- Police have not always been contributors to the counter disaster plan;
- Police do not always have the confidence and respect of the community and disaster organisations including local government; and
- Police do not always make the best public relations people because coordination is by command and coercion and not cooperation.

Newnham, argues that it is counter-productive and stupid to remove Police from their normal active service and duties and place them in a position for which they are ill-suited and generally untrained. The justification for senior Police as Controllers of disasters based on their common law charter of protecting life and property, is not sustainable (Newnham, 1991). Lack of counter-disaster training, as well as failure to appreciate the fundamental quantitative and qualitative differences of dealing with disasters, does little to instil confidence in the ability of Police (Britton, 1986a).

Volunteer Support

The dependence on volunteer emergency service personnel is linked to Australia's peculiar geography. Quite simply, Australia's size and associated distances and isolation between human settlements have created a logistical and resource allocation nightmare. It is not economically sustainable to resource the entire continent with career-based emergency service personnel (Britton, Moran & Correy, 1990). The only feasible solution is for career-based emergency service personnel to be supported by a large voluntary component. The relationship between career-based emergency service personnel and volunteers is, however, on occasion anything but harmonious, with career-based emergency service personnel often feeling threatened and compromised by the 'maverick' volunteer (Britton, 1990b; 1991c). Limited training of volunteers for the tasks they are expected to perform is part of the reason why volunteers lack a level of credibility in the disaster-relevant organisational network (Britton, Moran & Correy, 1990). Not surprisingly, a large volunteer element in the State and Territory Emergency Services has been a key reason why the organisation has found it difficult to gain legitimacy and status in the disaster management system (Britton, 1985a).

Resource Allocation

Funding and resource allocation in the disaster management system is insufficient to maintain an effective counter-disaster responsibility. Chapter Six considers economic impediments in more depth. Indeed, Britton (1986b:116) maintains that the distribution of funding tends to "...accentuate the emergency rather than disaster orientation of the disaster management system." The scale and distribution of funding made by State Governments to emergency service organisations does not appear to be based on complexity of task, or specific counter-disaster responsibilities.

As previously stated, the Australian disaster management is dependent on the support of permanent volunteers (Britton, 1990b; 1991c). However, allocation of funds by government, particularly State Government for volunteer equipment and training, is insufficient for the establishment of an effective volunteer service (pers. comm., Anon. Queensland Emergency Services, 1995). Indeed, the financial responsibility tends to fall on Local Government, and Local Government is not adequately resourced to carry out such a task (James, 1991).

Personnel resources in the respective emergency service agencies have traditionally lacked specialist training and education for disasters (Britton, 1986b; 1992). As a result, effective disaster management and planning is hindered by the attitude held by some emergency service personnel that disasters are merely "big accidents" or "acts of God" or "they just happen" or "they cannot be planned for" (Britton, 1991b). Drabek (1987), however, suggests that emergency services must accept the necessity for enhanced professionalism. Indeed, emergency management of the future will see:

> ...emergency managers articulate a set of specialized skills and knowledge. Career paths will be broadened; no longer is the military the primary route. New and additional training programs must be initiated, both by specialized entrepreneurs and traditional academic institutions (Drabek, 1987:252).

In Australia, Paul (1991a; 1991b) has argued strongly that a more "professional approach" needs to be taken to emergency planning. While Paul believes that Australia has developed a very well trained and well equipped volunteer response capacity, the emergency services are not responding to the change of attitude within the community:

> ...toward the expectation of a higher level of prevention and protection of the environment...[or] responding to the need for greater protection of the public from the affects of natural and man-made emergencies. We have not spent sufficient time on preventing events from occurring (p448).

To some degree, the question of the need for greater professionalism in the disaster management system has, and is being answered by the introduction of University courses in disaster management, such as is offered by the University of New England and Charles Sturt University.

In essence, resource allocation raises a number of pertinent questions relating to the actual level of money spent on disaster management activity versus the ideal expenditure needs of an effective disaster management system. Moreover, one needs to consider the distribution of resources between voluntary and permanent positions, as well as the distribution of resources (and its effectiveness) across different expenditure areas such as equipment, personnel, and training. There is also the issue of distribution of resources between the areas disaster mitigation, preparedness, response, and recovery.

Information Management

Effective management of information is essential to deal successfully with disaster (Handmer & Milne, 1981; Handmer & Ord, 1986). Communication networks will be needed between organisations to ensure that preparedness measures and response operations can be properly maintained (Emergency Management Australia, 1995:10). Again, however, disaster experience (especially, Task Force Ash Wednesday Bushfires, 1984; Howard, 1991; Sinclair, 1990; & Cunningham et al., 1994) demonstrates that effective information management between organisations has been lacking.

There is also a requirement for community information, which covers prevention preparedness, response, and recovery (people must be aware of the hazards they face and how to avoid them or reduce their effects). The community needs to be aware of disaster management and planning in their local area, and when a threat emerges they must be warned of it, and advised what to do prior to and post impact (Emergency Management Australia, 1995:10).

Communications

Communication is critical for effecting disaster management system success (Emergency Management Australia, 1995). Organisation, command, and control, coordination of support (particularly inter-organisational coordination), information management, and timely activation, and an effective counter disaster plan are all dependent on effective communications. Disaster has the capacity to bring about chaotic communications and information overload (Task Force Ash Wednesday Bushfires, 1984; Howard, 1991; & Sinclair, 1990).

Logistics

There is difficulty deploying emergency service personnel where, and when needed (Taskforce Ash Wednesday Bushfires, 1984). There is a time and distance factor to be considered. Added to this problem is the growth in emergent organisations that bring new people performing new tasks into an unfamiliar organisational structure, thereby providing further complication and instability to the disaster management system (Britton, 1985b).

Existing organisational structures and procedures are placed under great stress during a disaster because resources (ie. equipment and personnel) are stretched to capacity. As a result, emergent organisations are called upon in an adhoc manner to give support. The problem, however, is that emergent organisations bring new people performing new tasks into an unfamiliar organisational structure thereby providing further complication and instability to the disaster management system. In avoiding conflict, organisations often tend to accept only those demands that are within their capabilities, rather than increase capabilities to meet the demand (Godschalk, 1983). There are two arguments one could consider here.

The first argument would consider the importance of organisations being able to increase their capabilities to meet demand (as is the case with disasters). The decision not to increase organisational capability to meet demand is reflective of an inappropriate belief that disaster response is agent specific rather than generic (that is, requiring mutual-aid cooperation) (Quarantelli, 1987b). The second argument would consider that increasing capabilities to meet the demand is an ideal state. For example, the convergence of emergency service organisations in Newcastle in response to the 1989 earthquake, saw all organisations increasing capabilities to meet the demand, but the result was chaos and confusion, as all organisations wanted to get to the front-line, and perform roles distinct from those which had been agreed upon in mutual-aid arrangements; this action resulted in unnecessary rivalry, tension, and conflict, and added to the complexity of the disaster (Howard, 1991; Willis, 1992). Which argument is correct? There is no dispute that disasters require an increase in organisational capability to deal with circumstances, but that increase in capacity must come from the joint effort of organisational members in giving support in a system, rather than the power and selfishness of a cardinal organisation(s) to override the roles and responsibilities of weaker participating organisations.

Disaster Management is Principally a Government Responsibility

Disaster management is principally a government responsibility (discussed further in Chapter Six). Private contractual arrangements for disaster management are few. While most aspects of disaster management have the status of a pure public good (especially response), there is nevertheless limited private sector contribution in recovery and mitigation phases. The private sector is an array of resources, expertise and experience which is of considerable value to the disaster management system (Britton, 1986a). The

role of the private sector in the disaster management system has been underrated (Britton, 1986b). There is much to be said for seriously considering a stance, in which providers of disaster management services (including the insurance industry) attempt to recover, at least part, of the cost of disaster assistance; not least because it is in society's interests to make people as much as possible responsible for their actions and to establish, or give greater effect to, market mechanisms which are often more adept than public accounts committees at exerting pressure for the efficient operation of public services.

Specialist Training and Education

Disaster management requires specialist training and education. In December 1993, Fire Safety International (FSI) was commissioned by Emergency Management Australia to conduct a market survey into the products and services broadly described as: emergency management education and training. Fire Safety International (1994: 5) concluded:

- That the educational and training products and services currently being offered by EMA fall far short of providing for both the numbers wishing to participate in education and training courses and in the recognition they seek in the form of an accredited qualification.

- That with one or two exceptions, both the Commonwealth and State and Territory organisations involved in comprehensive emergency management have lagged behind industry in identifying the competency standards necessary for those entrusted with managing emergencies in Australia. Competency standards must be identified and appropriate linkages made with academic institutions and the professions if the education and training undertaken is to meet market needs.

- That initiatives undertaken by tertiary institutions such as the University of New England, in providing accredited courses in disaster and emergency management, have at best, received only lukewarm support from governments and industry.

- That the majority of persons responding to the survey, 89% of whom must be considered informed or educated in emergency management, believe that Australia is ill prepared to respond to major disasters. There is a clear need to introduce modern management principles into the planning, delivery and monitoring of education and training programs being offered for comprehensive emergency management.

The system weaknesses analysed in this section paint a rather bleak picture of Australian current disaster management. Acting as impediments, the system weaknesses identified have a capacity to undermine the advances that have occurred/are occurring in emergency management (Hodges, 1996) Ultimately, the impediments when complexly interwoven stand in the way of the move to design, develop, and implement an Intelligent Disaster Management System.

SYSTEM OPPORTUNITIES

System opportunities are a capacity to advance the future direction of the Australian disaster management system. National, State and Local counter-disaster planning and management arrangements in the last ten years have been subject to a number of independent reviews, inquiries, and special investigations which have been searching for organisational and disaster management system operational efficiency and effectiveness. The findings of these studies are critical for identifying not only system weaknesses, but also possible strategies of overcoming them (ie. system opportunities). Some of the more notable findings from these studies in respect of opportunities for the development of an effective disaster management system, include recognition of the Commonwealth's principles and components of effective disaster management practice; recognition of the key parameters affecting the functioning of a disaster management system; re-defining the role of the National focal point; the application of Public Service reform; and the benefits of specialist education and training.

Principles and Components of Effective Disaster Management Practice

The Commonwealth, States and Territories through their respective State and Territory Emergency Management Organisations advocate a number of effective principles and components of disaster management practice which if effectively implemented (and this is the problem) make for an effective disaster management system (Emergency Management Australia, 1995). Table 2.7 highlights these effective principles and components.

Table 2.7

Principles and Compo nents of Effective Disaster Management Practice

EFFECTIVE PRINCIPLES
• All Hazards; • Comprehensive; • Integrated; • C onsistent and Equitable; and • Prepared Community.
EFFECTIVE COMPONENTS
• Organisation; • A Planning Process; • Effective Plans; • Skilled personnel; • Actions; • Inter-a gency Roles and Responsibilities; • Adequacy of Resources and Maintenance of Readiness; • Informatic n management and Communications; • Operational Flexibility; • Capacity to Manage Extreme Events; • Funding; • Parliamentary Accountability/Ministerial Authority; • A Policy Development Process; and • Evaluation of Results.

Source: Emerg ency Management Australia (1995:4-10)

Effective emergency managem nt can only be achieved through a "...a close fit between state of risk and state of hazard management." (Britton, 1992:329). Without this close fit society is increasingly vulnerable to natural and technological hazards.

Each emergency service agency has its own individual management practices, procedures and conventions. During a disaster when cooperation is vital for effective response operations, unfamiliarity by participating organisations of each others practices and procedures provides for conflict. This was made blatantly clear during the 1983 Ash Wednesday bushfires when the joint operations of the Country Fire Authority, Forests Commission Victoria and the Metropolitan Fire Brigade contributed to the crisis conditions by poorly cooperating, coordinating, and generally liaising with one another (Task Force Ash Wednesday Bushfires, 1984). The failure to distribute information

among participating agencies during disaster (Britton, 1986b) is yet further indication that mutual cooperation is not feature of the disaster management system. Even under routine conditions member units of the disaster management system are unfamiliar with the extent of planning, expertise, experience and resource allocation available within other organisations (Britton, 1986a). In this respect, a lot of planning appears to be undertaken in secret and little information is shared between organisations. The implications of this situation is that there is considerable duplication of effort, and this is not cost-effective.

Traditionally, emergency service organisations have been reactive rather than proactive based organisations (Britton, 1991b). This has meant that response and recovery planning has been given higher priority than planning for disaster mitigation and preparedness. Moreover, a failure to distinguish between levels of social crisis/collective stress has meant that disasters are seen as large accidents (Britton, 1991b), where routine daily response measures will suffice to combat the effects of disaster. The importance of establishing the appropriate practice ideology in disaster management and planning was made as long ago as 1967, when Quarantelli & Dynes (1967:21) argued that a disaster creates five new dimensions that cannot be met be utilising pre-existing organisational structures and arrangements:

- That immediately after impact, organisations have to operate under conditions of great uncertainty;
- That organisations have to operate under conditions of urgency;
- That organisations have to operate in the context of the emergency consensus;
- That organisations lose autonomy in disaster conditions; and
- That the basis for participation within organisations is changed in disaster conditions.

Emergency management practices and conventions by disaster management system units has also traditionally seen poor collection and dissemination of information to the public, inadequate revision and evaluation of disaster response in the aftermath of a disaster, and inadequate integration of local, regional and State level counter-disaster plans (Britton, 1986a).

Key Parameters Affecting the Functioning of a Disaster Management System

A Steering Committee [Assessing Victoria's Emergency Management Arrangements] (1992:2-4) identified a number of key parameters affecting the functioning of a disaster

management system. While the points below relate to Victoria (Australia) it could be argued that similar parameters affect the functioning of the disaster management system in other States and Territories.

Disaster Management System Needs

- The system needs to have improved capacity for the identification of trends in community needs and expectations, patterns of hazard and risk, and management systems and practices.
- The integration of prevention, response and recovery planning and activities at State and regional levels should be improved. Regional response and recovery committees should have responsibility for prevention issues, and have links with the State Prevention Committee.
- The wide availability of emergency management awareness programs and resources for relevant personnel of all agencies.
- The need for ongoing monitoring of the State of resourcing (personnel, financial and material) and readiness across agencies.

Operational Needs, Including Planning, Training and Exercising

- The urgent need for Victoria to increase its capacity to provide emergency management training for a broad range of organisations and personnel.
- The need to involve each agency, including all municipal councils, in at least one exercise annually, whether tabletop or in the field.
- The provision of additional resources to oversee and assist with planning, testing and exercising should be available for all agencies at all levels.
- The continued provision of support for municipal councils is needed to promote high quality comprehensive and integrated emergency management planning.
- The ambiguity in the scope of planning expected of municipal councils should be resolved, and a variety of strategies is needed to assist and facilitate councils' planning and operational involvement in the arrangements within the broader context of regional and State arrangements.
- The review and improvement of inter-agency information management systems. These are the one weakness on which significant steps have not been taken since 1985.
- The systems used for listing sources of resources and services are in need of improvement and better utilisation.

Central Needs

- The direction and performance of the State Disasters Council should be revitalised.
- The need for an active and adequately resourced central office for Victoria's arrangements, to perform necessary inter-agency functions.

Community Interaction Needs

- The provision of effective strategies for enhancing community awareness of emergency management, including warning systems, should be developed and employed.
- The role of the community with respect to the arrangements needs to be thoroughly explored, and strategies developed to increase community involvement.

Addressing disaster management system needs; operational needs, including planning, training and exercising; central needs; and community interaction needs goes some way towards defining the requirements of an Intelligent Disaster Management System.

Re-Defining the Role of the National Focal Point

Re-defining the role of the National focal point, Emergency Management Australia, also goes some way towards defining the requirements of an Intelligent Disaster Management System, and the need for intelligent human resources. In this regard, a Senate Select Inquiry into Disaster Management, commissioned in early 1993, investigated:

> The capacity of the public sector authorities to plan for, forecast and respond to major disasters and large scale emergencies, fully respecting and utilising the skills and capabilities of volunteer organisations (p6).

Principal recommendations of this Senate Select Inquiry into Disaster Management (1994:7-15) were:

- That EMA give higher priority to activities under the International Decade for Natural Disaster Reduction (IDNDR) and in particular work towards gaining increased State and Territory commitment to their own IDNDR projects.
- That, as a project under the auspices of the IDNDR, State and Territories adopt nationally uniform building codes for improved disaster preparedness.
- That EMA explore the possibility of incorporating simulator training at the Australian Emergency Management Institute to enhance the capabilities of SES Officers. Funding

for this technology would be on a Commonwealth and State and Territory cost sharing basis.

- That the Australian Disaster Management Information Network (ADMIN) be used as a model to establish an Australia wide network for information exchange, specifically related to Disaster preparedness.

- That EMA convene and coordinate a technical committee to evaluate Geographic Information Systems with specific regard to disaster management and make recommendations as to the suitability of the various types of systems.

- That EMA conduct a workshop on ways of standardisation among emergency service agencies.

- That the States and Territories should cooperate to improve liaison and planning, with each State and Territory identifying a Department or Institution to be responsible for earthquake issues.

- That the Minister for Employment, Education and Training identify at least one Tertiary Institution to be made a Centre of Excellence, for Seismology teaching and research.

- That the preparation and adoption of uniform National exotic disease control legislation by the Commonwealth and States and Territories be completed as a matter of urgency.

- That the funding for the National Bushfire Research Unit be increased and the possibility of financial support from the States and Territories for bushfire research again be explored on the basis that bushfire is a State and Territory responsibility.

- That the Commonwealth and the States and Territories jointly commit more funds to the following critical areas of disaster preparedness: training, research, information collection and dissemination and public awareness.

The recommendations of the Senate Select Inquiry into Disaster Management (1994) clearly reinforce the Commonwealth's intent to devolve responsibility for disaster management and training and education to the States and Territories. Moreover, in addressing the need to find ways of increasing standardisation among emergency service organisations, Emergency Management Australia (1996b) conducted a workshop to consider guidelines for inter-State and Territory emergency management arrangements. Emergency Management Australia (1996b) identified some forty recommendations (see Table 2.8). These recommendations if implemented have the potential to become system strengths. But, it is somewhat ironic that these recommendations are made in 1996, when in the opinion of the author, they could easily have been made ten years earlier, in 1986. The lateness of the recommendations underlines the inherent long-term weaknesses of the current Australian disaster management system, and the general failure to differentiate between the needs and requirements of incident, emergency, and disaster management.

Adopting these recommendations will establish the basis for an integrated national approach to disaster management. However, their adoption will be hindered by Australia's physical, social, and political geography (particularly, jurisdictional division and inter-governmental fragmentation). A more intelligent organisational framework is needed to facilitate boundary spanning, and the development of more purposeful inter-organisational relationships among the emergency services (discussed in Chapter Three). The recommendations of Emergency Management Australia (1996b) go some way towards defining the design and development of an Intelligent Disaster Management System.

Table 2.8

Guidelines for Inter-State and Territory Emergency Management Arrangements.

Mutual Aid Agreements
1. That there be national support for the establishment of inter-State and Territory mutual-aid arrangements and that state representatives seek respective government support for the development of a national emergency mutual aid agreement;
2. That there be a mutual-aid agreement among all states and territories that establishes the framework for the provision of mutual-aid in emergency situations;
Inter-State/Territory Emergency Management Response Categories
3. That response categories be further developed and adopted nationally to describe the provision of mutual-aid among states/territories;
Command, Control, Coordination and Communication
4. That the mutual-aid agreement establishes a command, control, coordination and communication arrangements;
5. That each emergency service agency develops interservice Standard Operating Procedures where necessary for such operations;
6. That a working party be established to draft guidelines for the development of Standard Operating Procedure's covering inter-State and Territory emergency operations;
Communications
7. That assisting state agencies be self-contained for the provision of communications resources;
8. That the requesting state be responsible for the provision of communication facilities to link with the assisting state agency where incompatibilities exist;
Media
9. That the media plan of all states include suitable arrangements for inter-State and Territory emergency operations;

Response Arrangements

10. The mutual-aid arrangements should detail activation and de-activation arrangements;

11. That vehicle registration third party or other insurance be applicable/current when the authorised vehicle is operating in another state;

12. That exemptions for identified emergency vehicles under all state road traffic acts are given when operating inter-State and Territory;

13. The recognition be given to the existing registration of authorised professional personnel when those people are practising in the requesting state as part of an emergency/disaster response;

14. That recognition be given to the qualifications, accreditation and appointments of emergency personnel operating inter-State and Territory at the direction of their parent organisation in a requesting state during an emergency operation;

15. That authorised personnel assisting inter-State and Territory have the same powers as those in the requesting state where they are performing the same function/appointment in an emergency/disaster;

Evacuation

16. That cross-border evacuation be included in the Australian Emergency Manual - Evacuation Management;

17. That the responsible state agencies have in place mutually agreed arrangements for the evacuation of people to another state;

Community Recovery

18. That all responsible agencies including non-government organisations including non-government organisations incorporate cross-border arrangements in their local/ district/regional state welfare plans;

19. That state recovery plans adopt the principles and procedures contained in the Australian Emergency Manual - Disaster Recovery;

Cost Recovery

20. That the mutual-aid agreement contain a clear statement of the cost recovery arrangements for the provision of both human and material resources;

21. That each organisation, no matter from which state, bear its own initial costs with provision for cost recovery at a later date;

Protection of Employment

22. That volunteers deployed inter-State and Territory are entitled to the same employment and salary/wage protection as they would receive in their own state;

Compensation/Insurance

23. That each state provide for the payment of compensation (including death benefits) to permanent and volunteer members of that state who are injured or killed while engaged in authorised emergency activities in another state;

24. That these compensation payments be the same as if the death or injury occurred in their own state;

25. That states ensure that their worker's compensation legislation and insurance extend to operations Australia-wide;

Protection from Third Party Liability and Litigation

26. That the state in which the emergency occurs should accept responsibility for liability of injury, death, damage or civil litigation which occurs to a third party, and associated expenses including legal representation;

Investigating Inquiries

27. That procedures be established for coronial inquiries where incidents affect more than one jurisdiction which may require dual sitting arrangements and/or the formation of joint investigative task forces within the mutual aid agreements;

Special Notes

28. That protocols be established to provide the earliest possible advice of emergency events which may have the potential to affect another state;

Centralised Register of Specialised Capabilities

29. That EMA establishes and maintains a national register of specialised resources;

Health/Medical

30. That a review of the work being done by the medical/health authorities for the provision of inter-State and Territory support be undertaken;

Public Appeal Administration

31. That a disaster funds administrator/coordinator be appointed as required;

32. That each state establishes a centralised account for the holding of contributions (such as the Lord Mayor's Relief Fund, SA);

33. That any group or organisation establishing appeals or collections be made aware that all funds are to be deposited into a centralised trust account;

34. That guidelines be established before an emergency identifying the distribution mechanism for the funds;

35. That these guidelines ensure the rapid and timely distribution of funds to the disaster victims;

36. That funds are to be proportioned according to the impact of the incident on each state as identified by the relevant state department;

37. That the guidelines in relation to appeal funds as detailed in the Australian Emergency Manual - Disaster Recovery be adopted by the relevant jurisdiction;

Standardisation

38. That the NECM determine a strategy or strategies which address the above important issues of standardisation;

39. That an Australian Standard be established to facilitate compatibility of emergency response equipment; and

40. That a working party examine standardisation of emergency response equipment.

Source: Adapted from Emergency Management Australia (1996b:5-24)

Public Service Reform

The Australian Public Service (APS) identifies a number of management reforms that would assist the design, development, and implementation of an intelligent disaster management system. The significance of the reforms is that they provide a means of improving the efficiency and operational effectiveness of management. Disaster management to be successful also requires improved efficiency and operational effectiveness. Public Sector reform provides the means by which disaster management policy can be re-engineered to meet current day needs and requirements. The benefits of Public Sector reform for disaster management, however, need to be understood together with the other system opportunities highlighted. Table 2.9 outlines the various Public Sector reforms.

Table 2.9

Australian Public Service Management Reforms

Structural Reforms Structural reforms include a review of the success of a move to flatter structures; devolution and risk management; and decentralisation.
Industrial Reforms Industrial reforms include a review of pay and conditions and morale and motivation.
Human Resource Management Reforms Human resource management reforms include a review of worker mobility, flexibility and leadership skill; career planning; performance appraisal; training and management; equal employment opportunities; and occupational health and safety.
Financial Management Reforms Financial management reforms include an assessment of the usefulness of: The Forward Estimates System; Portfolio Budgeting; The Running Costs System; and Program Management and Budgeting.
Commercial Reforms Commercial reforms include a review of purchasing, contracting and user charging.
Planning and Reporting Reforms Planning and reporting reforms include a review of corporate planning; reporting on performance; and evaluation.

Source: Adapted from Task Force on Management Improvement (1992:6-29)

- Re-Engineering of the Public Sector

The changing nature of work (discussed in Chapter Three) sees a shift from mass production to 'seamless' organisations where there are broad jobs and multi-skilled teams; measurement is based on outcomes, technology is used to enable decentralised activities; internal organisation is based on integrated process teams; high time sensitivity; low, clarity distinction of roles because of the operation of cross-functional teams; and the nature of products or services are customised (Linden, 1993:50). Principles of concurrent organisational engineering for Linden (1993:77-78) include:

- Bring downstream information upstream;
- Integrate upstream processes;

- Simplify design cycles and steps;
- Substitute parallel for sequential processes and overlap phases of program or product development;
- Create and empower cross-functional teams to be responsible for the entire product and process development cycle from start to finish;
- Maintain constant communications within the team and between teams; and
- Institute "multi learning" - ongoing learning, including trial and error and benchmarking at individual, team, and organisational levels.

Re-engineering the Public Sector to meet the challenges of a dynamic operating environment presents greater opportunities for efficiency and effectiveness on the part of emergency service organisations and how they relate to one-another in the disaster-relevant organisational network. Teamwork is critical, and re-engineering of the Public Sector provides a means of establishing greater cooperation, coordination, and collaboration.

The re-engineering of Queensland and New South Wales Public Sector organisations providing emergency/disaster services has yielded notable structural and human resource management changes. The question remains, however, as to whether such re-engineering has gone far enough.

Queensland

In September 1993, the Public Sector Management Commission (PSMC) reviewed the Bureau of Emergency Services (BES), Queensland. Queensland Emergency Services (QES) was the outcome of streamlining commenced in 1990, which aimed to bring together, into a single body, emergency services which had previously been dispersed through a number of government departments.

The State Fire Services and the Rural Fire Brigades (which combined in 1990 to become the Queensland Fire Service (QFS)), the State Emergency Service (SES), the Chemical Hazards and Emergency Management (CHEM) Unit and the Ministerial Air Unit were brought together with the Queensland Police Service (QPS) under the Police and Emergency Services portfolio (PSMC, 1993:1). At this time, the Queensland Ambulance Services Board (QASB) was a separate entity within the new Department of Police and

Emergency Services, but not part of the Bureau (PSMC, 1993:1). In July 1991, following recommendations of an all-party Select Committee of Inquiry into Ambulance Services in Queensland, the QAS replaced the QASB. This saw the amalgamation of 96 brigades, previously managed by local area committees, into a statewide service. Prior to the creation of QES there were numerous accounts of:

> ...ambulance officers who only attended training courses every four or five years. Ambulances were used inappropriately, no clear priorities existed, conflict was common between the QASB and local area committees, as noted by the Select Committee, the service was neither optimally efficient, effective, nor of uniform standard. The services enjoyed strong support from local communities and organisations and continue to so do (PSMC, 1993:2).

Fire Services were similarly fragmented with 81 separate brigades administered by boards, consisting of local business and government representatives. A 1988 Commission of Review into Fire Services in Queensland investigating the appropriateness, effectiveness, and efficiency of the then management structure concluded:

> ...that there was no concept of statewide management or coordination of fire services and that coordination with other emergency services was poor. There were varying levels of expertise in operations, training, fire prevention and management and the resources of fire services bore no relationship to population or risks (PSMC Report, 1993:2).

The establishment of QES represented an innovative approach to coordinating and delivering effective and efficient fire, ambulance and other emergency services. Significantly, this was to be achieved:

> **...through cooperation and coordination rather than actual amalgamation of services. The Review strongly supports the current process of closer cooperation and believes that no compelling argument exists for amalgamating highly diverse and culturally different agencies (PSMC 1993:2).**

At the time of the Review, QES was still a comparatively new organisation in the process of developing closer cooperation and coordination of the delivery of emergency services, as well as examining areas where services, such as radio communications, information technology and a number of management functions might be combined (PSMC, 1993:2). QES (as of December, 1995) comprised six Divisions: Queensland Ambulance Service,

Queensland Fire Service, Counter Disaster Management, Chemical Hazards and Emergency Management, Aviation and Corporate Services. Emergency Services is one of Queensland's larger government agencies with 4000 permanent full-time staff and annual expenditure of approximately $250m; additionally, BES has 83,000 volunteers and 1900 part-time staff who assist and provide support as required (PSMC, 1993:3).

Achievements by the QES in the standard and coordination of emergency services have been slow, but notable. For example, QAS has introduced communications centres which provide a back-up response for calls to ambulance stations in the absence of ambulance officers; it has strengthened and standardised training for Ambulance Officers by the introduction of an Associate Diploma in Applied Science (Ambulance); QFS has undertaken a training needs analysis and, as a result, has also upgraded its skills by introducing standardised training through the adoption of new training packages; QFS is also developing risk assessment techniques in order to start to address the issue of allocation of resources (PSMC, 1993:3). There has been some criticism of Corporate Services in terms of imposing unnecessary bureaucratic pressure on service providers. However, the PSMC explains this criticism in the light of demands placed upon head office staff in establishing and managing the combined emergency services had been in practice extraordinarily heavy given the limited number of staff and speed of implementation (PSMC, 1993:3). Also, the implementation coincided with the development of new public sector administrative and financial standards which had to be adopted by services such as fire and ambulance that had previously been managed by more autonomous local communities (PSMC, 1993:3).

Specific organisation specific factors affecting QES operation and functioning have been: legislation, finances, regionalisation, organisational structure, and human resource management concerns ie. staffing, training. These organisation specific factors affecting operation and functioning are not exclusive to QES, but can be found throughout Australia existing as impediments in respective State and Territory disaster management systems. Furthermore, it would seem that QES will experience further restructuring as a result of a recent change [early 1996] of government in Queensland; the effects of such proposed restructuring are yet to be identified (pers. comm., Anon., Queensland Emergency Services, 1995).

New South Wales

In 1989, New South Wales created a State Emergency Management Organisation. As a 'structure' the organisation facilitates an emergency management and rescue structure at State, Police District and Local Government levels, consisting of State, Police District and Local Emergency Management Committees, and operations centres, which provides for an all agency comprehensive and coordinated approach for the prevention of, preparation for, response to, and recovery from emergencies (NSW DISPLAN, 1991:XVII).

In New South Wales, the Minister for Police and Emergency Services is responsible (NSW State Disasters Council, 1991):

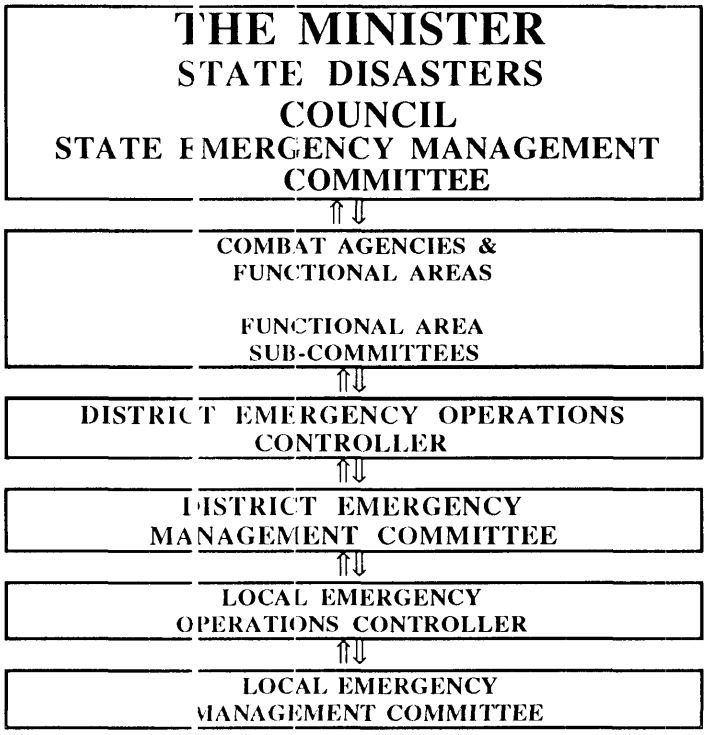
- To ensure that adequate measures are taken by government agencies to prevent, prepare for, respond to, and assist recovery from emergencies;
- To coordinate the activities of government agencies in taking those measures;
- To prepare, publish and review the State Disaster Plan (DISPLAN); and
- To arrange for the preparation of Sub-plans related to specific emergencies as required.

The Minister also chairs a State Disasters Council. The State Disasters Council provides the Minister with policy advice on all matters relating to the prevention, preparedness, response, and recovery from disasters, including the coordination of all activities of government and non-government agencies involved in dealing with disasters (NSW State Disasters Council, 1991).

In terms of disaster planning, disaster coordination, and disaster communication, a specific structure was adopted. Figure 2.4 highlights this structure.

Figure 2.4

The Disaster Planning, Coordination and Communications Structure in New South Wales



Source: Adapted from the New South Wales State Disaster Plan (DISPLAN)

On behalf of, and as directed by the Minister, a State Emergency Management Committee (SEMC) is responsible to prepare, publish and review a State DISPLAN (NSW State Disasters Council, 1991). Membership of the New South Wales State Emergency Management Committee is listed in Table 2.10.

Table 2.10

Membership of the New South Wales State Emergency Management Committee

CHAIR
Director-General State Emergency Service.
EMERGENCY SERVICE ORGANISATIONS REPRESENTATIVES
Police Service; Fire Brigade; Bush Fire Service; Ambulance Service; State Emergency Service; and Volunteer Rescue Association.
FUNCTIONAL AREA COORDINATORS
Agricultural and Animal Services; Engineering Services; Environmental Services; Health Services; Transport Services; and Welfare Services.
OTHER MEMBERS
Premiers Department; Department of Local Government; Communications; Supply; Treasury; Department of Planning; and Australian Defence Forces.

Source: Adapted from the NSW State Disaster Plan (DISPLAN)

The functions of the New South Wales State Emergency Management Committee are presented in Table 2.11. They appear diverse and wide-ranging in their coverage of mitigation, preparedness, response and recovery planning. Moreover, it is important to note the use of Functional Coordinators. These Functional Coordinators through their respective sub-committees are charged with the responsibility of planning for, and coordinating and controlling the provision of diverse mutual-aid resources from participating organisations across a range of functional disaster-related areas (NSW DISPLAN, 1991:35). This is an important task, for success equals effective on-scene

management, but failure equals confusion and lose of control (Howard, 1991; Willis, 1991).

Table 2.11

The Functions of the New South Wales State Emergency Management Committee

• To identify, designate, evaluate, and monitor hazards and threats to life and property;
• To produce specific hazard management guidelines;
• To identify Functional Area Sub-committees, and appoint coordinators for these Sub-committees;
• To review DISPLANS, Sub-Plans and Supporting Plans produced by each emergency service organisation and Functional Area at State, District and Local level;
• To establish and review appropriate emergency management structures at all levels;
• To identify emergency resources both within and outside the State and make plans for the allocation and coordination of the use of those resources;
• To establish and review systems for the use in the control and coordination of emergency management;
• To review and recommend emergency management legislation;
• To advise the Minister on the creation of combined local government emergency management arrangements;
• To establish communication networks within and between functional areas at all levels;
• To arrange emergency management training for individuals, including individuals employed in combat agencies, other organisations and functional areas;
• To produce and disseminate educational material on established emergency management policies and procedures;
• To arrange the conduct of training exercises to periodically test emergency management plans;
• To advise the Minister on the declaration of states of emergencies;
• To advise on the efficient use of local government resources in relation to DISPLAN;
• To assist in the selection and training of district and local government personnel for appointment to relevant organisations;
• To act as the single point of contact for Commonwealth support to emergency operations in New South Wales in the absence of other arrangements;
• To produce standing orders and instructions and standing operating procedures under DISPLAN; and
• To arrange for graduated warnings of emergencies to the public.

Source: NSW State Disaster Plan (DISPLAN)

It should be clear from viewi ng the above responsibilities that the State Emergency Management Committee plays a critical role in effective disaster management. In enacting these responsibilities the State Committee is reliant on being assisted by District Emergency Management Comm ittees (DEMC), as well as Local Emergency Management Committees (LEMC). District Emergency Management Committees are responsible for preparing plans in relation to the prevention of, preparation for, response to an recovery from emergencies in the district (District DISPLAN) for which it is constituted (NSW State Disasters Council, 1991). This Committee is responsible to the SEMC. Local Emergency Management Comm ittees are responsible for preparing plans in relation to the prevention of, preparation for, response to an recovery from emergencies in the local government area (Local DISPLAN) for which it is constituted (NSW State Disasters Council, 1991). This Committee is responsible to the relevant DEMC. In theory this cooperative structure and chain of communication presents itself as a system opportunity. However, in practice this structure and chain of communication is undermined by a fragmented, secretive, complacent, and compromised administrative and bureaucratic subculture characterising disaster-relevant organisations (Britton, 1989b).

Specialist Training and Educatio n

Fire Safety International (1994 identified a number of future key disaster management requirements in respect of specialist disaster management training and education (Table 2.12).

Table 2.12

Key Disaster Management Requirements Identified by Fire Safety International

1. Transfer of Responsibilities for Delivery

That EMA open negotiations with State and Territory Governments, and educational institutions, with the objective of outsourcing the delivery of EMA's educational and training courses.

2. National Symposia

That EMA enhances its program of activities covering seminars and workshops to provide a national focus on comprehensive emergency management issues.

3. Policy Development and National Standards

That the Commonwealth Government, in recognition of its international commitments and community service obligations, introduce policies to ensure that national standards in comprehensive emergency management including education and training are set and maintained.

4. Competency Standards Development

That EMA gives high priority to the current program developing national emergency management competency standards for endorsement by the National Training Board, so as to ensure that the process is national in scope and fully consultative.

5. Credit Transfer

That EMA open negotiation with selected educational institutions with the view to developing accredited courses.

6 Information Services

That EMA expand its information services and research product range and actively market these across all relevant governmental agencies and industry groups.

7. Conduct of Emergency Management Research

That EMA develops a research program in accordance with its charter.

8. Bench Marking

That comprehensive emergency management activities in Australia, be bench marked against appropriate organisations and/or countries.

9. Further Analysis of Available Material

That further analysis of the available material be considered, so that State and Territory trends can be identified and documented.

Source: Fire Safety International (1994:3)

Adoption of these key requirements implies an acceptance that there is a:

> ...strong need to transform comprehensive emergency management as a discipline, from being seen as reactive to situations and public pressures, to being proactive in developing national policies and standards and in fostering a skilled and competent work force...
>
> ...a cultural transformation from what is perceived as a production or process mentality to a needs or customer driven mentality. These changes required to achieve this objective are not merely structural (FSI, 1994:6).

System opportunities represent a capacity to advance the future direction of the Australian disaster management system. The system opportunities, discussed on an individual basis, may appear incomplete in respect of their needs and requirements. However, the reader is asked to accept that the system opportunities taken as a whole, provide the basis for the design and development of a more efficient and operationally effective disaster management system. Moreover, the system opportunities provide a basis to understand the needs and requirements of an Intelligent Disaster Management System (discussed in Chapter Three). System opportunities are, however, subject to system threats which challenge the capacity to advance the future direction of the Australian disaster management system, as well as intensify the effects of system weaknesses.

SYSTEM THREATS

Threats to the current disaster management system, and future proposed design, development, and implementation of an intelligent disaster management system, are embodied in four impediments which are the subject of further discussion in Chapter Three, Four, Five, and Six respectively:

- Organisational specific factors;
- Mutual-aid organisational cooperation and coordination;
- Political/bureaucratic constraints; and
- Economic constraints.

Not only are these impediments principal weaknesses in the disaster-relevant organisational network, but they constitute threats to the development of a system-based culture in which collegiate cooperation, coordination, and collaboration are more the norm. Results from an analysis of the strengths, weaknesses, opportunities, and threats appear to justify the excuse for the current Australian disaster management system trekking at the edge of effective disaster management practice, and apparently overlooking

in essence, what successful disaster management is really all about - achieving inter-organisational cooperation, coordination, and collaboration (or boundary spanning). The implications of this, is that the current Australian disaster management system came about by accident, rather than through systematic thought into what defines successful disaster management. So, how does the Australian disaster management system compare with the approach taken to disaster management in other countries?

COMPARING THE AUSTRALIAN DISASTER MANAGEMENT SYSTEM WITH THE APPROACH TO DISASTER MANAGEMENT IN OTHER COUNTRIES

Comparing the Australian disaster management system with the approach to disaster management in other countries reveals some interesting differences. It is clear from a reading of the international literature, that the delineation between disaster, emergency, and incident management is viewed somewhat differently. The process involves different levels of Government, different organisations, and different roles and responsibilities. It is also clear that Australian disaster management practice is not as advanced in its approach as are some other countries. The author has selected the United States of America and United Kingdom for comparison as Australia's current disaster management system has drawn extensive ideas, approaches, and concepts from these two countries. It should be stated that for both these countries there is a wealth of hazard and disaster-related literature that is beyond the scope of this thesis to cite. For this reason, citations have been selective, and a focus taken that concentrates on the more salient issues.

United States of America

The complex socio-political-economic-organisational context in which disaster management functions is not unique to Australia. In this regard, Hy & Waugh (1990) outline a similar picture of complexity in the United States of America:

> Emergency management exists within a complex political, economic, and social environment which explains the lack of a coherent, coordinated policy framework. Designing and implementing comprehensive emergency management procedures is easier said than done, principally because of the obstacles to effective action created by the low salience of disaster issues, the vertical and horizontal fragmentation of our government system, and the technical problems involved in identifying disasters, defining risk, designing and implementing mitigation and preparedness programs, and responding to and recovering from the disasters themselves...
>
> The unwillingness of federal and State authorities to assume the lead role in the development of emergency management procedures and to furnish State and local governments with sufficient resources to design, implement, and maintain effective emergency management programs has become more apparent in recent years. Inasmuch as disasters are geographically localised, county and municipal authorities are most often required to assume primary responsibility for emergency management. However, the policy-making, administrative, and fiscal capacities of local governments to design, implement, and support effective programs is very problematic (p11).

The United States of America has a large land mass like Australia, but is more densely populated. It is subject to a range of natural and technological hazards. The United States has a democratically elected system of Government, consisting of National, State, and County Government (Hy & Waugh, 1990).

The Federal Emergency Management Agency (FEMA) located in the United States Federal Government, is the national focal point for disaster management and planning (Evans, 1993). FEMA's charter is to establish a close working relationship with all members of the disaster management community; to improve the Nation's preparedness and increase its ability to respond to disasters of all types (Evans, 1993). FEMA is also a supportive partner to the public and private organisations and groups which contribute to disaster management. The responsibilities for planning for the response to and recovery from disasters are shared by Federal State, and County Governments, as well as the private sector (Evans, 1993). The responsibility, however, to meet any disaster is based at County Government level (Evans, 1993). State and Federal Governments provide guidance and support in all aspects of the disaster management process, which includes funding (Evans, 1993).

Through the coordination of planning and preparedness activities and the provision of financial and technical support, FEMA provides the vital ingredients for an effective National counter-disaster management system (Evans, 1993). This counter-disaster management system spans the full spectrum of disasters from natural disasters to nuclear war and extends through all levels of government and the private sector (Evans, 1993).

Support is available through FEMA to State and County Governments, in the form of equipment and training (Evans 1993). Emphasis is placed on the necessity to provide effective disaster communications so as to ensure the development of an integrated system. When the severity of a situation cannot be adequately relieved by County and/or by State efforts, the President of the United States of America is charged with the power to declare an emergency or major disaster situation on request for assistance from the Governor(s) of the affected State(s) (Evans, 1993). FEMA only becomes involved in emergency/disaster response and/or recovery operations after the President declares an emergency or major disaster (Evans, 1993). Disaster assistance from FEMA will then fall into two categories:

- Public assistance (aid to State and County Governments); and
- Individual assistance (aid to disaster victims and their families).

Mitigation efforts are carried out under Disaster Assistance Programs, to ensure the future safety of lives and property (Evans, 1993). FEMA is responsible for coordinating Disaster Assistance Programs provided by all Federal Agencies, as well as, having to establish Disaster Application Centers, which are established to enable disaster victims to receive a number of services from within the one building (Evans, 1993).

Research programs sponsored by FEMA are working to mitigate the effects of disaster (Evans, 1993). Research efforts are focussed on improving the Nation's capability to predict, prevent, and respond to disasters and to recover from the effects (Evans, 1993). It is evident that the system depends on the community and County Government to provide the first line of support in times of disaster.

The United States of America, and in particular, the FEMA demonstrates clearly to Australia the value of having a focal point (not necessarily a National one) for disaster management and planning. A focal point, which establishes a closer working relationship with all members of the disaster management community and across all tiers of Government. The relationship is critical for effecting mutual-aid arrangements facilitating

inter-organisational and inter-governmental cooperation, coordination, and collaboration. This, remember, is the 'Holy-grail' of disaster management.

United Kingdom

Handmer & Parker (1989) summarise the United Kingdom's approach to disaster management as:

> The overriding and direct influence appears to have been the continuing preoccupation with wartime civil defence based on the assumptions from the cold war period. This fixation combined with a reluctance by many senior government officials to admit that Britain experiences 'disasters' or even major emergencies has meant resources for peacetime emergency planning have been very limited...
>
> Local Authorities are required to devote time and money to preparations for an event with an extremely low probability of occurrence and have no requirements to prepare for events which occur and disrupt the community frequently. Emergency planning was to hang off Civil Defence...
>
> The assumption underlying the governments approach to civil defence appear to be that the career professionals the full time employees of the state will do the job. This is probably unrealistic and is part of the large accident syndrome (p34).

Government in the United Kingdom is democratically elected. The system devolves government through a regional structure to Local Government, often referred to as 'Boroughs' or Local Authorities (Betteridge, 1991).

Although there have been some changes in the structure of civil protection in the United Kingdom over the years, the Civil Defence Act 1948 is still the primary piece of legislation (Betteridge, 1991). Other legislation, however, spells out in greater detail the legal duties of Local Authorities to prepare plans for the care of local communities in the event of peace time disasters. When the problem is National (whether in peace or war) a Regional Emergency Committee may be appointed so that Central Government can exercise coordination between the Local Authorities involved and, in the extreme of nuclear war, may vest its powers in a Regional Administration headed by a Regional Commission (Betteridge, 1991)

Local Authorities have long had powers to spend money to mitigate the effects of peace-time emergencies in their areas, but the scope of the original 1948 Civil Defence Act was widened by the Civil Protection in Peacetime Act 1986, to detail specific aspects (Betteridge, 1991). In 1989 the Home Office year long review into the handling of civil emergencies was completed and concluded that the response to disasters should continue at local level (Handmer & Parker, 1989). The review did not accept the concept of the 'all hazards' approach to disaster management.

The disaster management system works through the Local Authority, County arrangements (Betteridge, 1991). Civil protection is not the sole responsibility of any one group of people, drawing on the training and skills of many diverse organisations, some of whom are paid for their work, some of whom contribute voluntarily (Betteridge, 1991). A coordinating structure has been developed, with the Chief Executive of each Local Authority at the head of the local planning process (Betteridge, 1991). County Emergency Planning Officers are employed full time to study local hazards, prepare plans and advise Chief Executive Officers on practical applications, in times of response (Handmer & Parker, 1989).

Perhaps the most notable feature of United Kingdom experience that could be of some benefit to Australia, is the full-time appointment of County Emergency Planning Officers to study local hazards and advise Chief Executive Officers on hazard and disaster planning. In Australia, the University of New England and Charles Sturt University are providing training and graduating students in emergency/disaster management. Perhaps, as these graduate students increase in numbers in the future, one will see their placement as Emergency/Disaster Management Officers in Local and State Government?

PROGNOSIS ON THE FUTURE DEVELOPMENT OF THE AUSTRALIAN DISASTER MANAGEMENT SYSTEM

Disaster management systems worldwide have their peculiar strengths, weaknesses, opportunities, and threats. In most cases the design, development, and implementation of disaster management systems has been the result of systematic thought into what defines successful disaster management, and most importantly, experience where there has been considerable learning and modification of disaster management systems after feedback of success and failure has been attained.

Contrastingly, the Australian disaster management system appears to have been the outcome of accident, rather than through any systematic thought into what defines successful disaster management. The design, development, and implementation of Australia's current disaster management system has relied on imported practices from countries like the United States of America and United Kingdom (Britton, 1991b). Australian disaster experience when compared worldwide has been infrequent, and of an insufficient magnitude to truly challenge the appropriateness or inappropriateness of imported disaster management practices. The result, then, is that opportunities to advance the development of the Australian disaster management system have been generally erratic, slow, and incremental in their realisation.

Because Australia does not have its own 'home-grown' disaster management system which has been continually tested and adapted through disaster experience, it is not surprising to find that Australia is not an international leader in comprehensive, integrated, and effective disaster management and planning. Instead, it is a country which (at best) is trekking at the edge of effective disaster management practice. Making the best use of system opportunities will create the ideal climate for the design, development and implementation of a home-grown IDMS (discussed in Chapter Three). In this regard, the rhetoric regarding system opportunities and effective disaster management practice needs to be turned into meaningful mutual-aid arrangements and inter-organisational cooperation and coordination. This requires substantial organisational learning and self assessment.

CONCLUSION

Quite clearly the socio-political-economic-organisational context in which disaster management functions in Australia is a diverse and complicated one. Diverse and complicated, in the sense of: societal hazardousness and vulnerability; socio-cultural norms, values and beliefs; hazard perception and awareness; resource allocation; jurisdictional divisions and fragmentation; public policy administration and implementation; political decision making processes; dominant social structural patterns and processes; organisation specific factors; and current official hazard and emergency management practices, attitudes and conventions. These conditions rather than constituting a strength for the disaster management system, are impediments that weaken and threaten the disaster-relevant organisational network, as well as the development of synergistic interrelationships among organisations.

Advances in the capabilities of organisations directly responsible for accident and emergency management and in the coordinating arrangements at State and Territory levels is recognised. What is challenged, however, in this thesis is that State and Territory emergency service organisations are planned, prepared, and practised to deal with disaster. In this regard, the in-house use of an inappropriate practice ideology has been mentioned.

Compared with many countries the frequency and impact of disaster is low. As a result, widespread complacency exists in the community. Unfortunately, public interest and political interest go hand in hand, and in the periods between major disasters the need for funding for disaster research, for mitigation activities, and for the enhancements of the other areas of comprehensive emergency management receive little priority (Hodges, 1996:8)

Chapter Three searches for intelligent disaster management organisational structures and arrangements that would facilitate mutual coordination and cultural understanding between disaster relevant organisations in crisis. This is the 'Holy-grail' of effective disaster management.