Disaster Recovery
A Review of the Literature

Gail Winkworth

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A literature review by Dr Gail Winkworth, with the assistance of Greg Smith, Assoc Professor Morag McArthur and Chris Healy for the Department of Families, Community Services and Indigenous Affairs (FaCSIA)

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Institute of Child Protection Studies
Signadou Campus
ACU National
PO Box 256
DICKSON ACT 2602
icps@signadou.acu.edu.au
Phone: 02 6209 1225
Fax: 02 6209 1216
http://www.acu.edu.au/icps/

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ABBREVIATIONS

AGDRC	Australian Government Disaster Recovery Committee
AGDRP	Australian Government Disaster Recovery Payment
ASIC	Australian Securities and Investment Commission
BTE	Bureau Transport Economics
COAG	Council of Australian Governments
CPP	Cyclone Preparedness Program
CISD	Critical Incident Stress Debriefing
DCITA	Department of Communication, Information Technology & the Arts
DOTARS	Department of Trade and Regional Services
FaCS	Family and Community Services
FaCSIA	Families, Community Services and Indigenous Affairs
EMA	Emergency Management Australia
NDRA	National Disaster Relief Arrangements
NDRRA	National Disaster Relief and Recovery Arrangements
PTSD	Post Traumatic Stress Disorder
SBA	Small Business Administration
SPP	Specific Purpose Payments

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SUMMARY OF THE LITERATURE REVIEW

This literature review addresses four key questions:

- What is a disaster?
- What are the effects of disasters?
- What is recovery?
- What are the key messages for successful disaster recovery?

The disaster recovery literature of the past five years is the primary focus of the review. The review canvasses contemporary definitions of disasters which generally conclude that it is the situation *created* by major events rather than the event itself, and especially the social, economic, developmental and political consequences of events which is the key defining aspect of disasters. A disaster exceeds the capacity of the 'community' to respond and requires a coordinated response by the State and other entities to help the community recover. Disasters are also events which are shared by a group of people who develop an identity that together they have been affected by major catastrophe.

This review examines literature on the effects of disasters on individuals, communities and the social environment, with particular consideration given to vulnerable groups such as those on low incomes, the unemployed and people with little or no insurance, vulnerable women and children, the aged and those who live in remote Indigenous communities. What is most striking about the literature on vulnerable groups in the Australian context is the absence of material, apparently reflecting a lack of research in this area.

The 'ripple' effects of disasters is a recurring theme in the literature; not only for people immediately affected, their families, communities and other hidden victims but the ripple effects of disasters in one economic sphere such as primary industry, impacting on other secondary and tertiary industries. Although there is information from World Bank sources about the impacts of international disasters such as the 2004-5 Tsunami on small and medium

business, the absence of Australian research in this area means the review is limited to descriptive material such as departmental reports after Cyclone Larry.

Emerging research also explores the increasing awareness of the beauty of the natural environment and its importance for human happiness and for the recovery of individuals and communities. This was, for example, a theme of the recent Canberra Bushfire research which identified the importance of the Canberra landscape to many people who may not have lost their homes but lost the simple everyday pleasures of their bushland surroundings.

The review examined the nature of recovery and identified several themes. The first is recovery as an outcome; that is, restoring the level of social, physical and economic functioning that existed *before* the disaster. Emerging literature, however, claims it is not possible to return to what existed before, that the world is forever changed by disaster and that the desired outcome of recovery management is to seize a 'window of opportunity' opened by a disaster to create a greater sense of place among residents; a stronger, more diverse economy; and a more economically integrated and diverse population.

The second theme addresses the active *processes* involved in facilitating recovery (including the fostering of resilience). It takes as its focus, actions on the part of individuals and communities helping themselves and each other, as well as the set of interventions on the part of governments to address recovery of the social (individual and community), economic, physical and natural environments. The literature explores the critical role of self help and volunteering, and the importance of bonding, bridging and linking social capital, both in contributing to recovery and as a desired outcome of recovery.

The literature review also addresses the role of governments in facilitating disaster recovery including international definitions and definitions used by the World Bank, other nations, Emergency Management Australia and the Australian states. It explores, primarily through key policy documents, the expanding role of

the Australian Government in the past few years, and the background to 'recovery assistance'.

Finally the review assembles key overarching messages from the literature about the processes involved in successful disaster recovery. These messages are grouped under the following themes: integrated approaches; well targeted psychosocial interventions; community driven responses; sustainable infrastructure, employment and business recovery; and communications and media that support the recovery effort.

The messages about the importance of integrated approaches include:

- Adopting a "Whole of Government" approach between Australian government agencies, between different levels of government, and between the public, private, non-profit and community sectors.
- Taking a "Comprehensive Approach" (that is, recovery processes are integrated with the other elements of disaster management such as prevention, preparedness (mitigation) and response).
- The interlinked nature of social, physical and economic recovery.
- The importance of using flexible structures and processes such as inter departmental committees, task forces, joint teams, cross-departmental partnerships and special purpose frontier agencies.

Other key messages include the importance of practical assistance and personal support for people affected by disaster and, at the same time ensuring that people who need greater assistance including counselling and ongoing formal psychological help are identified as early as possible. The importance of specific child focused interventions; active case management and outreach to vulnerable populations, and the need for timely, proactive and accessible services are also identified in the recent literature. While the point is made that there needs to be a transition back to normal management and service provision, there is an absence in the research literature about the best time to do this. There is a

distinct knowledge gap about longer term effects of disasters and the implications for longer term recovery management.

The literature gives universal support to community development approaches including the enabling of community capacity building through mitigation, preparedness and recovery strategies including facilitating bonds between 'like' groups such as family and friends, bridges to other networks which can provide new opportunities and links with government and other powerful institutions. The recent research demonstrates that a number of Commonwealth and Territory Government environmental and arts institutions are not necessarily prepared for the roles they could play in a major natural disaster. There was a perception, for example in the Canberra Bushfire research (2007) that some institutions regarded offers of help after the 2003 bushfires as obstructive and that others slavishly adhered to policies and procedures which did not allow for creative ways of working in the face of large scale emergencies.

Communities themselves are central to the recovery process and recovery is best achieved "when the affected community is able to exercise a high degree of self-determination" (EMA 2004:3). This fundamental principle underpins the considerable efforts of recovery managers in recent Australian and international disasters to actively use community development strategies.

The literature emphasises that physical recovery of the built environment must be based on long-term strategies of sustainability, such as adopting mitigation measures that prevent or reduce the effects of future hazard events. A critical part of achieving sustainable infrastructure, employment and business recovery is the identification of capacity and skills needed, the provision of information for re-building, special arrangements for handling insurance and prompt restoration of trading. The literature indicates a lack of attention in the Australian context to the opportunities that disaster mitigation, preparedness and recovery activities offer community capacity building. This stands in contrast to some of the international literature, particularly in developing countries where the

involvement of young people and other community members in mitigation, preparation and recovery activities plays a dual role of building social capital and preparing communities for the next disaster.

There is a very small but emerging amount of literature on communications and the media in disaster recovery which indicates the importance of consistent, timely accurate and clear information to those affected, from the earliest opportunity. Communication should be a two way process and multiple channels should be used. The importance of the media is demonstrated in the Canberra bushfires research and the government reports on the Eyre Peninsular fires and Tropical Cyclone Larry. This is another area of relatively unresearched knowledge.

LITERATURE REVIEW ON DISASTER RECOVERY

INTRODUCTION

Purpose

The Institute of Child Protection Studies (the Institute) has been commissioned to conduct a literature review to inform the development of an Evaluation Framework for Disaster Recovery Assistance for the Department of Families, Community Services and Indigenous Affairs (FaCSIA).

In January 2007, following several reviews, the Australian Government developed and outlined Disaster Recovery Arrangements (the Arrangements) These arrangements detail the role of the Australian Government Disaster Recovery Committee (AGDRC) in providing 'social and community recovery assistance' in the event of a declared on-shore or off-shore disaster. One of the terms of reference of the AGDRC detailed in the Arrangements is to provide advice to the Australian Government on lessons learnt in relation to "operations, processes and assistance provided by the Australian Government following onshore or offshore disasters" (Commonwealth of Australia, 2007p.19) p.3).

The AGDRC subsequently tasked FaCSIA with:

- the development of an Evaluation Framework to guide the evaluation of recovery assistance across "all hazards" disaster recovery situations, and
- a whole of Australian Government evaluation of the disaster recovery assistance arrangements for Tropical Cyclone Larry, taking into account existing completed evaluation work. The evaluation would be a means of testing the efficacy of the draft disaster recovery assistance evaluation framework.

The evaluation will specifically assess the immediate effects and the contribution made to longer term recovery in the Larry experience by assessing:

- the effectiveness of the service delivery arrangements in meeting the Australian Government's objectives for recovery assistance
- the effectiveness of the links between programs and delivery arrangements, including identifying overlaps and gaps in programs and communication issues
- the appropriateness of the respective agencies' and community organisations' roles and responsibilities in managing the recovery efforts, including identifying gaps and overlaps in areas of responsibility.

The Framework will be used as the basis for assessing, from a whole of Government perspective, the effectiveness of the Australian Government's disaster recovery assistance measures. It will need to be flexible enough to reflect the diversity of the assistance measures, range of departments and delivery mechanisms involved in possible on-shore and off-shore disasters and recovery arrangements. The Institute will use the Tropical Cyclone Larry event to test and refine the Evaluation Framework.

Our approach

Research questions

The literature review is structured around the examination of contemporary understandings of:

- disasters, including when disasters are recognised as national events calling for central government responses
- the impacts of disasters on the social, economic, physical and natural environments, groups which are particularly vulnerable, and the timeframes of loss experiences
- the concepts of recovery as both outcomes and processes for individuals, communities and governments, including how people help themselves and

each other to recover; and the closely related concept of recovery assistance provided by governments and other formal services

- the key elements and factors in delivering successful disaster recovery assistance, including an understanding of the boundaries and interconnections of recovery within the broader disaster management framework of mitigation, preparedness, response and recovery.

In essence, these four groups of issues address the critical research questions that we expect can underpin the framework for disaster recovery assistance programs and their evaluation.

Locating and accessing information

The aim of the literature review is to systematically gather together a comprehensive, transparent and replicable review of knowledge, including from the following five knowledge sources:

- Policy knowledge – legislation and other policy information to guide the context of the review
- Organisational knowledge - relevant information from providers and regulatory bodies such as previous evaluations (Websites of Emergency Management Australia (EMA), Department of Families, Community Services and Indigenous Affairs (FaCSIA) and Department of Transport and Regional Services (DOTARS) were extensively accessed)
- Practitioner knowledge – captured in this review from relevant research or other published material
- Service user knowledge – captured through research literature or other published material that presents user views or experiences
- Research knowledge – primarily captured in knowledge reviews through searching databases of peer reviewed and other published and unpublished research studies (Coren & Fisher, 2006).

Our broad search strategy used the key words: disaster or emergency and management, recovery, resilience, social cohesion, international recovery. We also used terms associated with recent disasters, such as: Bali tragedy, Asian Tsunami. Date limits on the search were usually 2002-2007. Contemporary authors, researchers and issues were identified through the contents and bibliographies of the electronically available *Australian Journal of Emergency Management* and *Australasian Journal of Disaster and Trauma Studies*. The main databases accessed were Blackwell Synergy, Academic Search Premier, Family & Society Plus, Informit, Sage publications. Wide use was made of Google and Google Scholar.

WHAT IS A DISASTER?

Definitions of disasters

A number of definitions of 'disaster' have been proposed over time, many of them focussing on the actual hazard or event and its cost in terms of loss of life or damage to property. In 1961, Fritz, for example, defined disasters as events that are:

> …concentrated in time and space, in which a society, or a relatively self-sufficient subdivision of a society, undergoes severe danger and incurs such losses to its members and physical appurtenances that the social structure is disrupted and the fulfilment of all or some of the essential functions of the society is prevented" (Fritz 1961, p. 202 Picou & Martin, 2006; Pyles, 2007).

More recently, however, the focus of disasters has moved towards consideration of the situation created by such events rather than simply of the origin, nature, size, speed of onset and other physical attributes of the hazard or event.

In 1992 the United Nations recognised that for an event to be a disaster it must overwhelm the response capability of a community: An international disaster was defined as:

> a serious disruption of the functioning of society, causing widespread human, material , or environmental losses which exceed the ability of the affected society to cope using only its own resources (United Nations in (Coppola, 2007) p. 25).

Another defining aspect of disasters is that while disasters may impact upon individual victims, they do not *happen* to individuals per se (Hutton, 2001). Disasters more accurately represent collective stress situations occurring at a community level as a result of major unwanted consequences. As Gist and Lubin explain, a disaster is:

> inherently defined by its relationship to community – a cataclysm qualifies as a disaster only to the extent that it overwhelms the capacity of a community to contain and control its consequences. It is not at all, then, a collection of individual experiences, though these certainly merit address (1999,p. 352 in Hutton, 2001).

These changes have been brought about by recognition of the limited capability for controlling such events and also from a realisation of the social, economic, environmental, developmental and political consequences for the communities they affect. Although not all disasters affect all of these spheres, the consequences tend to be similar regardless of the origins of the disaster (so called "natural" or 'human made") (Emergency Management Australia, 2004a). In its broadest sense, 'disaster' has therefore been defined in the Emergency Management Australia Glossary as:

> A serious disruption to community life which threatens or causes death or injury in that community and/or damage to property which is beyond the

> day to day capacity of the prescribed statutory authorities and which requires special mobilisation and organisation of resources other than those normally available to those authorities (EMA cited in Coles & Buckle, 2004).

Other contemporary definitions of 'disaster' capture some or all of these elements:

> A serious disruption of the functioning of a community or a society causing widespread human, material, economic, or environmental losses that exceed the ability of the affected community or society to cope using its own resources (The World Bank, 2006, p. xlix).

In 2002 the Commonwealth Government defined a (natural) disaster as:

> …a serious disruption to a community or region caused by the impact of a naturally occurring rapid onset event that threatens or causes death, injury or damage to property or the environment and which requires significant and coordinated multi-agency and community response. Such serious disruption can be caused by any one, or a combination of the following natural hazards: bushfire; earthquake; flood; storm; cyclone; storm surge; landslide; tsunami; meteorite strike; or tornado (Commonwealth of Australia, 2002).

Queensland's Disaster Management Strategic Policy Framework uses the definition of disaster and serious disruption from the Disaster Management Act 2003:

> A disaster is a serious disruption in a community caused by the impact of an event that requires a significant coordinated response by the State and other entities to help the community recover from the disruption.

> A serious disruption is the loss of human life, or illness or injury to humans; and/or widespread or severe property loss or damage; and /or widespread or severe damage to the environment (The State of Queensland (Department of Emergency Services), 2005p. 5).

Whatever terminology is used and for whatever types of event – natural or human - all such incidents are not only physical events requiring procedural approaches to planning and response, they are also psychological and social events. Generally there is consensus that a disaster is an event that involves the destruction of property, injury, and/or loss of life; has an identifiable beginning and end; adversely affects a relatively large group of people; is 'public' and shared by members of more than one family; is out of the realm of ordinary experience; and psychologically, is traumatic enough to induce distress in almost anyone (Saylor 1993 in (Eyre, 2006a)).

The scale of the consequences of the event is thus a defining feature of a disaster and so is the sense that a group of people make of the event – a shared identity that they have, together, been affected by major catastrophe.

When is a disaster a national disaster?

Disasters cover a broad spectrum of events and can be differentiated in terms of their agent (natural or human-caused), proximity, effects (visible or invisible), size, scope, duration, magnitude and the number of deaths (Magurie & Hagan, 2007). Until the Bali tragedy of October 2002 countless (natural) hazard events throughout Australian history have been mainly managed at the State, Territory and Local Government levels with the national Government's main role to support local efforts.

The cross jurisdictional nature of events such as Bali and the 2003 Bushfires pointed to the need for strong central coordination and management of recovery

activities and a different approach from the traditional reliance on local level management.

Additionally, one of the key lessons of the Bali tragedy was an expectation from those affected that they would receive the same level and quality of support, wherever they lived in Australia. The reality, however, was that service levels differed between states/territories and a range of services were provided by Australian Government agencies such as Centrelink (CSMAC Disaster Recovery Subcommittee, 2004). The scope of devastation caused by events led to an expansion of thinking about recovery, not just the importance of mitigation and longer term recovery but of economic and environmental impacts as well as the social and physical (Coghlan & Norman, 2004).

Disaster recovery arrangements faced particular challenges in the post-September 11 (2001) environment. With more than five million departures of Australians travelling overseas in any one year the disaster recovery landscape since that time is characterised by the inclusion of large scale human-caused offshore events involving Australians such as the Bali tragedy in October 2002, Madrid (2004) and the London (2005) bombings. In addition, large numbers of Australians can be affected by catastrophic-scale overseas disasters such as the Tsunami (2004/5) and the Pakistan earthquake (2005). Larger onshore "natural" events also present national-level implications, such as the 2003 bushfires which crossed three states and territories in Australia, Cyclone Larry's impact on Northern Queensland (2005), and the Hunter Valley Floods (2007). These events along-side the national implications of the risks from exotic animal disease and flu pandemics have all led to a re-examination of how Australia copes with catastrophic and other major events, regardless of their place or causes (Coghlan & Norman, 2004; CSMAC Disaster Recovery Subcommittee, 2004; Tarrant, 2006).

It is outside the scope of this literature review to define and discuss in depth the different types of disasters, both onshore and offshore that are considered large

scale, cross jurisdictional and of fundamental concern to Australian governments in the current context. Some examples, however, may include:

- Major onshore and offshore natural disasters involving Australian citizens such as cyclones, large scale bushfires and tsunami
- Mass violence (such as the Port Arthur massacre in 1996)
- Exotic animal disease (such as foot and mouth disease)
- Influenza pandemics (such as human transmission of Avian influenza)
- Onshore and offshore bombings affecting Australian citizens (such as the Bali and London bombings)
- Other terrorist activities that gravely affect or threaten large numbers of people (such as the anthrax scares in 2001-2002).

WHAT ARE THE EFFECTS OF DISASTERS?

Nature, scale and timing

Although large scale disasters clearly have many individual and community effects in common, disasters will vary in relation to the main focus of the recovery effort. For example offshore disasters such as the Bali tragedy impacted severely on individuals and to some extent communities but did not impact on the Australian physical or natural environment, or the Australian economy to a significant degree. Some disasters such as a major bushfire or cyclone, however, will impact on infrastructure, the natural environment, the built environment and industry, business and the economy.

What is clear is that harm to individuals and damage to industry, small business, buildings, tourism, utilities, the natural environment are interrelated and *all* impact on individuals' and communities' capacity to recover and prepare for other disasters.

While effects on individuals are often considered in terms of the effects of the disaster event itself in fact the research indicates that distress felt by individuals (and families and communities) often reflects as much or more the difficulties and hardships encountered during recovery and rebuilding, than during the actual event itself.

> Dealing with relief agencies (particularly governmental agencies), loss of job, loss of community status, or a changed socio-cultural mix in the community are all experiences that may occur following a disaster and may actually be more significant, over time, than exposure to the disaster agent itself (Flynn, 1999,p. 111 cited in Hutton, 2001).

Black and Hughes' analysis of the elements of 'community capacity' as consisting of resources, processes and outcomes (Black & Hughes, 2001) provides a useful framework for considering the effects of disasters and for understanding the dynamic, interlinked and reinforcing nature of these effects.

Resources that make up the 'capacity' of a 'community' are broadly defined under the following domains or 'environments':

- The individual, community, and social environment (people, their knowledge, skills, labour, social networks and institutional structures such as the public sector, and the not for profit sector (the so-called 'third' sector)
- The 'produced', economic environment (manufactured products, the built environment, physical infrastructure and financial resources)
- The natural environment (both renewable and non renewable bio-physical resources such as minerals, fossil fuels, soils, watercourses. Also includes natural features such as mountains and coastlines)(Black & Hughes, 2001).

The following section considers the literature on the effects of disasters in each of these environments.

Effects on individuals, communities and the social environment

Specific stressors

Specific stressors have been consistently found to affect mental health outcomes after disasters, for example: bereavement, injury to self or family, life threat, panic during the disaster, exposure to horror, property damage or financial loss and relocation. *Severity* of exposure to disaster (especially threat to life and lives of loved ones, injury and extreme loss) is one of the most important factors predicting adverse outcomes for individuals (Norris et al., 2002).

Ripple Effects

Because of the nature and scale of disasters large numbers of people are likely to be directly and indirectly affected. These impacts have been compared to the ripple effect of dropping a pebble into a still pond of water. The ripples created in the water spread out far beyond the 'epicentre' (Gibson 1994:137 in Eyre, 2006) and may also include the network of circles around both the bereaved (their neighbours/acquaintances, friends, relatives) and also around professional carers, (their relatives, colleagues and ex-colleagues, managers and supervisors of carers) (Newburn, 1996a in Eyre, 2006).

Taylor and Fraser (1981 in Eyre, 2006) produced a classification of disaster victims using the analogy of the ripple effect based on factors such as their proximity to the impact zone and psychological consequences of the disaster experience. Under this classification, potential victims include not only those directly injured (physically and psychologically) and those bereaved, but others who may be involved either as witnesses or responders, both in the short or longer term. This work highlights that the line between victims and non-victims is not as obvious as might at first appear and that there are usually a wide range of hidden victims (Eyre, 2006b).

Eyre argues that the value of the ripple effect analogy is that it reminds us:

> of the importance of proactive outreach to groups of people involved directly and indirectly in disasters and not just those physically proximate to the site of an event. ...[It is] helpful for considering practical outreach strategies and acknowledging that the nature and levels of support required may vary and should be adjusted accordingly (Eyre, 2006, p. 14).

Outreach, however should be proportionate to exposure to the event. Eyre suggests that it may, for example, be sufficient to just acknowledge that someone who did not travel on a particular train on a certain day (and thereby might have been involved had other circumstances prevailed), may feel understandably distressed at the thought that they could have been involved (Eyre, 2006).

The magnitude of individual effects

In a review of 20 years of quantitative research into the psychological effects of disasters, Norris (2002) concluded that of the 50,000 people who had experienced 80 different disasters (62 per cent of which were natural disasters):

- 74 per cent displayed specific psychological problems
- 65 per cent displayed symptoms of Post Traumatic Stress Disorder (PTSD)
- 37 per cent displayed depression or major depressive disorder
- 19 per cent displayed anxiety or generalised anxiety disorder.

However, Norris also pointed out that the samples studied were impressively diverse and that individual experiences ranged from little more than inconvenience to severe trauma, and correspondingly, minimal or transient stress reactions to prevalent and persistent psychopathology.

Duration of individual effects

Norris's review of the empirical literature in 2001 of people affected by disaster included analysis of 27 panel studies (in which the same individuals are interviewed on multiple occasions). The data indicated three primary trends:

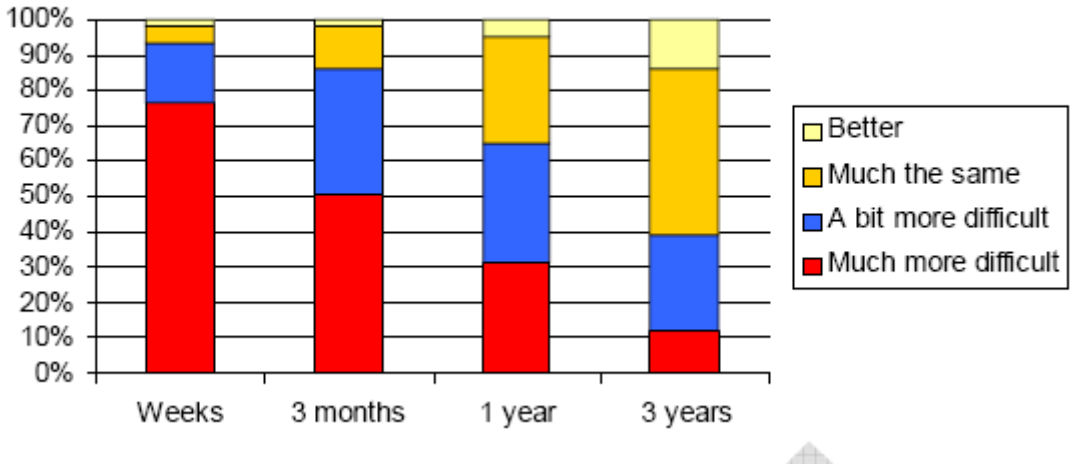
- the general rule was for affected individuals to improve as time passed. The effects were not always simply linear; some improved for a while then stabilised or worsened for a while, then improved again
- levels of symptoms in the early phases of disaster recovery were good predictors of symptoms in later phases. Delayed onset of psychological disorders were rare
- symptoms usually peak in the first year and were less prevalent after this, leaving a minority of communities and a minority of individuals within those communities substantially impaired (Norris et al., 2002).

The Canberra Bushfire study (2007) showed that the negative effects of a disaster for some can continue for a significant period. Three years after the fire in which 4 people died and 500 homes were lost, a considerable number of people reported deterioration of their everyday lives and ongoing health and psychosocial problems related to the bushfire. In the presence of a high level of exposure to the fire, and losses it appears that a large proportion of bushfire affected individuals are still experiencing symptoms of post traumatic stress and psychological distress (Camilleri, 2007).

Participants in both survey and interview research for the Canberra Bushfire study were asked to make an assessment of how they believed the events had affected various aspects of their lives. Regarding day to day life about three years after the bushfire:

- 11.9% (n=59) reported their day-to-day lives were much more difficult than before the bushfire
- 27.1% (n=134) reported their day-to-day lives were a bit more difficult than before the bushfire (Camilleri, 2007, p.83).

Table 1: Self report of day-to-day life after the bushfires compared with before the bushfire



About one fifth of respondents (19.5%, n=95) reported high to very high levels of psychological distress over the four weeks previous to the research (and about 3 years after the fire). The Australian Bureau of Statistics (ABS) figures for the ACT generally indicate 12.4% of 18-64 year olds in the population and 9.7% of those of 65 years exhibit this level of distress. The bushfire respondents are almost double this figure, a finding that is consistent with other bushfire research. As found in previous research it is possible that 'ongoing disruption' (such as loss or damage to home or business or displacement) is especially likely to influence respondent' levels of general psychological distress (Camilleri, 2007p. 78-79).

Inquiries and Coronial Inquests and their impact on recovery

Gibson highlights why platitudes about returning to normal and about "time healing" can be unhelpful given the political and legal aftermath of incidents:

> A late crisis time, such as giving evidence at an inquiry, can make the person feel that any progress they have made has been destroyed and that they are forced back to a more painful and earlier reaction (Gibson 1994:137 in Eyre, 2006b)

This point is reiterated in research by Camilleri et al, on the aftermath of the 2003 Canberra Bushfires.

> …the ACT Coroner's Bushfire Inquiry, with the extensive delays and perceived interference in the judicial process being cited by many as a factor delaying their recovery. Some spoke of a feeling that they could not 'move on' from the fire and the losses they experienced until there were official findings about causes and people who could be held to account for those causes (Camilleri, 2007 p. 106).

Effects on communities and social networks

There is a substantial literature on the impact that disasters can have on the solidarity of communities and the significance this has for recovery and government's role in recovery. The work of Moore et al, 2004 after Hurricane Floyd supported other research which shows that the upsurge of mutual assistance and solidarity that can overtake whole communities in the immediate wake of a disaster is of a temporary nature. Later phases are often characterised by a general lack of concern for others and feelings of neglect by government authorities. Mental health professionals report similar sequential reactions to disasters –"a period of heroic unity and mutual support followed by a period of disillusionment and anger" (Moore, Daniel et al, 2004, p. 213).

These concepts are also explored in Rob Gordon's work (2004). "Social disconnection" or "debonding" following emergencies in response to threat and arousal is followed by a "rebound" or social fusion with a new group of others after the threat subsides. This "fusion" promotes a false sense of unity and eventually gives way to "social cleavage planes" which, Gordon argues, undermine the social fabric of the community, which is the most important recovery resource.

> Personal relationships are stressed and disrupted especially by comparisons to what is happening for others. Anyone feels entitled to judge others based on (false) assumptions that they had a common experience (Gordon, 2004bp.19).

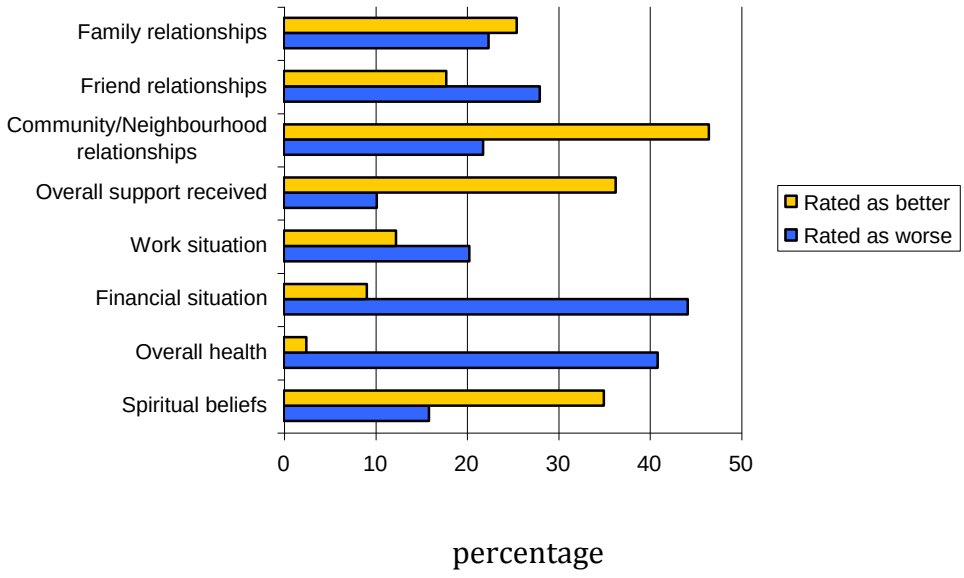
Positive impacts

Disaster studies also consistently report that the suffering and struggle to recover in the aftermath of disaster trauma often yields "remarkable transformation and positive growth" (Walsh, 2007p. 207). Tedeschi and Calhoun have found positive individual changes in five areas:

- The emergence of new opportunities and possibilities
- Deeper relationships and greater compassion for others
- Feeling strengthened to meet future life challenges
- Reordered priorities and fuller appreciation of life
- Deepening spirituality (R. Tedeschi & Calhoun, 2004; R. G. Tedeschi & Calhoun, 1996).

The Canberra Bushfire Research (Camilleri, Healy, et al, 2007) demonstrated a diversity of responses when 500 survey respondents and 40 interview participants were asked about how they perceived the effects of the bushfire on their family relationships, friends, community neighbourhood relationships etc. Interestingly, as Table 2 shows, more people rated family relationships, community and neighbourhood relationships and current overall level of support received, and spiritual beliefs as better, three years after the fire than before it. (On the other hand they rated friendships, work situations, financial situations and overall health as worse than before the fire).

Table 2: Self report of lasting positive effects and negative effects of the Canberra Bushfire 2003 (Camilleri, Healy et al, 2007)



Who is vulnerable?

The literature on vulnerability associated with disasters tends to consistently identify particular groups as highly vulnerable after disasters. The effect of multiple losses, dislocations and other challenges can be overwhelming; a "cascade of sorrows" as Walsh recounts the words of one mother in a study from the University of Chicago (Walsh, 2007). Those who fear for or are unable to save loved ones are particularly at risk. In addition to those who suffer extreme trauma including threats to life, the literature consistently identifies certain predictors of adverse outcomes.

Vulnerability associated with different types of disasters

Disasters vary considerably in their effects. Minimal mental health impacts tend to be associated with:

- Few if any injuries and deaths
- Destruction or loss of property is confined relative to the size and resources of the surrounding community
- Social support systems remain intact and function well
- The event does not take on more symbolic meanings of human neglect or maliciousness (Norris et al, 2002).

On the other hand, severe, lasting and pervasive psychological effects are more likely to be associated with 2 or more of the following factors:

- Extreme and widespread damage to property
- Serious and ongoing financial problems for the community
- Human carelessness or especially human intent caused the disaster
- High prevalence of trauma in the form of injuries, threat to life and loss of life (Norris et al, 2002).

Survivors of disasters in developing countries were identified by Norris et al (2002) as being at greatest risk of experiencing psychological trauma; 'severe' effects were identified in 79 per cent of people from developing countries (compared with 27 per cent in US people and 46 per cent in other developed countries).

Norris also found that, at least in lower magnitude disasters, prior experience with the specific type of event may reduce anxiety. People who had experienced disasters previously showed higher levels of 'hazard preparedness'.
Norris identified the following factors as predictors of adverse outcomes:

- Bereavement
- Injury to self or another family member
- Life threat
- A feeling of panic or horror during the disaster
- Separation from family (especially among children and adolescents)
- Loss of property, displacement and/or relocation (Norris et al., 2002).

Essentially, disaster impacts on people vary, depending on the levels of social vulnerability and risk. Norris et al (2005) summarise the results of an empirical review of research published over the last twenty years on risk factors for adverse outcomes in natural and human-caused disasters. In presenting their results they differentiate between *pre-disaster, within-disaster*, and *post-disaster factors*.

1) Key significant pre-disaster factors influencing post disaster outcomes were found to be: gender, age and experience, culture and ethnicity, socioeconomic status (as manifest in education, income, literacy, or occupational prestige), family factors (such as being married, being a parent and family conflict) and pre-disaster functioning and personality.

2) Within-disaster factors include: the severity of exposure at the individual or household level (including, for example, the presence of bereavement, injury, life threat, separation from family, loss of property and relocation or displacement), and neighbourhood- or community-level exposure.

3) Post-disaster factors influencing post disaster outcomes include levels of stress and psycho-social resources in the aftermath of disaster

Norris et al (2005) qualify their findings by commenting that the research base is larger and more consistent for adults than it is for young people. They suggest that even for adults, more research on many of these topics would be useful and might alter the conclusions reached thus far. At present, however, their review of the literature yields the following conclusions: An adult's risk for psychological distress will increase as the number of the following factors increases:

- Female gender
- 40 to 60 years old
- Little previous experience or training relevant to coping with disaster
- Ethnic minority

- Low socioeconomic status
- Children present in the home
- For women, the presence of a spouse, especially if he is highly distressed
- Psychiatric history
- Severe exposure to the disaster, especially injury, life threat, and extreme loss
- Living in a highly disrupted or traumatized community
- Secondary stress and resource loss.

After the Tsunami, the Australian Psychological Society alerted the community to certain groups of Australians with special needs. Specifically among them were tourists and travellers who are "absent from their own communities and resources and are in an unfamiliar environment, possibly with little knowledge of how to access resources and services. As a group they are easily identifiably as being at risk" (Minas, 2005). Minas adds:

> The psychological impact on tourists will of course depend on whether they were personally caught up in the disaster and suffered direct losses. If they have lost family or friends then all of the issues to do with such loss come into play. Those who have been able to leave soon after the disaster may well feel guilty about the fact that they had the ability, and took the option, to leave while locals have suffered and will continue to suffer so greatly (Minas, 2005)

Addressing the issue of vulnerable individuals and groups the Canberra Bushfire study recommends that governments make arrangements for prioritizing and outreaching to vulnerable groups after a disaster, noting that in the case of this bushfire these groups included:

- those who were bereaved or have suffered serious injury
- those who were separated and traumatised through evacuation procedures
- those who had feared they would die or that they would lose loved ones

- those who had suffered previous trauma and/or disadvantage (Camilleri, Healy et al, p.173).

Effects on children and young people

Child focussed interventions relatively recent

Despite the advances in knowledge in the disaster research field generally the effects of disasters on children and youth have been seriously under studied. Anderson argues that such knowledge is needed to deepen our understanding of the effects of disasters on society and to provide a firmer basis for disaster management policy and practice (Anderson, 2005). Under studied groups can become the "underserved," especially in diverse societies.

There is an extensive literature in the child welfare field which establishes that adults, struggling to come to terms with serious adversity are often not able to give their usual attention to children. Although the mid-1970s saw some international researchers beginning to investigate effects of disasters on children and young people there is a view that impact of traumatic events on infants, toddlers, and preschoolers especially fears of subsequent events and sleep disturbances is only beginning to be systematically documented and understood. In particular is the understanding now that separation from parents was identified as having potentially severe consequences for children. There is also a better understanding of the effects of disasters on children and young people, including their susceptibility to extreme reactions such as Post Traumatic Stress (Lieberman & van Horn, 2004).

Dearth of Australian research

There is a dearth of Australian studies of children and young people affected by disasters, especially those which look beyond the initial early recovery period to about 24 months after the disaster. Six and eight month studies have been conducted for children and adolescents exposed to Australian bushfires

(McDermott, Lee, Judd, & Gibbon, 2005; McDermott & Palmer, 2002) (McFarlane, 1987).

Studies have also tended to focus on children/adolescents or adults separately, rather than together. As 'parental distress is a strong, and sometimes even the strongest, predictor of their children's distress that has been replicated in a number of studies' (Norris et al 2002a:237), it is important for studies to examine children/adolescents and their parents together in the same study.

The literature also lacks research which directly asks children to tell of their experiences. Studies rely on adults interpreting on behalf of children. Children's voices are not often heard.

Effects on children after the Canberra bushfires

Of existing Australian research studies examining impacts on children and young people affected by the Canberra bushfires are probably the most recent Australian work in this area. McDermott et al (2005) screened 222 children and adolescents aged 8 to 18 attending one Canberra school for post-traumatic stress disorder (PTSD) and general psychopathology, including emotional symptoms. Six months after the bushfire, primary school students in Grades 4, 5, and 6 were more likely to suffer PTSD and emotional problems than older school students. McDermott et al. categorised children according to school grade rather than age as school grade was considered a better predictor of emotional distress as it better approximated a child's developmental level (McDermott & Palmer, 2002).

In the post-disaster environment, post-traumatic stress symptoms were most commonly reported by children in grades 7 to 9 (12 to 14 years) and depressive symptoms by those in grades 4 to 6 (9 to 11 years). McDermott and Palmer hypothesised that older adolescents possessed greater ability to adapt, possibly due to more advanced cognitive development; whereas, younger children were protected by parental contact and interactions.

In the 2007 study (Camilleri, Healy et al), survey respondents identified the difficulties they thought children experienced that might be related to the bushfire. Published research suggests that post-disaster problems are likely to include 'clinginess, dependence, refusing to sleep alone, temper tantrums, aggressive behaviours, incontinence, hyperactivity, and separation anxiety' in young children, and increased delinquency and deviance in adolescents (Norris, 2005:3). The Canberra study identified a range of other symptoms such as children being hyper aroused by feeling frightened or fearful of smoke or fire; separation anxiety; social phobia; sleep problems and nightmares; psychosomatic symptoms; over-reaction to losing possessions; difficulty concentrating; impulsive behaviour; aggressive and antisocial behaviour; depressive mood.

Some of the specific fears exhibited by children's bushfire-related identified by respondents included:

- Fear of smoke, fear of being alone, easily stressed and very emotional
- Fear of loss of their parent, house etc.
- Fear of losing possessions
- Fear of another fire coming
- Frightened by the sound of fire engines
- Nervous and restless especially on hot, windy days or when they can see or smell smoke
- Panic reaction to smoke (whatever its source) or smell of smoke in the air
- Always upset when burning off. Both think it will happen again
- Little upset and more understanding of people on the news in similar fires
- Concern whenever any of the family is away for work, school camps, etc.
- Disinterested in going on holiday or being away from home (p.79-81).

The study points to the importance of examining strategies for assisting children, young people and their parents. While 'providing care and support for their parents might be among the most effective ways to provide care and support to

children affected by disaster' (Norris et al 2002b:247), it is also critical to also focus specifically on the problems of children and adolescents themselves.

Vulnerable groups

Low income, unemployed and without insurance

The national and international literature clearly establishes that communities most vulnerable to disasters are the poor and marginalized segments of society (Hutton, 2001). Many examples are found in the literature, for example, Sundet and Mermelstein (1996 in Pyles, 2007) found an association between community characteristics before a disaster and the survival or failure after disaster of eight communities that experienced the Midwestern flood of 1993 in the USA. Research on disasters in the Philippines and Turkey demonstrate similar findings (Allen, 2003; Ozerdem, 2003, in Pyles, 2007). Access to safe, affordable housing, clean environment and jobs are critical after a disaster for those most vulnerable to long term effects (Pyle, 2007, p. 322).

According to the US experience, neighbourhoods which have been economically poor or declining prior to a disaster tend to be the most severely impacted during recovery and reconstruction (Dash et al., 1997; Phillips, 1993 in Hutton, 2001). Low income households are generally located in higher risk areas and in the event of a disaster, these households not only incur proportionately higher losses, including housing damage, but recover more slowly (Bolin, 1993; Cochrane, 1975 in Hutton, 2001).

These communities are characterised by lower incomes, fewer savings, greater unemployment, and less insurance (Bolin & Bolton, 1986; Perry & Mushkatel, 1984 in Hutton, 2001). As opposed to middle and upper-middle class households which may be capable of relocating or refinancing home construction, lower income communities have fewer housing alternatives and experience longer periods of residential instability (Rossi et al., 1983; Comerio, 1998 in Hutton, 2001).

At the same time, marginalised households often have less access to information and communication channels relating to assistance programs. Aptekar (1994 in Hutton, 2001) has observed that disaster victims often maintain they have been victimized twice**,** initially by the disaster and then by relief and insurance agencies set up to help them. This tends to be most often the case among minority populations which may be less proficient than upper-middle-class persons in manoeuvring within the relief system (Aptekar, 1990 in Hutton, 2001).

Women

The World Bank identifies the uneven impacts of disaster as sometimes starkest between the genders, to the extent that gender and survival rates can be closely tied. The literature stresses the importance of assessing women's vulnerabilities separately because of the potential for vulnerability differences and the relationship between these differences and a number of cultural and social factors (The World Bank, 2006, p.8). The differing sets of response and recovery needs of women have yet to be adequately addressed in either disaster research or response (Enarson, 1998 in Morrow 1999).

Children at risk of abuse and neglect

Reflecting on the effects of Tropical Cyclone Larry, the Queensland Department of Child Safety claim that the vulnerability of children and families 'at risk' was increased by the impact of the cyclone on the community based family support sector. These 'third sector' agencies are relied on heavily to provide early intervention services to families who are otherwise unable to provide adequate care for children and adolescents. These services were called upon to provide disaster support and were "totally consumed with the needs of the cyclone recovery effort" (The State of Queensland (Department of Emergency Services), 2007 p. 29). They therefore had minimal resources to support families and to ensure children were safe from harm.

> The department is continuing to champion the cause to recover early intervention services to the communities of Innisfail, Atherton and surrounding areas. Forward disaster planning will need to take into account the dual needs of ensuring there is adequate trauma counselling and disaster support to families and those in need, as well as dedicated resources to support families in need of early intervention and referral services (The State of Queensland (Department of Emergency Services, 2007 p. 29).

The aged

Buckle et al theorise that the frail aged are particularly vulnerable in disaster situations due to diminished physical capacity and mobility. Other constraints they identify include reduced capacity to access information and possibly the lack of an appreciation of the urgency of the situation (Buckle, Marsh, & Smale, 2001)

In research studying the prevalence of risk factors specifically for *psychopathology* (rather than broader vulnerability to harm) following natural disaster in developing countries, Kohn et al, hypothesised the heightened vulnerability of the elderly due to:

- co-morbid physical disorders of a chronic nature
- social networks weakened due to losses, particularly of a spouse, the exiting of children, friends and relatives from the community
- limited financial means to deal with material losses
- accumulated stresses over the years which have eroded their coping capacities.

A number of early investigators support their hypothesis (such as Logue et al., 1981; Miller et al., 1981; Ollendick and Hoffmann, 1982; Krause, 1987; Phifer et al., 1988 in Kohne, et al, 2005). Following the Chi- Chi earthquake in Taiwan, Yang et al, (2003 in Kohen et al, 2004) noted increased psychological distress

and post-traumatic symptoms in the elderly compared to younger individuals recruited from primary care clinics in one of two general hospitals from an affected region (Kohn, Levav, Garcia I., Machuca, & Tamashiro, 2005).

Interestingly, however, the research of Kohn et al, noted that the evidence of psychiatric vulnerability of the elderly was either mixed or insufficient to reach conclusions as to the direction of the risk. In their own study they found that the elderly impacted by a natural disaster, Hurricane Mitch, reacted by an "elevation of measures of psychopathology, but not to a greater extent than younger adults" (p.840) They recommended that health agents ensure that the elderly are the target of community reconstruction efforts and receive mental health support, as it has been noted, " . . . the elderly ask less, complain less and receive less in resources than younger-age ranges of the population . . . " (Kohn, et al, 2005, p. 840 citing Fields, 1996).

Remote Indigenous Communities

There is an absence of research into the recovery experiences of Indigenous people in remote areas. Many remote Indigenous communities, for example, are particularly vulnerable as they are in disaster-prone areas which are affected by natural disasters on a regular basis. Many remote communities exposed to natural disasters along Australia's Northern coastline are overwhelmingly Indigenous. 27% of Indigenous Australians live in remote areas. Only 2% of non-Indigenous Australians live in remote areas.

According to an internal FaCSIA memo, (Department of Families Community Services and Indigenous Affairs., 2007) other factors contributing to remote communities' vulnerability to disasters and poor recovery include:

- small populations and limited local services and facilities
- geographic isolation/restricted access
- limited and frail communication systems
- infrastructure vulnerabilities including lack of cyclone shelters

- housing stress, overcrowding and limited temporary and emergency accommodation
- transient and mobile populations
- environmental reliance (livelihood and spiritual well-being).

Cost structures for infrastructure and supplies are often higher, and relief and recovery assistance more difficult and costly to provide. These features magnify existing community disadvantage. Such communities need additional assistance to be able to take advantage of mainstream risk assessment and mitigation programmes, and relief and recovery measures (Commonwealth of Australia, 2002).

Remote communities also have a range of assets that can be drawn upon in promoting their resilience and recovery from disasters. Many have a history of dealing with natural disasters and their experience has resulted in the development of relevant knowledge and skills. These can be leveraged through partnerships across government, business, non-government organisations and Land Councils to help strengthen their capacity to respond to and recover from disasters (Department of Families Community Services and Indigenous Affairs., 2007)

Effects on the 'produced' and 'built' environment

The 'produced' and 'built' environment refers to physical infrastructure and buildings, industry and business, physical infrastructure, and economic costs.

Physical infrastructure and buildings

Many, though not all disasters, involve significant destruction or damage to physical infrastructure.

"Infrastructure" and the "physical environment" are often used interchangeably in the disaster recovery literature. EMA Manual 10 defines infrastructure even more broadly as "anything that contributes to the normal function of a community and can include things, people and organisations" (EMA 2002, p. 11). In this section we concentrate on the physical aspects, with the other elements having been dealt with earlier.

Infrastructure is vital to community wellbeing. The lifestyles of most people, the success of business organisations and the effective functioning of most communities depend on the availability of power supplies, water supplies, water systems and telecommunications, roads, rail and other transport links. Sewage systems, garbage removal and recycling are also important for health and wellbeing (Black & Hughes, 2001).

In a report prepared for the Rural Industries Research and Development Corporation, four categories of infrastructure were identified. These are of relevance to a consideration of the effects of disaster:

- Economic physical (or 'hard') infrastructure (such as roads, ports, railways and energy, telecommunications networks)
- Economic intangible (or 'soft') infrastructure (such as financial and research institutions)
- Social physical infrastructure (such as housing, hospitals and schools)
- Social 'soft' infrastructure such as medical and allied health professionals, teachers, institutions delivering community and welfare services (Black et al. 2000 in Black and Hughes, 2001, p.54).

Tropical Cyclone Larry and the Canberra Bushfires indicate the scope of damage caused to housing and other domestic dwellings by natural disasters. After Tropical Cyclone Larry there were close to 19,000 houses needing repair and a large number of other structures such as sheds, garages and carports. Of these homes, a majority were covered to some degree by insurance and the remainder

were either public housing or homes uninsured by the owner. A large number of business premises also required some level of repair. The overall insurance claims bill amounted to over $369 million, involving almost 25 different insurers. This was the greatest single event set of claims on Australian insurers since the hailstorms in Sydney in 1998 (The State of Queensland (Department of Emergency Services), 2007p. 13).

In addition to the tragic loss of lives, numerous injuries and very extensive environmental damage, the 2003 Canberra bushfires resulted in the total destruction of almost 500 homes; around 93 community, commercial and farm buildings; and damage to many other homes and businesses, including rural properties and villages to the west of Canberra. The following table is indicative of loss to physical infrastructure in this disaster:

Houses and other dwellings destroyed	
• Urban	401
• Rural	87
Other property destroyed	
• Urban	8
• Rural	85
Physical assets destroyed	
• Streetlights – poles and/or lamps	1,080
• Street signs	37
• Other traffic/warning signs	129
• Bridges (urban and rural)	4
• Guide posts	3,950
• Guard rails	3 km
Utilities	
• Power poles	900-1,000
• Electricity distribution transformers	750-800
• Consumers without power at midnight, 18 January	30,000
• Consumers without gas supply at midnight, 18 Jan	6,900
• Significant damage to Lower Molonglo Water Quality Control Centre	

Table 3: Losses to physical infrastructure Canberra Bushfires (Australian Capital Territory Government, 2003)

The importance of functioning telecommunication systems in the aftermath of disaster was demonstrated by Tropical Cyclone Larry and the communications difficulties after the immediate loss of mains power. This compromised the "instant pervasive reach of mass media …, not even the ubiquitous World Wide Web will work!" (The State of Queensland (Department of Emergency Services), 2007p. 17). People had not heeded warnings about keeping battery operated radios on hand which meant their safety was jeopardised; it was not possible to direct relief efforts by broadcast, nor was it possible to restore public confidence in this way.

The rolling effects of infrastructure loss

Restoration of essential infrastructure will usually be a recovery priority and will often be a pre-requisite for other elements of the recovery process. However, disasters also make communities and areas vulnerable to further losses, to which further physical losses can contribute. The EMA Manual notes that:

> broader community processes set in train by a disaster are not confined to the incident itself. It initiates a *rolling series of impacts* as repercussions are felt in different parts of the system. They continue to occur over time as the community goes through debonding, fusion, and differentiation. Other factors add to the disruption (Commonwealth of Australia, 2004b).

One example of this was the destruction caused by the monsoon rains after the 2004 tsunami. These created a quagmire in the ground devoid of vegetation. For many still living in fragile tents and cabins this resulted in a dramatic increase in stress levels (Paterson, 2006).

Industry

Tropical Cyclone Larry severely impacted on the North Queensland economy. Banana plants at all stages of maturation were knocked flat and all fruit was lost. Sugar cane, months from maturation, were laid over flat, and very obviously damaged. Many fields of sugar or bananas were strewn with wreckage and tree

branches from upwind sources, which caused an additional impediment to recovery for both industries (The State of Queensland (Department of Emergency Services), 2007).

In common with other disasters the general economic profile of the area affects the nature and extent of impacts on business and the economy. In the Larry case the regional economy is based primarily on primary production and tourism, as well as local service sectors. Although the size and economic strength of the sugar and banana industries meant they suffered the major economic impact of the cyclone, dairy, timber, tree crops, aquaculture and tourism industries were all also severely adversely affected. Tourism and primary production suffered considerable impact from the cyclone, with the subsequent flow-on effects throughout the small business community across the affected region (The State of Queensland (Department of Emergency Services), 2007).

There were also further ripple effects into other secondary and tertiary industries, compounded often by their own infrastructure damage and financial obligations.

> Not only was major industry deprived of the seasonally expected cash flow but the demand by primary producers for seasonal labour vanished in the few hours of the cyclone's destructive path inland. In addition, the financial position of many farmers meant their ability to pay reasonable wages to their standing labour force was in serious question (The State of Queensland (Department of Emergency Services), 2007p. 15).

Employment and business

The literature indicates that there are particular and lasting impacts of large scale disasters on small businesses. The experience of Hurricane Katrina demonstrated that the Small Business Administration's (SBA) response was marked by high decline rates and massive delays requiring business to wait up to 100 days to receive decisions about financial assistance. This was caused by a

variety of factors including insufficient infrastructure and outages of critical information systems. Barely 20% of approved loans actually found their way to business owners (FEMA, 2006).

Disasters may lead to partial or complete incapacitation of employment and businesses, both large and small. Impacts may spread well beyond the immediate disaster location (where one exists) as a result of the operation of various economic linkages.

As indicated above, in the case of Tropical Cyclone Larry, there were significant impacts for the high proportion of casual, part-time and seasonal employees and the large percentage of small to medium business enterprises, many of which were linked to Tourism and Agriculture. Early impacts in the local economy included increased pressure on debt levels, and labour force and skill shortages. Individual businesses suffered loss or damage to premises, equipment and stock, increased debt, loss of labour force, suppliers and markets. Many experienced temporary closure and reduced operations.

The destruction of roads, bridges, schools, houses, buildings, boats and other assets had devastating impacts on business and employment after the 2004-5 Tsunami and Hurricane Katrina (2006). From agriculture and fishing to industry and trade (Grameen Foundation USA, 2005) no segment of the economy was spared in either of these large scale disasters. In the Tsunami fishermen lost their boats *and* their fishing nets and gear. Farmers lost their crops and equipment. Hurricane Katrina destroyed about 18,700 businesses resulting in over 500,000 people filing new claims for unemployment insurance (Holzer & Lerman in Winston et al., 2006).

On a much smaller scale, the experience of people after the Canberra bushfires also indicates how disasters can have a negative impact on employment particularly for the self employed. Although approximately two-thirds (66.9%) of the survey respondents indicated that the bushfire did not have a lasting effect

on their work situation, 12.3% said the bushfire had a lasting effect for the better, while 20.3% said the bushfire had a lasting effect for the worse.

There were a small number who indicated that their business or workplace had been destroyed by the fire. Business or workplaces were significantly damaged or destroyed for 11.6%. Many home-based businesses were lost. For others, their business as such was not destroyed but their computer and business records were lost. In these circumstances, people experienced anxiety and financial loss that compounded the effects of their other fire losses and made recovery more difficult.

Economic Costs

Between 2005-6, the earthquake and tsunami in the Indian Ocean killed an estimated 220,000 people and left 1.5 million people homeless. Catastrophic flooding and mudslides in Guatemala killed hundreds of people, and a massive earthquake in Kashmir killed tens of thousands more in Pakistan and India.

In a recent report (2006) The World Bank identified the international impacts of these losses on economic well-being and human suffering and argues that natural disasters are becoming more costly. Disaster costs, internationally, between 1990 and 1999 were more than 15 times higher ($652 billion in material losses) than they were between 1950 and 1959 ($38 billion at 1998 values). The human cost is also high: over the 1984–2003 period, more than 4.1 billion people were affected by natural disasters. The number affected has grown, from 1.6 billion in the first half of that period (1984–93) to almost 2.6 billion in the second half (1994-2003), and has continued to increase (The World Bank, 2006p. xix).

Disasters, both natural and human made, are also a significant cost in Australia. In September 2000, shortly after the extensive damage caused by the 1999 Sydney hailstorm, the Bureau of Transport Economics (BTE) was commissioned by the Australian Government to determine the economic costs of natural

disasters in Australia. The method used to estimate costs categorised losses in three broad categories:

1) tangible direct – these are relatively straight forward to estimate, involving losses that result from physical destruction or damage to buildings, infrastructure, vehicles and crops
2) tangible indirect – these are more difficult to estimate, involving costs incurred as a consequence of the event occurring, but not due to its direct impact. The report identified disruption to business as a contentious example of the tangible indirect category. The impact of a disaster can be devastating for businesses directly affected by the disaster, and there can be flow on effects to local communities. The report, however, recommends that examining costs from a national perspective should not include business disruption costs because business disruption usually involves a transfer between producers, without a significant loss in national economic efficiency. Business disruption costs would be included if the event affected the nation's economy through an increase in the level of imports or a decrease in exports.
3) intangible - these refer to all losses not considered as a direct or indirect tangible cost. Intangible costs are typically those for which no market exists. These costs are difficult to estimate, as there is no systematic or agreed method available to measure them. The largest impact is normally found in the residential sector, which includes health effects, household disruption and loss of memorabilia. The 2001 report argues that although available methods are generally poor at reliably estimating many intangible costs and benefits, they should not be ignored (BTE, 2001).

Key findings of the 2001 report included:

- Natural disasters (with a total cost per event over $10 million) cost the Australian community $37.8 billion (including the costs of deaths and injuries) in 1999 prices over the period 1967 to 1999

- The average annual cost of these disasters between 1967 and 1999 was $1.14 billion (including the costs of deaths and injuries). This translates to approximately $85 per year per person
- Estimated average costs were $1.3 million for a fatality, $317 000 for a serious injury and $10 600 for a minor injury. The estimated total cost of deaths and injuries during the period 1967 to 1999 was $1.4 billion at an average cost of $41 million per year
- The average annual cost [during this time frame] is strongly influenced by three extreme events—Cyclone Tracy (1974), the Newcastle earthquake (1989) and the Sydney hailstorm (1999). If the costs of these three events are removed from the calculations, the average annual cost declines to $860 million. This may be a better estimate of the costs of disasters that can be expected in a year in which extreme events do not occur
- The annual cost of disasters is highly variable. The annual cost in years in which extreme events do not occur can be as high as $2.7 billion in 1999 prices. In years in which extreme events occur, the total cost can be much higher. As a result, it is not possible to assess whether the annual cost is increasing or decreasing over time
- There is no evidence in the data that the total cost of smaller and more frequent events (less than $10 million total cost) exceeds the total cost of large rarer events. For a selection of sample years, these smaller events are estimated to have accounted for an average of 9 per cent of total economic costs of disasters (BTE, 2001. P. 17).

Effects on the Natural Environment

A useful framework for considering the impacts of disasters on the natural environment is provided by Hart (2000) who identifies three types of resources (Hart, 2000 in Black & Hughes, 2001):

1) Natural resources – those resources that can be taken from the natural environment and used either in their raw form or in production processes (for example, water, plants, animals, minerals and fossil fuels).

2) Ecosystems – essential natural processes such as the processes whereby trees convert carbon dioxide into oxygen and sequester the carbon, the processes whereby wetlands filter water and soak up floodwaters, and the processes whereby soils produce plants of one kind or another.

3) Aesthetics or beauty of nature – those aspects of nature that are appreciated for their natural beauty such as birds and flowers, waterfalls and seashores, mountain ranges and wilderness areas (Hart, 2000 in Black and Hughes, 2001, p. 47).

Communities vary in the degree to which they are directly dependent on natural resources or particular ecosystems. As Black and Hughes point out, farming communities are more dependent on soil productivity whereas a mining community is dependent on whatever is being mined (p. 17-18). If important sources of 'natural capital' are damaged or destroyed a local community may decline unless it has access to alternative sources of natural capital or can develop new forms of economic activity.

The beauty of the environment and its importance for human happiness is increasingly realised. The recent literature draws attention to the importance of the natural environment and the impact that disasters affecting the natural environments can have on the recovery of individuals and communities. In an examination of how people come to learn about their environments, Measham found that a sense of place and relationship with the environment is forged through "floods and fire" (Measham, 2006p. 430).

The Canberra Bushfire research (Camilleri, Healy et al, 2007) also draws attention to the way participants experience the losses to the everyday routine of their lives. A number of people whose homes were not destroyed reported that they have and still are living in an environment of dust, wind, noise, no trees and big houses overlooking them (P. 45).

As some participants said:

> *The freedom to bushwalk and escape the urban environment had been destroyed and in 3 years we still feel the gloom of the destroyed forests. We enjoyed the walks and peace of the forest areas – a loss. We were proud of our little house and garden and it is difficult to re-establish that pride and satisfaction (Camilleri, Healy et al, 2007, p. 66).*

The damage the bushfire did to their gardens was a focus of loss and sadness for a number of people. They talked about the distress of losing their gardens and the years of work that had gone into the making of them; for some, accepting the loss of their garden was the most difficult aspect of recovery. Some older people commented on the physical difficulty of re-establishing a garden:

> *"The loss when you are older is difficult to cope with…life without a garden broke me".*

For some, engaging in rebuilding a garden was mentioned as contributing to recovery, and others saw the building of large new houses as evidence of growth, a fresh start (p. 129).

For many people the environment was an important context issue. For some seeing it rejuvenate was inspiring, however, for many others it was the loss of the environment they felt keenly every day and constant reminder of what was lost (p.131).

Although many disasters historically have been found to have relatively minor long-term community effects, the potential for chronic effects relates to the

timeliness and effectiveness of recovery and restoration efforts (Mileti, Drabek, and Haas 1975; Quarantelli 1985; Drabek 1986; Green 1996 in Picou & Martin, 2006).

WHAT IS RECOVERY?

Within the context of disaster management the term 'recovery' is defined in two broad ways: firstly as a desired outcome and, secondly as a process leading to a desired outcome. Within each of these broad conceptualisations it is possible to consider outcomes and processes that apply to individuals and communities that are "recovered" or engaging in recovery processes, and to governments which are seeking to facilitate recovery in the various domains usually associated with recovery: individual and community and the produced (built), economic and the natural environments.

Recovery as an outcome

Within the discussion of recovery as an outcome there is a fundamental contradiction in the literature between restoration and transformation.

On the one hand 'recovery' is depicted as restoration to a previous state of wellbeing in which people experience 'closure' and communities, economies and infrastructure return to the same level as they were before. In this conceptualisation recovery refers to an individual's and a community's ability to 'pull through' the disaster and bounce back to its pre-disaster level of functioning (Adger, 2000; Buckle, Marsh & Smale, 2000; Kimhi & Shamai, 2004; Breton, 2001 in Maguire & Hagan, 2007).

More recently, the notion that optimal recovery means returning to an initial equilibrium point is being challenged in the literature. Individual and community recovery is increasingly depicted as a gradual process over time in which concepts such as 'closure', so often referred to by the media and others, have

very little, if any, useful place. Instead, various aspects of grief alternate and re-emerge with unexpected intensity, particularly with anniversaries and other significant events (Rando, 1993). At the same time people usually begin to reengage with a world which for most people is forever transformed by loss (Stroebe & Schut, 2001).

Resilience

The notion of individuals and communities being somehow 'strengthened' after disaster is beginning to emerge in the literature as 'resilience", that is, the potential strengthening of individual and community capacity following disasters. The findings of several studies regarding coping behaviours after disasters support Caplan's (1964) premise that coping with an adverse event can lead to increased coping skills, an enhanced sense of self-efficacy, and an increased ability to prevent and cope with future stressors (Caplan in McMillen, 1999). People and communities adapt to new circumstance, learn from the disaster experiences and are capable of attaining higher levels of functioning (Limhi & Shamai, 2004; Pooley, Cohen & O'Connor; 2006; Sonn & Fisher, 1998 in Maguire and Hagan, 2007).

Resilience is also an important concept in disaster recovery because it provides a strong theoretical basis for the relationship between prevention of disaster, responding to, recovering from and preparing for the next disaster.

Three elements of resilience are identified that are of relevance to the discussion of desired outcomes for individuals and communities:

- the ability to predict and anticipate disasters
- the ability to absorb and recover from the shock of disasters
- the capacity to improvise and innovate to achieve a higher level of functioning (Aguirre, 2006 in Maguire & Hagan, 2007).

A visual representation of this is shown in Figure 1.

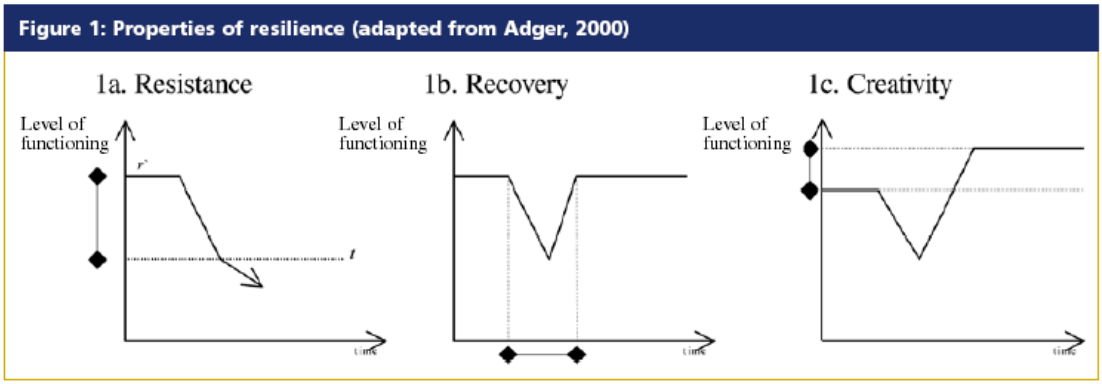


Figure 1: Properties of Resilience (Maguire & Hagan, 2007, P. 17)

Maguire and Hagan (2007) use the example of a school shooting to illustrate the above elements. A severe disaster at a school may leave survivors too afraid or disorganised to attend school, causing the schools eventual closure. A more resilient community may provide support for teachers and students so that normal functioning (i.e.: resuming class) can happen quickly. A creative community may learn from the experience and teach its members how to better prepare so that higher levels of post disaster resilience are attained (p.17).

Berke and Campanella (Berke & Campanella, 2006) consider the challenges of achieving resiliency in the context of the catastrophic aftermath of Hurricane Katrina and Hurricane Rita in the United States. Resilience is the:

> …ability to survive future natural disasters with minimum loss of life and property, as well as the ability to create a greater sense of place among residents; a stronger, more diverse economy; and a more economically integrated and diverse population (Vale and Campanella, 2005 in Berke and Campanella, 2006).

Within an outcomes focus of recovery the question remains: what is the special and different role that governments take on in disasters that facilitate individuals and community resilience? The answer to this will inform when special arrangements begin and end. After Tropical Cyclone Larry the Operation Task Force recognised from the beginning of the disaster that one of the criteria of success of the recovery from the cyclone would be the ability of the government to wind down the Task Force at an appropriate stage and make a transition back towards government business as usual. The literature generally (i.e. the research undertaken to date) is not particularly helpful in answering this question.

Recovery as a process

Recovery has also come to signify an active *process* of integrating traumatic events associated with a disaster so that destructive impacts are minimised and so that individuals, communities and governments are able to move forward into a post-disaster future in which the world has changed. Returning to the notion that 'resilience' is a more sophisticated and relevant notion than recovery Berke and Campanella make the point that resilience is not just an *outcome* but also a *process* of recovery planning:

> …in which all affected stakeholders – rather than the powerful few – have a voice in how their community is to be rebuilt.

The active processes involved in facilitating recovery (including the fostering of resilience) involve actions on the part of individuals and communities helping themselves and each other, and a set of interventions on the part of governments to address recovery of the social (individual and community), economic, physical and natural environments.

How individuals and communities help themselves and each other

The resilience literature is helpful in pointing to how individuals and communities help themselves and each other to recover after a disaster. Social

capital is particularly relevant to disaster recovery because it explains the importance of different kinds of relationships for the recovery process including those that:

- 'bond' people to others like themselves (family, friends and close neighbours)
- relationships which provide a bridge to new networks and opportunities
- those that create 'links' with important civil institutions (Healy & Hampshire, 2001p. 6)

The key message for community recovery is that governments should take actions which strengthen these elements of social capital and should consciously seek not to undermine them.

The critical role of mutual and self help, including volunteering

As studies on community recovery have consistently found, locally driven, bottom up approaches to recovery are the most effective (Pettersen, 1999:13). Mathbor's study of Bangladesh which can expect a major disaster every two years emphasised the critical role played by volunteers. The Cyclone Preparedness Program (CPP) volunteers indicated they were:

> …grateful for their relentless efforts in helping distressed people in devastated communities and consider this as their net gain from society. …Volunteers [act] as magnetic catalysts who convey the program's messages to the mass of people. To this end CPP conducts a round the year training program for volunteers and utilises local folk media in disseminating program messages to large numbers of people. Its volunteers engage in public awareness activities, stage dramas, and show films and video shows…(Mathbor, 2007p. 366).

The Canberra bushfire research (Camilleri, Healy, et al, 2007) examined the many ways in which people helped themselves and each other after the disaster.

It clearly demonstrated the positive place of volunteering and of the considerable resources available through church and other groups such as sporting clubs.

While the Canberra Bushfire research referred to many examples of government facilitating mutual self help there were also some criticism that reservoirs of skills, expertise and energy were not sufficiently tapped into by some institutions. Whereas human services agencies, for example, those which staffed the Bushfire Recovery Centre, had sophisticated understandings of the importance of volunteers, other institutions were regarded as less well prepared and committed to invest time in volunteers. Some participants were critical for example, of a number of Commonwealth and Territory Government environmental and arts institutions for not being prepared for the roles they could play in a major natural disaster of this kind. There was a perception that some institutions regarded offers of help as obstructive; that others slavishly adhered to policies and procedures which did not allow for creative ways of working in the face of large scale emergencies.

A recommendation from the Final Report of the Cyclone Larry Task Force also recognised the quick and effective response available from volunteers and how 'concerted effort' is required that better engages volunteer groups in planning and preparation around disasters. This report identified the need for understanding how volunteers can be best engaged in the longer term recovery process (2007).

What is meant by recovery assistance?

In the management and planning for disaster recovery literature, 'recovery' is a term used to describe a specific set of government interventions. Current policy definitions reflect an understanding of recovery as an *intervention process* to *lessen the effects* of disasters.

> Recovery is defined as the coordinated process of supporting disaster affected communities in the reconstruction of the physical infrastructure and restoration of emotional, social, economic and physical well-being…
>
> Recovery is, however, more than simply the replacement of what has been destroyed and the rehabilitation of those affected. It is a complex social and developmental process rather than just a remedial process. The manner in which recovery processes are undertaken is critical to their success. Recovery is best achieved when the affected community is able to exercise a high degree of self-determination (EMA 2004:3).

New Zealand also defines recovery as a process which is holistic, and regenerational:

> [Recovery is] the coordinated efforts and processes to effect the immediate, medium and long term holistic regeneration of a community following a disaster. Recovery is a developmental and a remedial process… (New Zealand Government in Norman, 2006, p. 16).

The World Bank's definition of recovery refers to a process (decisions and actions) with the aim of returning to living conditions that were the same or better than before and also specifically includes the reduction of disaster risk in the definition:

> [Recovery is defined as] decisions and actions taken after a disaster with a view to restoring or improving the pre-disaster living conditions of the stricken community, while encouraging and facilitating necessary adjustments to reduce disaster risk (The World Bank, 2006, p.x l ix).

Significantly, in the Australian government's recent policy documents for protecting against terrorism the definition of recovery has been expanded to

include “terrorist incidents”; it also specifically emphasises the long term nature of recovery and the importance of community participation:

> Recovery is the coordinated process of supporting communities affected by disasters or emergencies, including terrorist incidents, in the reconstruction of the physical infrastructure and the restoration of their emotional, social, economic and physical wellbeing. Recovery incorporates consequence management and extends to the long term rebuilding of a community. Invariably, recovery involves close community participation (Commonwealth of Australia, 2006p. 55).

These recent policy documents also state that the nature of recovery activities remains relatively consistent. Recent events such as the Bali bombings in 2002 and 2005 and Cyclone Larry in 2006 indicate that many of the individual and community impacts of different types of disasters are quite similar. Natural disasters, human made disasters or terrorism “all result in complex, lengthy and resource intensive recovery programs” (p. 56).

Background to Australian Disaster Recovery Assistance

From Relief and Assistance to Whole of Government

There have been countless disaster events throughout Australia’s history. The primary role in planning for and co-ordinating the response to domestic disasters has always rested with State and Territory Governments, supported by the Australian Government. In recent times, with actual and potential disasters of national significance the Australian Government assists by providing tailored recovery assistance. In this section the background to the Australian Government’s role in the delivery of specific recovery assistance measures is explored through the available literature.

When Cyclone Mahina hit Bathurst Bay in Queensland killing 400 people and destroying over 100 pearling vessels, in 1899, the costs of natural hazards in terms of lives and the economy were very apparent even then yet it was not until (DCITA 20004 in Dwyer, 2006, p. 41) the 1970s that such events began to require any significant national response (Dwyer, 2006). Even then, as the disaster literature of the time clearly shows, disaster recovery and the role of governments (both local and national) were limited to short term services and relief (Harris, 1980; McLoughlin, 1985).

After disastrous flooding in Brisbane in January 1974 the costs and coordination associated with this natural disaster clearly required more assistance than the Queensland Government could provide. In February 1974 the Natural Disasters Organisation (now Emergency Management Australia) was created to coordinate Commonwealth physical assistance to states and territories in the event of a natural disaster (EMA, 2004 in Dwyer, 2006; Tarrant, 2006). Following Cyclone Tracy in Darwin (December 1974), the relationship between State and Commonwealth emergency management arrangements gathered greater momentum. The use of Specific Purpose Payments (SPP) introduced during the 1950s and 1960s by the Commonwealth Government were increased during this time and were seen as a way of bringing all three levels of government to 'greater alliance" (Dwyer, 2006p. 42).

Since Cyclone Tracy the conditional grant has become the predominant means by which the states receive assistance to manage natural disasters. These payments have largely occurred in the form of relief assistance grants and reconstruction or redevelopment grants to the states which are then passed from the states to local government. These payments, generally in the form of Natural Disaster Relief Assistance (NDRA) (now National Disaster Relief and Recovery Arrangements, NDRRA) have largely occurred in the form of relief assistance grants to the states and in turn from the states to local government (Dwyer, 2006p. 44) – their focus has been on immediate response and relief matters.

Large Scale events

Large scale on and offshore events in recent years have focussed attention on what the Australian Government's role is in these events and the kind of disaster assistance packages that are appropriate to different kinds of events.

The stakes are high for the Australian Government to effectively respond to large scale catastrophic events. These events have the potential to threaten populations, provoke social fragmentation, threaten trade and commerce and undermine national confidence. Large scale disasters over the past decade have resulted in complex, lengthy and resource intensive recovery programs in which major service provision has continued well beyond 12 months from the date of each event (CSMAC Disaster Recovery Subcommittee, 2004).

Whereas the role of agencies at the Australian Government level has previously been one of support of individual jurisdictions, in the new landscape Australian government agencies and national non government agencies play a greater role than ever before. The nature of the Bali tragedy for example, occurring offshore and involving citizens of multiple jurisdictions, necessitated coordination at the Australian Government level (FaCS) and a direct service delivery responsibility and range of support services by arguably the only major service delivery agency with cross jurisdictional capacity (Centrelink). Although these arrangements met the needs of those affected by this tragedy, it was necessary to clarify and formalise the Australian Government's role in future events (CSMAC Disaster Recovery Subcommittee, 2004).

Major Reviews and Reports

Several major reviews in recent years include the COAG Review of Natural Disasters, 2003; the COAG National Bushfire Inquiry, April 2004; Review of Community Support and Recovery Arrangements Following Disasters (CSMAC Disaster Recovery Subcommittee), October, 2004; a COAG commissioned review of Australia's Ability to Respond to and Recover from Catastrophic Disasters, October, 2005 and the recent Australian Government Report, Protecting

Australia Against Terrorism (2006). These reviews and reports reflect the changing conceptualisation of disaster management including the increasing recognition of the importance of mitigation and recovery, which unlike 'response' and 'relief', are more significantly impacted by broader and more complex social policy issues such as education, public health, welfare and Indigenous policy (Dwyer, 2006p. 44).

The COAG Review (2003) was carried out by a High Level Group of officials representing Commonwealth, State, and Territory Governments and the Australian Local Government Association. The Review found that while Australia's natural disaster relief measures provide immediate and urgent assistance to individuals and families, and that rebuilding damaged infrastructure, is sound and effective, "there is room for improvement in the way current arrangements deal with helping communities as a whole recover from the effects of severe disasters" (Commonwealth of Australia, 2002). The Report, which recommended a stronger intergovernmental and holistic approach to natural disaster management, provided the foundation for changes.

Australian Government Arrangements

The expanded role for the Australian Government in disaster mitigation and recovery was developed in response to a request from the Prime Minister to consider more appropriate arrangements for disaster relief payments under the Social Security Act 1991. The Australian Government approved the Australian Government Disaster Recovery Payments (AGDRP) on 28 November 2005 as part of the agreement to introduce new disaster recovery arrangements. The AGDRP provides the Australian Government an immediate and flexible response option for Australians affected by major onshore and offshore disaster events. It complements existing arrangements and provides choice in the way the Australian Government may wish to respond to disaster.

The purpose of the AGDRP is to provide immediate, short term financial assistance to Australians adversely affected by a major disaster. For the purposes of the AGDRP, the term "Major Disaster" will be determined by the Minister for Families, Community Services and Indigenous Affairs (FaCSIA) in consultation with the Prime Minister, if the event has such a significant impact on individuals that an additional Australian Government response is required (unpublished memo, FaCSIA, received 6 July, 2007).

In 2007 the Australian Government Disaster Recovery Arrangements ('the arrangements') committed to the provision of a coordinated approach to delivering recovery assistance to Australians in response to onshore and offshore disasters and critical incidents. Specifically the Australian Government will support the states through implementation of a range of programs and measures, including:

- Natural Disaster Relief and Recovery Arrangements (NDRRA) administered by the Department of Transport and Regional Services (Commonwealth of Australia DOTARS, 2007)
- Provision of assistance, when requested under one of the agreed national plans (e.g. Commonwealth Disaster Response Plan) administered in the main by Emergency Management Australia, Attorney General's Department
- Implementation of the National Emergency Protocol (Commonwealth of Australia, 2007)
- Provision of tailored disaster recovery financial and other assistance through the Australian Government Disaster Recovery Committee (AGDRC) (Commonwealth of Australia, 2007).

Alongside Australian Government services and assistance a new set of national protocols for managing a major disaster are currently being developed. Recognising the cross jurisdictional nature of some disasters, plans for reducing the impact of hazards such as pandemic influenza are being refined and tested. The protection of critical infrastructure and business continuity are of vital

interest to communities and industries (Emergency Management Australia, 2007).

THE ELEMENTS OF SUCCESSFUL RECOVERY

Having identified the various meanings of disaster recovery used in the literature and the typical activities performed during the disaster recovery phase, in this section we consider what the literature suggests are critical elements of successful recovery. To frame this discussion it is useful first to identify Australian disaster recovery principles, endorsed in 1986 by the Standing Committee of Social Welfare Administrators (now the Community Services Ministers' Advisory Council CSMAC) and which provide a management context for recovery managers at the State and Local Government levels.

Australian disaster recovery principles

The following is an abridged version of the principles:

Disaster recovery is most effective:

1) when management arrangements recognise that recovery from disaster is a complex, dynamic and protracted process
2) when agreed plans and management arrangements are well understood by the community and all disaster management agencies
3) when recovery agencies are properly integrated into disaster management arrangements
4) when community service and reconstruction agencies have input to key decision-making
5) when conducted with the active participation of the affected community
6) when recovery managers are involved from initial briefings onwards
7) when supported by training programs and exercises.

The full version of the principles and abridged versions of New Zealand, Queensland and South Australian principles used in their emergency management frameworks are at Appendix 1.

Critical elements for successful disaster recovery will now be examined under five broad overarching themes which are drawn from the literature. They are: integrated approaches; well targeted psycho social interventions; community driven; sustainable infrastructure, employment and business recovery; and communications and media support the recovery effort.

Integrated approaches

Integration and coordination of disaster recovery efforts needs to occur on several levels which are identified from the literature as:

- 'Whole of government'
- Comprehensive (recovery integrated with the other elements of disaster management such as prevention, preparedness (mitigation) and response)
- Interrelationship between social, physical and economic recovery
- Flexible structures and processes .

'Whole of government' approaches

Recommendations of the Review of Natural Disasters were accepted in principle by the Council of Australian Governments in 2004. The foundation of these changes in the delivery of assistance following disasters is the 'whole of government' conceptualisation of major social policy challenges, one of which is the short medium and long term recovery of 'communities' from major disasters. The 'whole of government' approach to disaster relief and recovery aims to:

- build community resilience by constraining and, over time, reducing damage and costs to the community and all levels of government though cost-effective mitigation recognising of course that major unforeseeable disaster events will continue to occur
- reduce the incidence of ad hoc and disparate relief measures by introducing a more disciplined, holistic and systematic needs-based approach to relief and recovery assistance to communities
- introduce new flexibility to enable damaged public infrastructure to be rebuilt to a more resilient standard where that is feasible and cost-effective
- ensure equitable assistance and support to individuals and communities affected by comparable natural disasters across Australia
- better integrate the relief and recovery arrangements of all levels of government, and
- address the special needs of remote Indigenous communities (Commonwealth of Australia, 2002).

The principle of a 'whole of government' approach to public administration has been called "*essential for the Australian Public Service to face the governance challenges of the 21st century"* (Dr Peter Shergold in Preface to Commonwealth of Australia, 2004a).

The Management Advisory Committee (MAC) Report *"Connecting Government: Whole of Government Responses to Australia's Priority Challenges"* defines 'whole of government' in the Australian Public Service (APS) as:

> public service agencies working across portfolio boundaries to achieve a shared goal and an integrated government response to particular issues. Approaches can be formal and informal. They can focus on policy development, program management and service delivery (Commonwealth of Australia, 2004a).

The recent Australian Government Report, Protecting Australia against Terrorism (2006) also emphasises the need for Commonwealth, State and Territory governments to work towards "building the resilience of communities through a range of measures, such as better linkages between levels of government, and specific capabilities..." (Commonwealth of Australia, 2006 p.56). The report addresses issues considered essential to effective whole of government public administration. These clearly have implications for the effectiveness of the Australian Government's role in disaster recovery and include:

- The use of different structures and processes to assess and manage different forms of whole of government
- Creating a successful whole of government culture
- Managing critical information and infrastructure issues
- Working across agency boundaries with current budget and accounting frameworks
- Managing increasingly sophisticated demands for engagement with people outside the APS and
- Responding effectively to crises.

The distinguishing characteristic of whole of government approaches is the emphasis on objectives shared across organisational boundaries. The concept is not new; coordination, as a policy outcome, has been a longstanding feature of Australian public administration, with three main types of whole of government activity integral to the approach:

- between Australian government agencies
- between different levels of government
- between the public, private, non-profit and community sectors (Commonwealth of Australia, 2004a).

According to the above report, Australia's approach to emergency management recognises just this need for the coordination of the efforts of relevant

government agencies at all levels, organisations and affected communities. Coordination with local government and community organisations with their understanding of local needs and capabilities is recognised as critical to effective and immediate organisation of community self help (Commonwealth of Australia, 2006 p. 5).

This may be contrasted with the literature assessing the Federal and State efforts in the lead up to and aftermath of Hurricane Katrina where the legacy of federal and state policies was found to be seriously flawed in providing support for local planning (Berke & Campanella, 2006). As Berke and Campanella point out, planning processes that lack local involvement often become dominated by technical experts like professional planners, engineers and biologists (Burby, 2003; Zaferatos, 1998 in Berke and Campanella, 2006). As a result, externally driven plans do not benefit from local knowledge and may be inconsistent with local values, needs and customs. Rather than facilitating support for government action, a planning process organised outside the community may have the reverse effect (Berke & Campanella, 2006).

The South Australian Government's Report on recovery operations after the Lower Eyre Peninsular bushfires (Government of South Australia, 2005) identified a number of key learnings for improved planning and coordination across and within agencies. The following themes emerge as critical to good coordination and integration:

- Multi-faceted approach
- Agreement on priorities
- Strong links between those who are the first respondents to the incident and the recovery personnel
- Partnerships between levels of government, the non-government sector, private and public sectors
- Effective coordination means information gathering and exchange, agreeing priorities, targeting resources to need

- Must be supported with appropriate resources, structures and systems.
- well defined roles and responsibilities
- Structures and accountabilities must enhance collaboration and cooperation at local and whole-of- government levels
- Information gathering and exchange
- Resources must be targeted to need
- Monitoring and reporting progress and evaluating results
- People, business, infrastructure and the environment require specific and also interrelated recovery responses (Government of South Australia, 2005pp 31-40).

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Flexible Structures and Processes

To facilitate 'whole of government' approaches to "wicked problems", including large scale disaster, the Management Advisory Committee (MAC) Report (part 2, 2004), outlined the need for careful structures to facilitate flexibility and called for "dedicated taskforces under strong leadership and working directly to the Prime Minister, a senior minister or a committee of Cabinet" which "have proved to be more likely to produce high-quality outcomes in these circumstances".

A number of strategies are proposed to deliver integrated programs. These include joint teams, agency arrangements and the 'one-stop shop' provided by Centrelink across a range of income support and related services. Choosing an appropriate model will reflect the timeframe over which the services are to be delivered, the policy roles of the principal partners, the scale of the task and whether it can be delivered at a marginal cost by an existing agency. The right governance and accountability arrangements are critical to good outcomes.

The report identified five key structures to achieve coordinated objectives in the case of cross jurisdictional policy challenges:

- Inter departmental committees
- Task Forces
- Joint teams

- Cross departmental partnerships
- Special purpose: frontier agencies

The report clearly articulates the types of activities for which these structures may be useful and provides a best practice checklist.

To identify better and more practical ways of working across organisational boundaries the Management Advisory Committee (MAC) initiated a review of international and Australian experiences and the examination of a number of case studies, including the response to the Bali Bombings. From this study the following challenges were identified for agencies when approaching a whole of government task:

- Developing a supportive culture and skills base
- Instituting appropriate governance
- Budget and accountability frameworks
- Maximising information and communications infrastructure
- Improving government's engagement with individuals and communities
- Building the capacity to respond quickly and effectively to emerging issues and future crises.

The report argued that "in some cases it may be appropriate to establish new structures and ongoing cross-agency linkages with substantial information infrastructure, to deliver integrated services responsive to particular clients or communities". Specifically, some of the key findings around flexible structures and processes in relation to Bali were the need for:

- Clarity in arrangements including identification of the lead agency
- The Creation of strategies and policy implementation to deal with the crisis and to monitor policy outcomes
- The integration of Coronial systems and processes, particularly between jurisdictions (Commonwealth of Australia, 2004a, p. 193)

Integration of recovery with the other elements of disaster management – the 'comprehensive' approach

'Recovery' is defined internationally and within the Australian Integrated Emergency Management process as part of a broader model in which *prevention, preparedness, response, and recovery* represent the key elements. In Australia this is known as the 'comprehensive approach" (Emergency Management Australia, 2004b) to disaster management. It is noted that in some jurisdictions these are known as the four 'R's – Risk reduction, Readiness, Response and Recovery (CDEM, 2004).

Previous models, such as Kates and Pijawka's model of recovery (1977 outlined by Sullivan, 2003:9) tend to describe a sequential process in which recovery is an end point which occurs only after the finalisation of all other activities. The literature in recent years, however, articulates clearly the non linear, non sequential nature of these components. In practice each element has components of the other three and may, at least in part, be operational simultaneously. The elements are not mutually exclusive.

Sullivan observes that while emergency management process generally conforms to an approximate sequence of events "the interaction between all elements of the process cannot be ignored (Sullivan, 2003 p.10). Recovery must be considered during preparedness activities (the issuing of warnings for example significantly contributes to recovery) and it is also important to consider prevention or mitigation measures during recovery. The description of a recovery process in this way can frame evaluation and comparisons can be made between the planned and actual recovery efforts. This concept is graphically represented in Figure 2.

Figure 2: The recovery process (Sullivan, 2003, p. 10)

The large circular arrow represents the general tendency of the process to approximate a sequence. Most important, however, are the blurred transition between each element in the process. These elements are not 'stages', where one begins and the other ends, but rather elements in a continuum (Sullivan, 2003p.9).

The depiction of "Charlottes Doughnut" (in Figure 3) reinforces the view that even before recovery begins all elements of the emergency management process continue to contribute to the pace and effectiveness of recovery when it does begin (Sullivan, 2003 p.11)

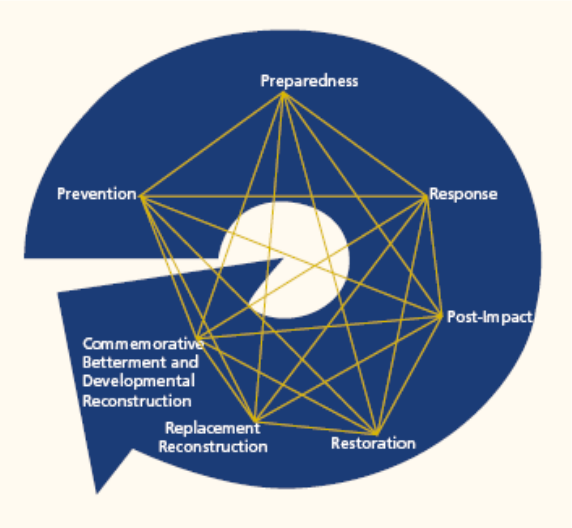

Figure 3: Charlottes doughnut – elements of emergency management (Sullivan, 2003, p. 11)

Other literature, notably Rob Gordon's work over the past two decades (Gordon, 2004a, 2004b) and more recent research, for example, into the Canberra bushfires, (Camilleri, 2007) indicates that all stages involve activities which are about the recovery process.

Recovery is therefore an integral part of the comprehensive emergency management process and should be considered in light of this broader context. A key message of the literature is that those with responsibility for planning and management of each of the elements must be involved in the planning and management processes of all of them. It is particularly important that they are included in all pre-disaster impact and post-disaster briefings.

Furthermore the recent literature on planning for resilience emphasises the importance of recovery plans in place well before a disaster strikes. According to Berke and Campanella (2006) the core purposes of a recovery plan, within a resilience model are to:

1) Offer a vision of the future after a disaster

2) Provide a direction setting framework (strong fact base, goals and policies) to achieve the vision

3) Inject long range resiliency considerations into short term recovery actions that promote redevelopment that is socially just, economically viable, environmentally compatible and less vulnerable to hazards

4) Represent a 'big picture' of the community that is related to broader regional , state, and national disaster response and reconstruction policies, and

5) Build in flexibility and be adaptable to the dynamic and changing conditions presented by the recovery process (p. 194).

Interrelationship between social, physical and economic recovery

The elements of recovery in the disaster literature are generally grouped into the following four broad areas: Social (Individual and Community) Recovery; Financial and Economic Recovery; Physical Recovery and Recovery of the Natural Environment (EMA, 2004; Norman, 2006).

Norman (2006) in an article discussing New Zealand's holistic framework for disaster recovery argues that a holistic and integrated framework is needed to consider the multi-faceted aspects of recovery which, when combined, support the foundations of community sustainability. New Zealand's framework for integrated and holistic recovery, depicted in figure 4 encompasses the community and four environments: social, economic, natural and built environments. Recovery activity (the central oval in black) demonstrates the integration between the community and the four environments (Norman, 2006, p.17).

Further, in this model each component is comprised of several distinct elements. The Social Environment component is comprised of: Safety & Well-being, Health and Welfare; the Built Environment component is comprised of five elements: Residential, Commercial/Industrial, Rural, State-owned Public Buildings & Assets

and Lifeline Utilities; the Natural Environment is comprised of the elements of: Biodiversity & Ecosystems, Amenity Values, Waste & Pollution and Natural Resources; and the Economic Environment component is comprised of Individuals, Firms (business), Infrastructure and Government.

Figure 4: New Zealand's framework for integrated and holistic recovery (Norman, 2006, p.17)

The importance of clearly identifying these components, which in the New Zealand Framework includes the "natural environment" as distinct from the previous tendency to make it a subset of the "physical environment", is to assist in the planning process and to underscore the importance of coordinated efforts. According to Norman successful recovery needs to recognise that both communities and individuals have a wide and varying range of recovery needs and that recovery can only be successful where all needs are addressed in a coordinated way.

> Community recovery involves regeneration of a community's functions, social structures and systems following a disaster. The ability of a community to achieve this will involve the holistic interaction between the community and the social, economic, natural and built environments.

> This interaction must involve members of the community and be supported by the local, regional and national structures (Norman, 2006, p.17)

The period of recovery has been broadly defined as the time of returning to 'normality' (Fathergill et al., 1999 in Hutton, 2001) or, in the more recent literature, as a 'window of opportunity for creating more resilient communities' (Berke & Campanella, 2006) p.193). Within both these conceptualisations an integrated approach involves rebuilding, allocating resources, finding housing, and repairing or re-establishing social and economic networks in the community.

These elements, which clearly need to be viewed as inter-related are examined more closely in the following sections which focus on individuals and communities and on infrastructure, employment and business recovery.

Well targeted psycho social interventions

Practical assistance and personal support

The recent literature emphasises the importance of well targeted interventions to address the social and psychological impacts of disasters. In previous decades Mitchell's widely used model of psychological intervention - Critical Incident Stress Debriefing (CSID) (Mitchell, 1983; Mitchell & Everly, 1996 in (Hutton, 2001) was used as a preventative intervention with significant populations exposed to disasters, based on the assumption that providing survivors with the opportunity to share their experiences in a structured and supportive environment will reduce feelings of abnormality and facilitate more adaptive coping responses (Raphael & Wilson, 2000).

Despite the prevalent use of the CISD model among mental health practitioners, emerging research has questioned its effectiveness in preventing long-term psychological disturbance, and in some cases has shown it to have adverse impacts on participants (Bisson et al. 1997; Deahl et al., 1994; Hytten & Hasle,

1989; Kenardy & Carr, 2000; McFarlane, 1988; Wessley et al., 1998 in Hutton, 2000). Furthermore research has shown that mental heath services are not widely used in the aftermath of disasters, and are often perceived to be unhelpful to people who are in need of more concrete goods and services (Hartsough, 1982; Summers & Cowan, 1991 in Hutton, 2001).

The more recent literature emphasises a socio-structural framework which more strongly involves collaborative social and community processes. Gist et al. (1999) and Stephens (1998) found that whatever positive effects formal debriefings may have, these are no greater than afforded by more natural venues such as talking with family and friends (Gist et al, 1999; Stephens, 1998, in Hutton, 2001). In many cases, people may benefit most from very concrete, explicit, and directive assistance which enables them to attain the tangible goods and services required to overcome the material losses of a disaster (Flynn, 1999; Salzer & Bickman, 1999 in Hutton, 2001).

The importance of rebuilding in a timely way is demonstrated by Parker's (1977) research of the 1974 Darwin cyclone. While initial levels of dysfunction among survivors were linked to 'mortality stress' (fear of injury or death), maladjustment after 10 weeks was associated with such 'relocation stressors' as loss of residence and possessions and disruptions to communal support networks (Parker, 1977 in Hutton, 2001).

Assess needs and capabilities

While the previous discussion stresses the importance of practical assistance over mental health processes for the majority of people affected by disasters it is critical that interventions are appropriately targeted. People who need greater assistance including counselling and ongoing formal psychological help need to be identified as early as possible.

As EMA guidelines indicate, individual disasters (and individual characteristics) impact on a person's or community's vulnerability and subsequent ability to

exhibit resilience. The type of disaster, and indeed its magnitude, will dictate the loss and psychological trauma inflicted, thereby highlighting the ability of the affected community to support itself, to manage its own recovery, or indeed the level of international assistance required. Professional judgment is required at the time of the disaster to assess what types of assistance and support measures may be required.

It is critical that a comprehensive assessment of effects is undertaken as soon as possible after an event to obtain a snapshot of needs and capabilities. This snapshot should be repeated, updated and monitored as regularly as possible. Following from a description and evaluation of damage there will be a requirement to identify and prioritise the needs of individuals, families, groups, communities and service providers. These needs will include day-to-day and continuing service, support and welfare requirements (Buckle, Marsh, & Smale, 2001).

The Canberra research highlighted a number of issues for recovery practice in relation to the medium and mental health outcomes of people affected. It recommended the promotion of:

- readily accessible information, referral, and assistance for psychosocial problems and psychological distress
- a range of specific mental health-trauma treatment programs available via public and/or private services
- access to self-help interventions (for example, web-based or other formats) for PTSD, other mental health problems, preferably with capacity for monitoring and back-up psychological support
- specialist mental health-trauma consultation for GPs/other primary care providers regarding screening, referral and intervention options (p.162-3).

In addition the report outlines a series of specific recommendations to assist people in the weeks or months following disasters (p. 163-4). It also indicates the

need for ongoing research through the comprehensive analysis of data provided by disaster affected individuals in order to strengthen and clarify the existing understanding of mental health in the context of the medium to long term recovery process (p.166).

Guidelines assessing disaster resilience and vulnerability produced for Emergency Management Australia (EMA) (Buckle, Marsh & Smale, 2001) suggest the magnitude and duration of any social and psychological effects should be prepared for by identifying potential disasters, examining their potential impact, and by identifying vulnerability and potential level of resilience among people and communities.

Resilience and vulnerability assessment is a necessary component of effective emergency management planning. However, it is unlikely that any assessment, or community audit, will capture every potential need or identify every person who, in some circumstance, may be exposed to a risk or to the possibility of some loss.

Child focused interventions

Child-focused interventions are more likely now to be included in recovery strategies. In the recent aftermath of the Indonesian earthquake at Yogyakarta (2006) for example, special resources such as children's centres have been recognised as a key element of humanitarian response. In planning for and providing psycho-social support, psychologists stress that children can only comprehend the long-term effects of the disaster at their own level of experience and understanding. Contemporary guidelines on interventions now highlight the importance of addressing children's needs appropriately and with the assistance of specialist support and advice. Eyre argues that disaster recovery planning, training and response should engage those professionals working with children and young people within the community, such as teachers, educational psychologists and youth workers, before as well as after incidents occur (Eyre, 2006, p.18).

In an exploratory study of children after Hurricane Katrina, Peek and Fothergill, influenced by Anderson (2005) asked four research questions:

1) what were the children's experiences in the disaster?
2) what are others doing for the children to lessen their vulnerability?
3) what are children doing for themselves and others to reduce disaster impacts?
4) what have been children's experiences with relocation, particularly with schooling, family, and friendships? (Peek & Fothergill, 2006)

Using a combination of ethnographic methods, including informal interviews, in-depth formal interviews, focus groups, and participant observation, they interviewed parents (mothers and fathers from single-parent and two-parent families), grandparents, day care service providers, school administrators, elementary school teachers, mental health service providers, religious leaders, and evacuee shelter coordinators.

While their findings are preliminary, several key messages include:

- The importance of schools for the recovery of families, children, and entire communities. Schools were considered central for children's return to routine and normality
- During evacuation, attention needs to be paid to how schools welcome and integrate displaced children. It may, for example, benefit children if schools assign displaced students in schools together and have programs in place to help the children's adjustment
- If possible, schools should waive tuition, fees, and strict uniform requirements while students and their families are recovering
- In addition to family members as primary caregivers, teachers, day care providers, disaster relief volunteers, and shelter workers all contribute in different but important ways to children's post-disaster emotional and social well-being. Individuals who work closely with children in day care centres, schools, and evacuee shelters should receive information regarding

the importance of routine but also of being flexible in the aftermath of disaster

- The actions of shelter workers could ease the difficulties experienced by children and families forced to live for long periods in mass shelters. Tutoring programs, organized play activities, and child drop-off areas helped children stay active, and also gave parents an opportunity to rest or take care of other important responsibilities
- Care programs should be put in place for children of all ages, including infants and toddlers, so that parents with younger children have extra assistance
- Mental health volunteers at shelters were urged to step outside the traditional models to talk with children and families and look for new ways to reach those victims who may not want to approach the mental health table at a shelter (Peek & Fothergill, 2006).

Case Management and Outreach

Studies on several disasters in recent years, for example, Bali and other offshore disasters involving Australian citizens, the 2003 Canberra bushfires, the Eyre Peninsula bushfires and Tropical Cyclone Larry have all emphasised the importance of case management and proactive outreach to vulnerable individuals and communities.

Centrelink maintained a case management role for people affected by the Bali and Tsunami tragedies. In addition to setting up hotlines to triage people who required assistance it also provided a range of other meet and greet assistance strategies as well as social workers on the ground in Bali and Tsunami affected countries.

The case-management approach, which was used extensively in the ACT bushfire recovery, proved to be immensely valuable in assisting people to negotiate across a range of government and non-government organizations. Many people affected by the bushfire did not have experience dealing with community service organisations and were greatly assisted by having information about income

support, services, business, building etc all in the one place. The report recommended that recovery managers note the effectiveness of:

- The one stop shop, recovery centre model in the provision of services to disaster-affected people
- Recovery workers as the case managers in disaster recovery and their effectiveness in providing community support to emerging groups, streets, neighbourhoods, and villages
- The need to identify groups that may feel that they are not receiving services and put strategies in place to reach them (p. 157).

Timely, proactive and accessible services

The literature clearly indicates that recovery efforts which focus on people affected by disasters must be timely (in that assistance is provided when it is needed and for as long as it is needed); proactive (being actively involved in planning for a range of options) and accessible (developing creative strategies to ensure people are able to receive assistance).

The Canberra Bushfire research (2007) and The Final Report of the Operation Recovery Task Force on Cyclone Larry also indicated, by and large, the whole of government approach, in partnership with the community, via the one stop shop was a very effective means by which to provide services and support to the affected community. Bushfire affected people, for example, generally appreciated:

- The quick establishment of the Task Force, and its service arm, the Recovery Centre
- The 'one-stop shop' model which provided access to most services under one roof and through a personal recovery worker as case manager and community worker
- The coordination of government, non-government and community services
- The 'community feel' of the Recovery Centre, even though people knew that it was provided by government

- The range of services and information provided, with the tangible and practical services rated highest, but all appreciated
- The welcoming nature of the Centre, and understanding staff
- The longevity of service provision, although some thought that the Recovery Centre should have stayed open even longer (Camilleri, Healy, et al, 2007, p.156)

The models used after the Canberra Bushfire were built on the experience of other jurisdictions, documented in the EMA Recovery Manual and taught at the EMA Training Institute. The ACT was able to elaborate and develop the model, particularly the role of the recovery worker in case management and community development and innovative counselling in the field rather than just in the office.

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A recent book by Ritchie, et al., which examines mental health interventions after mass violence and disaster, claims that the efficacy of post disaster services rests not only on their clinical efficacy but also on the capacity of systems to deliver services in an appropriate way. Quoting Hodgkinson & Stewart it outlines a set of service characteristics that are useful for process evaluations of disaster mental health services. These criteria can also usefully apply to a broader range of personal support services that seek to assist individuals and families after disasters. They include:

- Credibility – the service must be seen by people affected to be offering something of use
- Acceptability – help must be offered in a way that does not demean the survivor
- Accessibility – help must be offered in the heart of the affected community
- Proactivity – the service must reach out to those most affected
- Continuance – the service must be present for a sufficient time to meet the need
- Confidentiality – survivors must believe that their privacy is assured (Hodgkinson & Stewart, 1998, pp 95-96 in Ritchie, Watson, & Friedman, 2006).

Transitioning back to normal management and service provision

Ellis et al in the *National Inquiry on Bushfire Mitigation and Management* produced for the Council of Australian Governments (COAG review) also came to the following conclusions about timeliness of service provision in relation to the 2003 Bushfires.

> The establishment of special whole-of-government recovery mechanisms (such as the ACT Bushfire Recovery Taskforce and the Victorian Ministerial Taskforce on Bushfire Recovery) was beneficial. However there is a need to ensure an effective transition back to normal management and service provision at a suitable point after the disaster. Longer term aspects of recovery need to be maintained through existing community services (Ellis et al., 2004:176).

One of the key findings of the recent Canberra bushfire research, however, is that "community recovery will take years and that services must be in place for extensive periods" (Executive Summary in Camilleri, Healy, et al, 2007). For example, even though the Bushfire Recovery Centre in Canberra operated for over a year a considerable number of participants in the research felt it should have remained open for a longer period.

Community driven

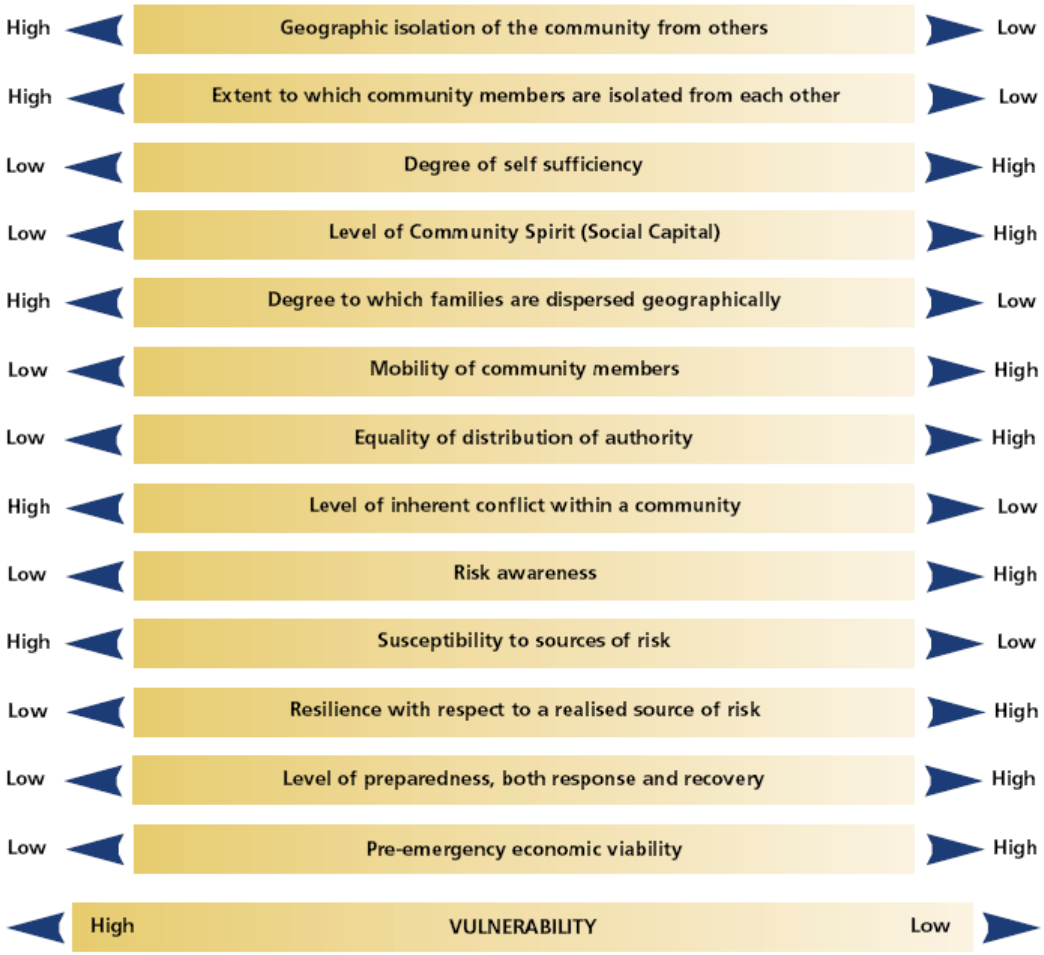
Assess community vulnerability and capability

Sullivan discusses the relevance of Lunn's thirteen criteria or 'recovery capability indicators' (Lunn, 2001 in Sullivan 2003) relating to the vulnerability of particular communities. These are shown in figure 5 and are regarded as "extremely valuable tools in determining implications of a disaster for community recovery (Sullivan, 2003, p. 20).

The usefulness of analysing these characteristics in the disaster context is not only in relation to understanding a 'community's' level of vulnerability – it can

also assist in recovery planning prior to and after disaster. It certainly underscores the importance of analysis in the planning process, including clearly identifying groups at risk and implementing specific outreach strategies to assist them.

Figure 5: Community Vulnerability indicators (Lunn, 2001)



Enable community capacity building

The study of emergency management has applied considerable rigour to explaining what 'community' means in the context of disaster management. EMA (2000) refers to a four way classification of communities which includes:

- geographically based groupings,
- shared-experience based groupings (communities of interest)

- sector based groupings (for example, manufacturing, education, etc.) and
- function based groupings (for example, health service providers, telecommunication providers, etc.) (Emergency Management Australia, 2000).

Although communities may not always be bound geographically, for the purposes of this review of the literature the term is used to broadly describe those who are bound by the *impacts* of a disaster (Sullivan, 2003 p.20).

A number of studies argue that communities themselves are central to the recovery process and that recovery is best achieved "when the affected community is able to exercise a high degree of self-determination" (EMA 2004:3). Being able to achieve a high degree of self determination, however, presumes a high level of social cohesion, social capital and collective efficacy. These are constructs, in the context of disaster recovery, that are not well understood and tend to be conflated in the literature (Moore et al., 2004). They are of importance in this discussion because it is argued that these qualities (sometimes called the 'social fabric') are able to moderate the capacity of communities to recover (Moore et al., 2004).

Social cohesion, for example, refers to processes by which individuals have the desire to live together in some degree of harmony and focuses on issues of social solidarity, participation and integration. It is an important independent variable which research has found influences important health outcomes (Jensen, J., 1998; Kawachi and Berkman, 2000, & Beauvois & Jensen, 2002 in (Moore et al., 2004).

Various understandings of social capital exist but most frequently they refer to the networks, norms and trust that enable participants to work together to pursue shared objectives. An individual is considered to significantly benefit by living in a community with high levels of social capital (Navarro V, 2002; Putnam, 1995 in Moore, Daniel et al, 2004 (Putnam, 1993)). Using the 'bonding, bridging, linking' framework referred to earlier (Healy, Hampshire, & Ayres, 2004) the

community capacity building roles of government in recent disasters are examined below.

Bonds with family, friends and close neighbours

Picou and Martin's study of perceptions of recovery efforts after Hurricane Ivan hit the small Alabama tourist community of Orange Beach in 2004 indicated that, relatives, friends, and neighbours were all perceived to be helpful by respondents (Picou & Martin, 2006) (Table 4)).

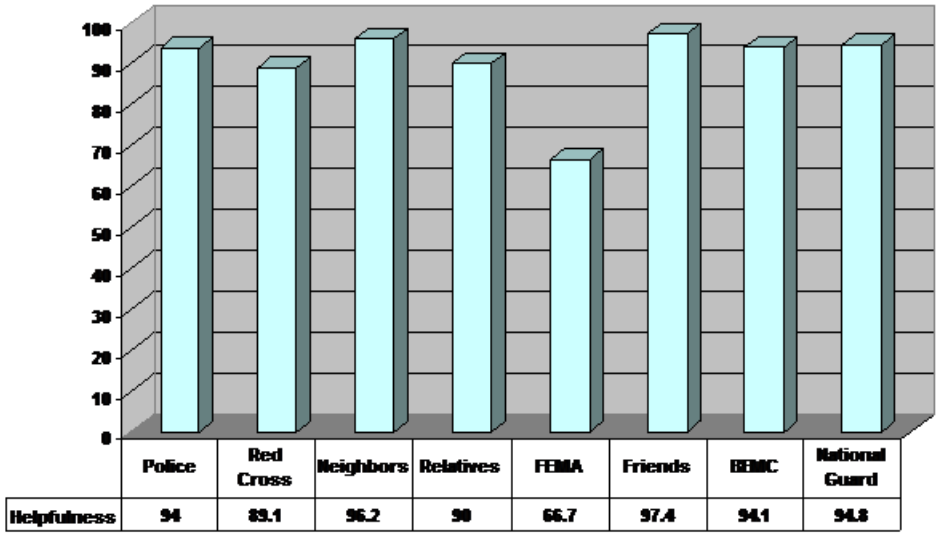


Table 4: Perceptions of helpfulness of support agencies and social groups by Orange Beach residents (Picou & Martin, 2006)

The importance of family, friends and neighbours was also a clear theme in the Canberra bushfire report (Camilleri, Healy, et al, 2007). While most participants indicated they received support from both family and friends, disappointment was also expressed about those who did not appreciate the medium and longer term impacts of trauma and loss. The research recommended a community education campaign to help family and friends in these circumstances know how to respond, including realising the unintended negative impacts of some of their well meaning actions.

'Bridges' to other 'communities' and networks

The Canberra bushfire study also revealed many examples of community groups working together to facilitate increased opportunities for contact with people, who may not have previously known each other, but who gained support and resources from sharing their experiences and their different networks. Many imaginative and creative events were acknowledged by survey respondents such as the Australian Institute of Sport Fun Day, the Lake Cruise for Over 70s, Duffy School Get-togethers, street parties, quilting groups and afternoon teas at the Recovery Centre. These events gave people opportunities to reflect together and in some instances to form lasting bonds which helped their recovery. The study indicated there is a need, from the immediate days following disasters to structure opportunities for such contact and to actively outreach to vulnerable groups so that they can take advantage of these opportunities.

Linking with government and other powerful institutions

Of particular significance in Woolcott and Narayan's theory of social capital are the 'linking' networks that develop between individuals and groups and powerful institutions such as government and business. A study by Healy, et al, found that the perception that local government and local business were working in the interests of the community contributed to people's sense of life being manageable. (This contrasted with family and friendship bonds which contributed to feelings of optimism but not necessarily that life is manageable). The same study found that the absence of inter-community bridging capital and linkages to the decision makers (especially government and business) led to a strong sense of stigma and isolation from surrounding communities and a sense of fatalism, that is a lack of a sense of control over forces shaping their lives (Healy, Hampshire, & Ayres, 2004).

Residents' associations after the Canberra fires of 2003 such as those that developed on the Mt Taylor Estate, Chapman, Stromlo, Pierce's Creek, Uriarra and the Phoenix Association played an important role for many in contributing to a sense of empowerment and self determination among residents.

There are many examples of how such groups, which developed only after the fire, formed successful partnerships with government to organise social, commemorative, and information events for bushfire affected people and the wider community. At these events, government officials mingled with community members so that they could be close to 'communities' and better monitor their needs. Similarly the Community and Expert Reference Group not only played a valuable advisory role with the Task Force, it enabled community representatives and those whom they represented to reclaim a sense of the control that had been lost in the cataclysmic events of January 18.

There are difficult messages for governments in this; encouraging and empowering the social activism of these groups is important for the greater good but may also mean that criticisms are expressed about government roles in response and recovery.

Facilitate self help, mutual help and volunteering

The concept of collective efficacy seeks to capture the link between the degree of mutual trust in a neighbourhood (social capital) and residents willingness to act for the public good of that particular neighbourhood (Sampson RJM, Jeffrey D, Gannon-Rowley T., 2002; in Moore, Daniel, et al, 2004). Volunteering, particularly, appears to be important on many levels, not just for the additional resources it provides the community. Volunteering can give people an opportunity to connect with others and to reinforce their sense of belonging and self-worth following a traumatic event. It can help transform 'victim-hood' into empowerment, thereby creating a positive basis for long term recovery. This was, for example, particularly the case in the Canberra community where so many people had not previously required the assistance of formal services (Camilleri, Healy, et al, 2007).

Governments enabling and supporting the development of community capacity, including self help and volunteering not only assists the recovery process but it also affects the community's capacity to prepare for other disasters.

Figure 6 depicts the moderating influence of these concepts on community preparedness, relief and recovery.

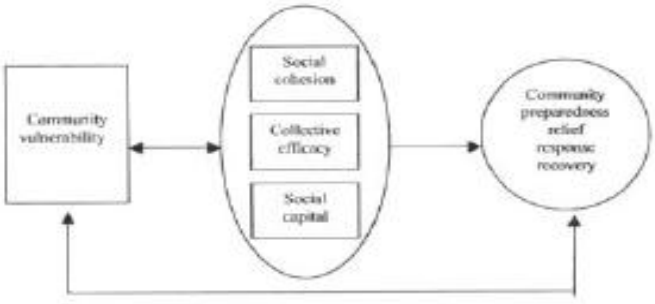


Figure 2. HWATF conceptual model.

Figure 6: Conceptual model for mediating impacts of disasters on recovery (Moore et al, 2004)

Community development

Government activities in a number of recent disasters reflect the intent to strengthen all of these elements of community capacity using a community development approach.

A key element of the Victorian Government's drought social recovery strategy in 2003 was to allocate funding to support the employment of community development workers. In most cases the community development workers were managed by an auspice agency and supported by a local drought recovery committee (Betts, 2004:2). The evaluation of this initiative found that the community development workers could strengthen community resilience through:

- Facilitating inter-agency networking and local government links and support,
- Supporting community owned activities

- Provision of core support services in town
- Facilitating the involvement of local (and major) industry with the community
- Providing information, support and options for drought affected individuals, families and communities was highlighted (Betts, 2004).

A number of studies suggest specific strategies to support community recovery groups. For example, Halvorson states that government authorities can play a role in facilitating networks between recovery groups in different areas, so communities which experience similar natural hazard risks (such as fire prone areas) can learn from each other (Halvorson, 2002, p.9). Manock (2001, p. 11) suggests that regional, state and federal level agencies can support community based recovery committees or groups in specialist areas of disaster recover such as personal support services, appeal management, insurance, legal advice and so forth.

After Tropical Cyclone Larry the Queensland Department of Communities worked with local government and community leadership groups to enable learning from their experiences in order to better prepare them for future cyclones (The State of Queensland (Department of Emergency Services, 2007 p.34).

Following the Eyre Peninsula bushfires the West Coast Recovery Committee, incorporating representatives from government and community organisations became a major conduit for community input to the recovery effort. Local leaders established recovery priorities and made decisions based on local needs (Government of South Australia, 2005 p.28). The South Australian Government also took a proactive approach to involving the wider community. Family information evenings were held in several locations, combining fun with information. In some cases this was the first time neighbours had met each other. In this way the recovery operation was brought to the community rather than expecting people to meet in Port Lincoln “for a one size fits all briefing” (p.28).

Opportunities for the building of 'bridging' and 'linking' social capital were also created by extending people's networks and giving people opportunities to meet and influence government processes.

The recent Canberra bushfire research (Camilleri, Healy et al, 2007) confirmed other research findings that communities themselves are central to the recovery process and that recovery is best achieved "when the affected community is able to exercise a high degree of self-determination"(EMA 2004:3). An analysis of the main themes drawn from the study provides a number of messages for policy makers and practitioners as they consider how best to enable community and individual resilience after disasters, especially in the medium and longer term made a number of recommendations about the way government could assist communities. These include:

- making available information about how recovery, including medium and long term recovery, takes place to individuals and families to help them understand their own responses and/or those of others in the family
- incorporating the detailed information about resilience strategies into a set of information guides for people affected by disasters
- providing the 'community' generally with information about the nature of recovery to facilitate greater understanding and tolerance of the feelings and experiences of disaster victims, in particular that individuals experience recovery at their own pace and in their own way
- noting that street barbeques and parties were very popular events for people affected by the bushfire and that there is value in actively structuring local opportunities to bring people together for contact and support immediately after disasters and at particular points afterwards
- recognising the need to support where possible the ongoing development of groups which form as a result of the above
- making arrangements for prioritising and outreaching to vulnerable groups after a disaster, such as those who are bereaved or have suffered serious

injury; those who were separated and traumatised through evacuation procedures; those who had feared they would die or that they would lose loved ones; those who had suffered previous trauma and/or disadvantage

- providing support for the development of self-help and mutual help groups, with a particular focus on volunteerism to harness the energy and creativity and increased sense of control that seems to result from this kind of involvement
- noting that all disaster recovery plans should articulate strategies for engaging government and community institutions beyond traditional welfare sector institutions, especially those concerned with the arts and the environment
- noting the positive effects of commemorative events such as memorial services and anniversaries to mark losses; it should note that losses are not confined to loved ones, loved animals and personal assets; lost environments should also be commemorated and conscious attempts should be made to help people look forward with hope to rejuvenation and the part that can be played by all in assisting this
- noting that research which engages communities in thinking and reflecting on their experiences after a disaster can itself be therapeutic and should be undertaken at key points in recovery – the short, medium and long term (pp. 171-2).

The above examples are in striking contrast to the United States Federal and State government's recovery efforts (including for mitigation and preparedness) in the lead up to and aftermath of Hurricane Katrina (and Hurricane Rita, before it) (Berke & Campanella, 2006; Boin & McConnell, 2007; FEMA, 2006; Peek & Fothergill, 2006; Waugh, 2006; Winston et al., 2006).

Sustainable Infrastructure, Employment and Business Recovery

EMA and The New Zealand "holistic disaster recovery framework" identify major recovery tasks in relation to the built environment after disasters which impact on infrastructure It is not within the scope of this literature review to explore these specific tasks in detail; these can be accessed easily through the EMA literature and the New Zealand Framework (Emergency Management Australia, 2002, 2004b; Norman, 2006). The important principles that are drawn together in this literature review include: basing recovery efforts on long term mitigation strategies; identifying capacity and skills needed; providing information for rebuilding; using opportunities to improve conditions; making special arrangements for insurance; and promptly restoring trading.

Base on long term mitigation strategies

The literature emphasises that physical recovery of the built environment must be based on long-term strategies of sustainability, such as adopting mitigation measures that prevent or reduce the effects of future hazard events. In order to contribute to recovery, plans need to be developed in advance (Schwarb et al, 1998) for both the physical elements and activities in the following areas:

- urban planning, so that opportunities presented by destroyed infrastructure can be taken up;
- rivers management and protection works in rural communities as well as urban communities;
- skills and resources required (e.g., tradespeople and professional services); and
- mechanisms for organisations, special interest groups and individuals to work and plan together.

Additionally a process for addressing the needs of the built environment during recovery should include:

- impact assessment
- restoration proposals (for example, decisions regarding repair, replace, abandon)
- funding arrangements (insurance, capital investment)
- design, regulatory approvals and consultation
- physical construction, including logistics support for infrastructure recovery (Schwarb et al, 1998).

Identify capacity and skills needed

According to the World Bank actions taken during the first weeks and months after a disaster have a major impact on the recovery process to follow, and they need to be planned and implemented accordingly. Choices made immediately following a disaster—regarding shelter, resettlement, debris clearance, and the like—affect the later choices for longer-term solutions and vulnerability reduction. These choices can have severe consequences for the ability of vulnerable groups to recover. It is therefore critical that immediate post-disaster actions include the development of the capacities, knowledge, and skills that will be required for the recovery process (The World Bank, 2007, p. 22).

EMA identifies the need in planning for any redevelopment to enable

- sense of place and preservation of visual and historical links with the past;
- the capacity for disaster-affected communities to cope with change and redevelopment;
- involvement of the community in the redevelopment process; and
- the opportunity for disaster-affected areas to be improved rather than just restored through the redevelopment process.

Provide information for re-building

It was also crucial after the ACT bushfires and Cyclone Larry to provide information on and long term support for residential rebuilding. In the case of the ACT, much of this information was provided by building experts through the Recovery Centre (one-stop shop).

After Cyclone Larry, this was provided by the BCC (Building Coordination Centre). The Operation Recovery Task Force recommended in its final report,

> In any future disaster of comparable proportions, consideration be given to the co-location of the BCC and the principal One Stop Shop." (p19)

> … frequently an individual or a family in need of assistance would be facing interwoven strands of difficulties – with repair and rebuilding problems linked to other material and psychological pressures. Therefore, a fully holistic service for the customer would best be achieved by having a One Stop Shop and BCC under the same roof." (p19)

Use opportunities to improve conditions

Brewster (2005) has noted that communities may see opportunity to improve conditions rather than merely recover from losses. As noted earlier in the discussion about the nature of recovery, a return to the status quo prior to the disaster is not possible. Moreover, the quality of the recovery process will determine whether affected individuals progress or regress. It is in this context that Brewster argues that the devastation wrought by disasters provides a unique opportunity for a community to examine a range of issues such as housing inequities, traffic problems and inadequate infrastructure. In addition, there may be opportunities for modernisation of public facilities, beautification of the landscape and built environment, and even stimulation of the local economy (Brewster, 2005).

Brewster also notes the speed required for recovery efforts is a critical issue. The desire for improvement will confront the urgency for early restoration. Each circumstance will be different, and active recovery networks need to be established to ensure that the best outcomes are achieved in each case.

Brewster reports the lessons from US urban planning experience in the 1990s following earthquake disasters:

- Cities and towns are almost never relocated
- The rebuilt city is a safer city
- Earthquakes offer opportunities for specific urban redesign projects
- Neighbourhood preservation can aid personal and community recovery
- Preserving historic and symbolic buildings helps retain community identity
- Design is everybody's business.

Special arrangements for handling insurance

Strategies for the restoration or improvement of infrastructure and other physical assets inevitably raise the question of who pays, and insurance plays a central part in this equation.

Under-insurance was quoted in the ACT Bushfire Recovery Research as one of the most stressful factors hindering recovery (Camilleri, Healy et al).

The Australian Securities & Investments Commission, in their 2005 report for which they surveyed ACT residents who had lost their homes in the fires, recommended that the Insurance Council of Australia assess the relative accuracy of the various methods of estimating rebuilding costs. The consumer bears the onus of assessing the sum insured and the financial consequences of an incorrect assessment. Estimating the precise cost of rebuilding is an intrinsically complex task requiring specialist knowledge and expertise ("Getting Home Insurance Right", ASIC, September 2005).

The ASIC report quoted that the Insurance Disaster Response Organisation had reported that structures destroyed in the ACT bushfires were underinsured, on average, by 40% (ASIC p15)

In both the ACT bushfires and Cyclone Larry, it proved crucial to have special arrangements in place to handle insurance concerns and complaints. In both cases building costs were affected by spiralling costs for building materials, and building skill shortages. The Canberra Bushfire Recovery Task Force provided an insurance advisor who acted on behalf of bushfire-affected households to resolve issues with insurance companies. At November 2003 the advisor had responded to 77 insurance complaints and resolved 69 to the satisfaction of bushfire-affected households (Bushfire Recovery Task Force 2003:98). 37.2% (n=153) of respondents used insurance advice. 64.7% (n=99) found the advice very helpful or helpful.

Prompt restoration of trading - economic and business recovery

Following disasters the window of survival for affected businesses will vary and the goal of disaster recovery generally should be prompt restoration of necessary trading conditions.

Aside from infrastructural aspects, recovery action may include direct assistance to individual businesses. For example, asset protection and salvage is important, as is the availability of information to assist decision-making and planning. Reliance on 'just-in-time' deliveries, an available workforce and customer confidence are further issues requiring consideration for recovery processes. (Norman 2006, 20)

Following Tropical Cyclone Larry, business grants were made to farmers very soon after the cyclone hit along with concessional loans and a range of employment support programs (Queensland Government, The final report of the Operation Recovery Task Force, 2007).

In the case of the Canberra bushfires the ACT Government provided free business counselling and mentoring to business people affected by the fires. 7.4% (n=30) of respondents (total households) reported that they had used this assistance. 66.6% (n=20) found this helpful or very helpful (Camilleri, Healy et al, 2007, p.99)

Communications and media support recovery

There is a small and emerging literature on communications and the media in disaster recovery in which communication is much more than information-giving. Best practice communication is regarded as a two-way process of giving information and receiving feedback on that information, allowing both information and/or policies/resources to be modified and improve (Camilleri, Healy et. al, 2007).

Consistent, accurate, timely and clear

The immediate presence of the media in the aftermath of a natural disaster is most important to ongoing relief and recovery efforts. The report outlining the recovery efforts following the Eyre Peninsula bushfires stressed the importance of strong relationships with media. A nominated spokesperson as a single credible voice for recovery provided consistency, a sense of authority and a clear message that the situation was in good hands (Government of South Australia, 2005p. 48). The report identified the importance of:

- a news release template and established approval process would facilitate the verification, coordination and dissemination of information during the enormous pressure for information in the early days of a disaster (p.48).
- fact sheets providing up to date information on the cross government recovery effort. These were circulated to Cabinet, Opposition leaders, agency Chief Executives and others. Fact sheets also provide a valuable record of the recovery effort.

Media contact during in the bushfires on the Eyre Peninsula (2005), Canberra (2003) and Tropical Cyclone Larry (2006) provide a number of key learnings:

- Ensure that media briefings and releases involve all media available to the post-disaster community (including internet and community media) and cover all recovery-related issues as soon as they emerge (Camilleri, Healy, et al., 2007)
- Appointment of a dedicated media officer to the West Coast Recovery Committee earlier would have facilitated better media relationships (Government of South Australia, 2005p. 48)
- The report of the Cyclone Larry Operation Task Force recommended that in any future large scale disaster, consideration should be given to a centrally located Media Operations Centre. A centrally located centre would become the foal point for raw information for a large number of media representatives.

It is through the media that the public receives the vast bulk of its information and frequently governments also rely heavily on media reporting to ascertain additional information to that being passed through official channels. In the case of Tropical Cyclone Larry, for example, the media helped to mobilise and support in a way not possible a generation ago (The State of Queensland, Department of Emergency Services, 2007).

Two way communication

An article by Beckenham and Nicholls (2004) discusses the organisational and management structure in relation to communication activities after the 2003 Canberra bushfires. It describes the action plan devised and its implementation; communication methods and vehicles; and the critical role played by the Community and Expert Reference Group and the ACT Bushfire Recovery Centre in facilitating two-way communication. It gives an initial evaluation of recovery communication, and critiques the ACT Government's own evaluation of its

communication efforts with the community in recovery (Beckenham & Nicholls, 2004).

Use multiple channels

Three years after the event, the Canberra Bushfire study concluded that overall, information and communication provided by the ACT Government to assist in recovery was praised by respondents. In particular, the newsletter *Community Update* was singled out by a large majority of respondents as meeting their needs. With very few exceptions, the mass media served the affected community very well. Recommendations emerging from the research include:

- Timeliness and consistency of information provision should be improved
- New ways of telling people where to get information and resources should be explored
- Newsletters designed for the affected community should avoid 'over-cheeriness'; reflect people's actual experiences across a range of good and bad, and address all affected stakeholder groups; community input should be strongly encouraged
- Overt political presence and content in newsletters should be minimised.

The Eyre Peninsular Bushfire Recovery Newsletter also provided "timely, locally relevant and accessible information to the community" (Government of South Australia, 2005 p.49). The newsletters provided a wide range of information including:

- Federal and State Government grants
- services provided through recovery centres
- updates on the progress of the recovery effort
- advice on grief, loss and trauma issues and counselling services
- dietary information
- accommodation and housing
- general community and social information such as family information nights (p.49-50).

The media in Tropical Cyclone Larry were reported to have done an excellent job in the circumstances, including the electronic media in providing real time information. Loss of mains power meant that the instant pervasive reach of mass media fell away sharply. Not even the World Wide Web could be used. The importance of preparing communities for disasters by communicating the importance of battery powered radios was stressed in the Final Report of the Operation Task Force (The State of Queensland, Department of Emergency Services, 2007p. 17).

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APPENDIX 1

Disaster Recovery Principles

Emergency Management Australia

The then Standing Committee of Social Welfare Administrators (now the Community Services Ministers' Advisory Council) in 1986 endorsed principles of disaster recovery management which have provided a successful management context for recovery managers.

- Recovery from disaster is an enabling and supportive process, which allows individuals, families and communities to attain a proper level of functioning through the provision of information, specialist services and resources.
- Effective recovery from disaster requires the establishment of planning and management arrangements, which are accepted and understood by recovery agencies, combat agencies and the community.
- Recovery management arrangements are most effective when they recognise the complex, dynamic and protracted nature of recovery processes and the changing needs of affected individuals, families and groups within the community over time.
- The management of disaster recovery is best approached from a community development perspective and is most effective when conducted at the local level with the active participation of the affected community and a maximum reliance on local capacities and expertise.
- Recovery management is most effective when human services agencies play a major role in all levels of key decision-making which may influence the well being and recovery of the affected community.
- Recovery from disaster is best achieved where the recovery process begins from the moment of disaster impact.

- Recovery planning and management arrangements are most effective where they are supported by training programs and exercises which ensure that recovery agencies and personnel are properly prepared for their role.
- Recovery from disaster is most effective where recovery management arrangements provide a comprehensive and integrated framework for managing all potential emergencies and disasters and where assistance measures are provided in a timely, fair and equitable manner and are sufficiently flexible to respond to a diversity of community needs.

Queensland

Underscoring the importance of principles which apply across the disaster management spectrum the Queensland Government Disaster management Strategic Policy Framework identifies the following general principles for disaster management:

1) A comprehensive, all hazards, all agencies approach by achieving the right balance of prevention, preparedness, response and recovery, regardless of the nature of the hazard through established partnerships
2) Prepared communities ensuring they understand their role in disaster management arrangements
3) Consultative decision making
4) A transparent, systematic and consistent approach to disaster risk assessment and management is promoted based on the Australian Risk Management Standard AUS:NZ 4360:2000
5) All levels of government apply effective corporate governance and are committed to continuous improvement of policy, programs, practices and service delivery to improve community safety (The State of Queensland Department of Emergency Services, 2005)

New Zealand's Holistic Framework for Recovery' includes the following

National Civil Defence Emergency Management (CDEM) principles as guides to action for all New Zealanders (CDEM, 2004)

1) Individual and community responsibility and self reliance
    - best approached from community development perspective
    - active participation of the affected community
    - maximum reliance on local capacities and expertise
    - recognise complex, protracted nature of recovery and changing needs

2) A transparent and systematic approach to managing the risk from hazards
    - Affected communities must be able to review the risk and and what extra measures are needed
    - Consult and communicate with communities where appropriate
    - Implement cost effective measures to reduce risk
3) Comprehensive and integrated hazard risk management
    - 4 Rs -Risk reduction, readiness, response and recovery (recovery most effective when embedded with the other 3Rs)
    - Integrated activity to address multi faceted and interdependent aspects of recovery
4) Addressing the consequences of hazards
    - Establish planning and management arrangements which are accepted and understood *before* a disaster
    - Recovery must begin before the event(embedded in day to day practices of New Zealanders)
5) Making the best use of information , expertise and structures
    - Services provided in a timely, fair, transparent manner
    - Agreed plans, arrangements and service delivery mechanisms are accessible, practised and well understood
    - Monitoring and reviewing arrangements and structures are related to accepted recovery planning best practice
    - Expertise is supported by training programs and exercises (CDEM, 2004pp 11-12)

The **South Australian Government** evaluated the recovery effort following the 2005 fires in the Eyre Peninsula within the context of a set of principles, described as 'consistent with recovery principles referenced Australia wide' (Government of South Australia, 2005) The following is an abridged version of these principles:

Timely and responsive

- recovery operations are set in train as soon as a disaster strikes
- speedy and comprehensive assessment of impacts on individuals, families and communities across all recovery functions: community and social, infrastructure, economic and environment.
- phased recovery strategies for immediate, intermediate and longer term responsive to evolving needs.

Leadership

- united, decisive and moving forward .
- mobilise assistance when and where it is needed,
- listens to the needs of those affected
- responds with strategies that are inclusive and flexible.
- collaborative

People focus

- victims of disaster, their families and their communities are at the centre of recovery operations.
- people only have to tell their story once
- recovery efforts are responsive to the needs of individuals and communities and assist them to take charge of their own recovery.
- assistance recognises that adults, children, families and communities may respond differently to the impact of disaster and loss and recover at their own pace.

- resilience of individuals and communities is the platform for moving forward.

Locally and community driven

- communities affected by disaster best placed to identify needs and priorities for assistance.
- effective recovery operations establish mechanisms for community input and assist communities to manage their own recovery.
- locally driven recovery efforts are key to sustained recovery and rebuilding.
- government agency personnel are part of the local community in which they live and work and are a significant resource to be tapped in recovery operations.

Partnerships

- multi-faceted approach.
- strong links between those who are the first respondents to the incident and the recovery personnel.
- partnerships between levels of government, the non-government sector, private and public sectors
- volunteers are an asset in disaster recovery Skilful deployment and management of volunteer resources is essential.
- effective coordination means information gathering and exchange, agreeing priorities, targeting resources to need,
- monitoring and reporting progress and evaluating results.

Coordination

- supported with appropriate resources, structures and systems.
- well defined roles and responsibilities

- structures and accountabilities must enhance collaboration and cooperation at local and whole-of- government levels.
- information gathering and exchange,
- agreeing priorities,
- targeting resources to need,
- monitoring and reporting progress and evaluating results.

Integration and sustainability

- people, business, infrastructure and the environment require specific and also interrelated recovery responses.
- opportunities for community improvements can be identified through recovery operations.
- rebuilding must consider risk mitigation strategies for the future.

Fair and transparent administration

- assistance to recover must be fair, timely and responsive across the range of disaster impacts.
- need to achieve the right balance between accountability and responding quickly and appropriately to those in greatest need.
- administration of assistance grants, public donations and other supports must be open and transparent.

Communication

- Consistent, accurate, timely and clear communication underpins successful recovery operations.
- individuals and communities affected by disaster need information about how to get assistance but also to communicate their needs to the recovery operation.
- information exchange needs to be two-way.

- good information flows between all those involved in the recovery operation Skilful media management helps enlist the support of the wider community to the recovery effort.

Information management

- quality data and information are critical to planning, decision making and evaluation.
- commitment to information sharing across functional and other boundaries,
- systems and technology capability to achieve this
- policies that have due regard to privacy and confidentiality considerations. systems that capture data and information for appropriate targeting of resources and assistance.
- Identifying and disseminating the lessons learned embedded in recovery operations.

Planning

- robust and inclusive planning processes identify risks, facilitate the implementation of mitigation strategies and build readiness for effective response and recovery.
- learnings from recovery operations inform future planning and drive ongoing improvement.
- planning occurs at several levels: agency, community and whole-of-government and needs to involve key partners.

Efficient and effective management

- good practices across core management functions: planning, people, resources and information.
- leaders and personnel with appropriate skills, personal attributes and training.

- capacity to draw on expertise from specialist areas and to tap the energy and commitment of people of goodwill.
- collaborative relationships
- valuing the people who deliver recovery services
- recovery operatives given appropriate support and assistance in dealing with trauma.
- opportunity to debrief is an entitlement that must be inbuilt in recovery procedures (Government of South Australia, 2005)