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UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

Resilience Framework and Guidelines for Practice

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1. INTRODUCTION

The Canterbury earthquakes are unique in that the there have been a series of major earthquakes, each with their own subsequent aftershock pattern. These have extended from the first large earthquake in September 2010 to currently, at the time of writing, two years later. The last significant earthquake of over magnitude 5.0 on the Richter scale was in May on 2012, and the total number of aftershocks has exceeded 12,000. The consequences, in addition to the loss of life, significant injury and widespread damage, have been far reaching and long term, with detrimental effects and still uncertain effects for many. This provides unique challenges for individuals, communities, organisations and institutions within Canterbury.

This document reviews research-based understandings of the concept of resilience. A conceptual model is developed which identifies a number of the factors that influence individual and household resilience. Guided by the model, a series of recommendations are developed for practices that will support individual and household resilience in Canterbury in the aftermath of the 2010-2011 earthquakes.

PART I: REVIEW OF RESILIENCE LITERATURE

2. UNDERSTANDING RESILIENCE

The concept of resilience has been the focus of research for several decades, yet its meaning and measurement are still contested (Norris & Stevens, 2007). Early work on resilience is characterised by two broad perspectives: resilience as stability and resilience as recovery (Maguire & Cartwright, 2008). Each of these perspectives understands resilience to be the ability to return to a pre-existing state following a disturbance or stressor, but they differ with respect to how resilience is measured. In the stability view, resilience is measured as the amount of disturbance that can be tolerated or 'absorbed' (Maguire & Cartwright,

2008). An individual, community or organisation with a high capacity to tolerate disturbance is thus considered to be resilient. This idea is reflected in Adger's (2000) definition of social or community resilience as "the ability of communities to withstand external shocks to their social infrastructure" (Boon, Cottrell, King, Stevenson, & Millar, 2012, pp. 387). In contrast, the resilience-as-recovery perspective measures resilience in terms of the time taken to recover from a disturbance or stressor (Maguire & Hagan, 2007). A resilient individual, community, or organisation is able to return to its pre-existing state relatively quickly (Maguire & Cartwright, 2008).

More recently, researchers have observed that resilience may lead to transformation. Rather than returning to a pre-existing state, a resilient individual or household may transition to a different state that is more adaptive and sustainable in the new environment (Maguire & Cartwright, 2008). Such a view recognises that change following a disaster is inevitable (Maguire & Cartwright, 2008).

The development of new capacities and states is particularly relevant to resilience after disasters. In general terms, a disaster can be understood as "a collective stress situation occurring at a community level as a result of major unwanted consequences" (Winkworth, Healy, Woodward & Camilleri, 2009, p. 5). Post-disaster development has been captured in several definitions of resilience. Bonanno (2004) highlighted the importance of post-stress growth in his definition of adult resilience as "the ability of adults in otherwise normal circumstances who are exposed to an isolated and potentially highly disruptive event such as the death of a close relation or a violent or life-threatening situation to maintain relatively stable, healthy levels of psychological and physiological functioning...as well as the capacity for generative experiences and positive emotions" (pp. 20-21). Similarly, Fiskel (cited in Pettit, Fiskel & Croxton, 2010) emphasised that a resilient organisation is one that can survive, adapt, and grow in the face of significant change.

The availability of resources – whether material, financial, social or emotional – is a further important aspect of resilience. Several authors note that community resilience in particular depends on not only the volume of economic resources, but also on their diversity and accessibility (Norris & Stevens, 2007). This idea is reflected in Becker et al.'s (2011) definition of resilience as a "society's capability to draw upon its individual, collective, and institutional resources and competencies to cope with, adapt to, and develop from the demands, challenges and changes encountered….during and after a disaster" (pp. 1). Other definitions of resilience also emphasise the role of resources in resilience, including Paton and Hill's (2006) work.

Self-efficacy, hope, and coping have emerged as defining characteristics of resilience (Gillespie, Chaboyer and Wallis, 2007). Self-efficacy has been described as having confidence in one's ability to perform a specific task in a specific situation (Bandura, 1997). Higher levels of self-efficacy have been associated with greater levels of persistence and resilience when faced with adversity (Gillespie et al., 2007). In addition research has highlighted the importance of the investment of time and determination required to achieve success, and vicarious experiences in the development of self-efficacy (Gillespie et al., 2007). Hope has been described as the belief that goals can be attained (Gillespie et al., 2007). It is associated with both problem-focused coping strategies and a sense of control over achieving goals (Magaletta & Oliver, 1999; Snyder & McCullough, 2000). Research suggests that hope is a fundamental aspect of resilience (Gillespie et al., 2007) and may even reduce the effects of stress on health (Werner, 1993). Coping, a further important attribute of resilience, has been described as efforts made to manage internal and/or external stressors that are appraised as excessive (Gillespie et al., 2007). Coping has been shown to promote positive adaptation to adverse environments (Garmezy, 1993; Rutter, 1990). Coping is thought to be a defining attribute of resilience because it determines a person's ability to objectively evaluate a situation so that adjustment can occur (Lazarus & Folkman, 1984).

Masten and Obradovic (2006) have identified a set of factors which are consistently associated with resilience across diverse situations (Table 1). Overall, it appears that there are multiple protective factors that promote resilience to adversity. These include individual characteristics (e.g. temperament) and socio-contextual factors (e.g. community resources; Bonanno & Mancini, 2008). Resilience does not result from any one factor; rather, each factor contributes or subtracts from the overall likelihood of a resilient outcome (Bonanno & Mancini, 2008).

Table 1. Factors that Support Resilience

- Cognitive skills – problem solving, information processing
- Attachment – close relationships with caregivers, friends, romantic partners, spiritual figures
- Mastery motivation – self-efficacy, sense of mastery
- Stress response
- Self-regulation – emotion regulation, executive functioning
- Family – parenting, interpersonal dynamics
- School
- Peers – friendships, peer groups
- Cultural and societal systems – religion, traditions, rituals, values, standards, laws

Source: Masten & Obradovic (2006)

3. RESILIENCE AFTER DISASTERS

Individual Resilience

Bonanno and colleagues (2007) identified a number of variables that may predict increased levels of post-disaster individual resilience. These include being male, being 65 years of age or older, having higher education, not having a chronic disease, having good social support, not having depression, not using marijuana, not experiencing a loss of income post-disaster, the disaster having a less direct impact on oneself, having few additional life stressors, and not having experienced additional trauma since the disaster occurred. Bonanno et al. (2007) suggest that these variables may help to identify the kinds of individuals most vulnerable to a disaster (and thus a priority for early risk assessment or support interventions). For instance, people with limited social support or a chronic disease might be identified and proactively supported following a disaster.

Bonnano and Mancini (2008) also suggest two broad individual coping styles which may promote resilience – pragmatic coping and flexible adaption. Pragmatic coping involves taking a "whatever it takes approach that is single minded and goal-directed" (p. 372), whereas flexible adaption is described as "the capacity to shape and modify one's behaviour to meet the demands of a given stressor event" (p. 372).

Finally, research has also identified factors that promote resilience among children. In summary, children who are older, male, and without family and school problems have been found to show patterns of positive recovery associated with resilience (Kronenberg, Hansel, Brennan, Osofsky, Osofsky, & Lawrason, 2010). The psychological needs of parents are pertinent for the well-being of children. Students with concerns about their families have been found to be more likely to exhibit maladaptive symptoms three years following a disaster (Kronenberg et al., 2010). In addition, children's worries about school have also been linked to long-term distress (Kronenberg et al., 2010).

Community Resilience

In contrast to the limited literature on individual resilience after a disaster, community resilience has been relatively well researched. There is, however, little empirical research that connects individual resilience to community resilience, and the adaptive functioning of social systems and networks (Masten & Obradovic, 2008).

Paton's (2006) model of community resilience emphasises the importance of community development and participation (Figure 1). Research has shown that psychosocial factors such as autonomy, social participation, and sense of efficacy are important for maintaining good physical and mental health (Marmot, 2004). However, the model also notes that community development and participation should occur within a democratic environment that promotes procedural and distributive justice.

Other key aspects of Paton's (2006) model include the importance of social support and trust. In the model, trust is closely linked with empowerment and connects the institutional environment with community and personal environments. Together, these factors are known as *social capital* which comprises of social support (support that is used to conquer daily problems), social leverage (information, resources and connections important for realising opportunities), informal social control (the ability of communities to keep social order and maintain a safe neighbourhood), and neighbourhood organisation participation (formal, organised action for attending to community issues; Carpiano, 2006). Social capital has been identified as an important factor for good physical and mental health (Kawachi, Kennedy, & Glass, 1999), and is an important concept when thinking about community resilience.

Figure 1. Community resilience model, showing selected determinants at the personal, community and institutional scales.

Source: after Paton (2006)

A second popular framework for analysing and measuring community resilience is Bronfenbrenner's Bioecological Systems theory (1979, 1989, 2005). As Boon et al. (2012) note, this theory postulates that development reflects the influence of several environmental systems upon the individual. These include the *microsystem,* in which individuals participate directly; the *mesosystem*, where members of different microsystems interact; the *exosystem*, which refers to entities and organisations that can be accessed by individuals; the *macrosystem*, which refers to politics, views, and customs of society; and the *chronosystem*, which refers to time as it relates to events in an individual's environment. Bronfenbrenner argues that resilience arises from interaction across these environmental systems. Well-being is described as being influenced by social context and the function and quality of relationships within family, neighbours, and institutions.

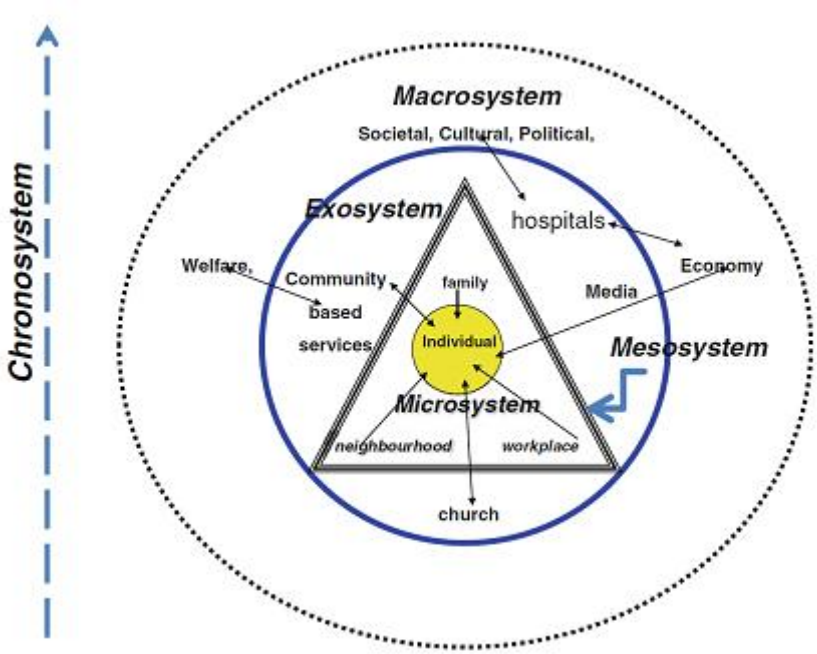

Figure 2. Bronfenbrenner's systems and their interactions

Source: Boon et al. (2012)

Bronfenbrenner's theory has received significant empirical support. Berger (2005), for example, used Bronfenbrenner's framework to develop an application to build community resilience and decrease trauma among disaster-affected individuals. Berger concluded that a multi-systems approach was effective for dealing not only with individuals at the micro-level, but also for changing communities.

A third important area of work on community resilience is that of Hobfoll et al. (2007), who developed the following five evidence-informed principles to guide short and medium term psychosocial interventions following disasters and mass trauma:

- *Safety (defined both objectively and subjectively).* This element refers to the importance of making people safe. Information and communication are vital and the media are noted to play an important role in keeping the public informed.

- *Calming.* Overcoming adversity requires self-regulation skills to continue to function effectively. Interventions that teach or remind individuals about normal reactions to stress and stress-management techniques are thus crucial (Masten & Obradovic, 2008).
- *Self-Efficacy.* This principle promotes self-sufficiency and in turn provides hope to survivors. Resources are noted to be crucial for empowerment, and community resilience depends on the volume, diversity and accessibility of resources. Equally important, however, is committed and inspiring leadership and opportunities for communities members to adopt active and meaningful roles in the recovery process.
- *Hope.* The element of hope is seen as closely related to self-efficacy. Hope helps survivors overcome feelings of distress and is likely to increase with levels of self-efficacy.
- *Connectedness.* This is defined as sustained attachments to loved ones. Social support is an important protective factor for trauma victims. Boosting and protecting community members' ability to help and care for others is therefore essential.

Hobfoll et al.'s (2007) model also stresses the importance of psycho-education and outreach. Professionals from a variety of fields should be involved in designing and implementing interventions that target individuals with significant needs as well as supporting the wider community.

Organisational Resilience

The residents of disaster-impacted communities tend to rely upon a range of organisations as they seek to withstand and recover from adversity (McMillan, 2012). Organisational resilience therefore plays an important role in individual and community resilience. McManus et al. (2008) note "the ability of organisations to keep operating in times of

adversity is a significant element in the recovery and health of the wider community" (p. 81).

Research has identified various factors that contribute to organisational resilience. Frameworks for post-disaster organisational resilience describe a number of indicators and include a focus on adaptive capacity that is essential when dealing with unforeseeable crises. The New Zealand-based Resilient Organisations Research Programme (n.d) identify thirteen indicators of organisational resilience which fall into three interdependent dimensions: (1) the adaptive capacity of an organisation that is created by leadership and culture; (2) the internal and external relationships and networks that an organisation can draw from when necessary; and (3) the planning that is done to develop a clear direction that enables an organisation to be change ready.

Stephenson (2010), working in conjunction with the Resilient Organisations Research Programme, proposed a model of organisational resilience which led to the indicators mentioned in the preceding paragraph. Stephenson's (2010) model categorises indicators as belonging to one of two prominent dimensions: (1) Planning, which is concerned with indicators regarding traditional continuity planning and (2) Adaptive Capacity, which is concerned with how organisations respond to, adapt to, and grow from crisis (Stephenson, 2010, p. 245). In his thesis on organisational resilience, McMillan (2012) lists a number of strengths of Stephenson's (2010) model. For instance, the model was built upon modern research and uses simple language enables the model to be applied by others in a practical context. Importantly, Stephenson's model also recognises culture as a dimension of adaptive capacity.

Summary

Although there are differences between the individual, community and organisational resilience frameworks, each extends beyond psychopathology and emphasises the

importance of resources, social support, and adaptive capacity. These frameworks indicate that effective post-disaster interventions need to be cognisant of multiple systems (i.e. individual, household, community, and organisational) and that they should evolve over time as individuals and communities evolve and their needs change. In addition, these frameworks highlight the connections between environmental systems. For instance, community resilience is important for the development of individual resilience, and vice versa. Interventions within one system are thus likely to impact other systems. However, while there has been considerable research on the predictors of resilience, there is little research which has operationalised these factors or evaluated interventions to address these factors in order to promote resilience.

4. POST-DISASTER RESILIENCE TRAJECTORIES

Following a disaster, resilience can be understood in terms of individual, household and community trajectories. A range of trajectories are possible following exposure to trauma or other stressors (Norris, Tracy, & Galea, 2009). Although there is individual variation in paths, it has been suggested that most of the variation can be captured by four prototypical trajectories: chronic dysfunction, delayed dysfunction, recovery, and resilience (Bonnano & Mancini, 2008; see Figure 4). Importantly, trajectories following adversity are not static; rather, they are said to develop over time are largely based on previous experiences and coping strategies (Kronenberg et al., 2010).

Chronic Dysfunction Trajectory

Chronic dysfunction is described as a negative trauma response that does not abate with time (Bonanno & Manchini, 2008). Research has shown that only a small number of individuals exposed to traumatic events experience chronic psychopathology (Bonanno & Manchini, 2008). When exposure is prolonged or severe (i.e. such as continuing aftershocks) the level of psychopathology may be higher. For instance, the prevalence of PTSD symptoms among New Yorkers who experienced the September 11th terrorist attack

was significantly higher among individuals who were physically injured compared to individuals who were not physically injured (26% versus 6%, respectively; Bonanno, Galea, Bucciarelli, & Vlahov, 2006). Similarly, chronic PTSD has been estimated at 9% among Vietnam War veterans but rose to 28% among veterans with the highest level of combat exposure (Dohrenwend, Turner, Turse, Adams, BKoenen, & Marshall, 2006).

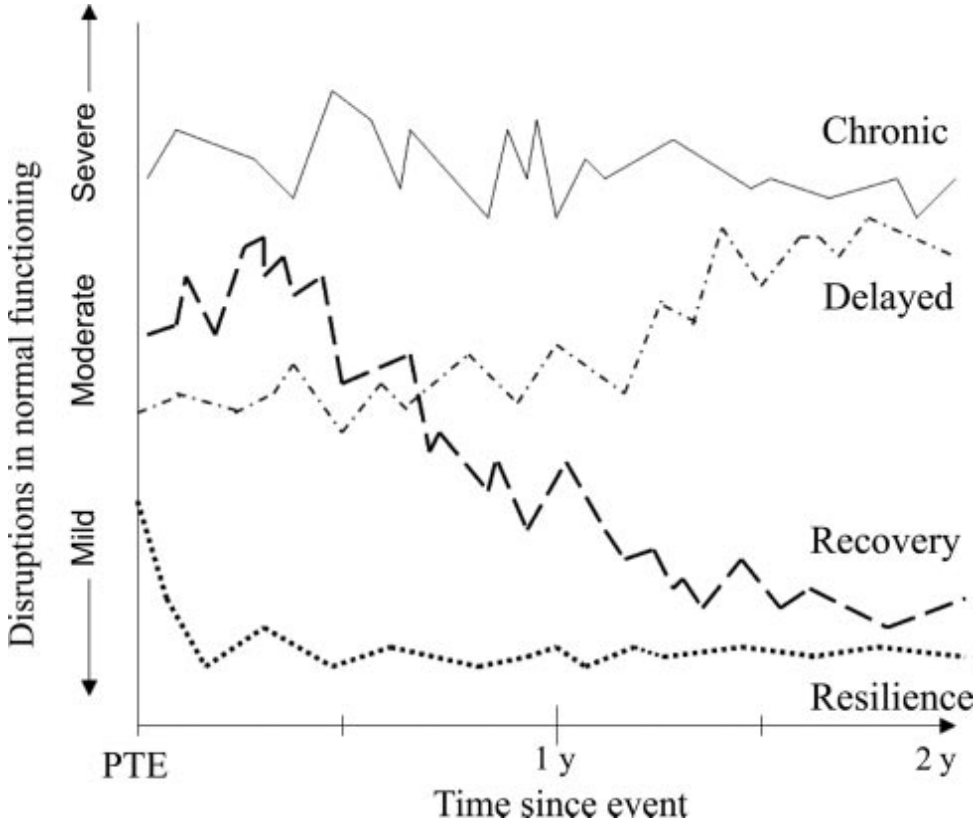

Figure 4. Prototypical patterns of disruption in normal functioning after potentially traumatic events (Note: PTE refers to Post-Traumatic Event)
Source: Bonanno & Mancini (2008)

There has been relatively less research on post-trauma grief among children. However, it has been noted that compared to adults, children may display similar levels of complicated grief but less PTSD symptoms (Bonanno & Manchini, 2008). Children may exhibit

adjustment difficulties as increased externalising symptoms, peer conflict, academic problems, and substance use (Bonanno & Manchini, 2008).

Delayed Dysfunction Trajectory

It has been noted that delayed PTSD reactions may occur in 5-10% of individuals exposed to traumatic events (Bonanno & Manchini, 2008). It is important to note, however, that these delayed reactions seem to resemble sub-threshold psychopathology that worsened over time rather than denial (Bonanno, 2004). Delayed reactions may occur because following a disaster individuals are focused on survival and may not recognise mental health or other difficulties for a number of months or even years (Gordon, 2012).

Recovery Trajectory

Recovery can be understood as having an initial negative response to trauma but then returning to a pre-existing state of adaptive functioning (Bonanno & Manchini, 2008). Masten & Obradovic (2008) described six potential recovery patterns following trauma: *resistance* – a pattern of health functioning during and following a disaster; *normal response and recovery* – a pattern of initial adaptive problems followed by recovery to healthy functioning; *delayed breakdown* – initial resistance followed by a breakdown in functioning; *breakdown without recovery* – a maladaptive response to a disaster that does not improve; *positive transformation* from either higher or lower levels of pre-disaster adaptive functioning; and m*aladaptive patterns* of pre-disaster functioning that may continue or worsen.

Gordon (2012) identified four stages of individual recovery following a natural disaster. The first stage, which may last up to five months, is characterised by increased adrenalin levels in response to ongoing perceived threat from the disaster itself (e.g. continuous aftershocks) and its consequences (i.e. accommodation needs, financial difficulties and

uncertainty about the future). The second stage lasts from six months up to two years. Individuals experience increased levels of cortisol that is maintained through adversity including chronic negative states, high work load and responsibility, social isolation, worry about the future and loss of support. The third stage occurs during the second and third years, when threat and adversity tend to subside and arousal thus decreases. Consequently, individuals become aware of changed social networks and a new life situation that they now face. Finally, during the fourth stage of recovery individuals are able to reflect on the past and take ownership of the experience. Importantly, new goals, routines and plans are developed.

Resilience Trajectory

The idea of the recovery trajectory as a desirable end point following a disaster or other stressor has been increasingly challenged (Winkworth, Healy, Woodward, & Comelleri, 2009). Rather, disaster literature now focuses on the resilience trajectory as the desirable end goal (Winkworth et al., 2009).

Bonanno (2004) described the trajectory of resilience as generally a stable pattern of healthy functioning that may involve transient perturbations (i.e. such as several weeks of restless sleep). Other researchers have proposed models that highlight stages of resilience. Fine (1991) identified a two stage process of resilience. In the acute phase of the process the goal is to minimise the impact of the stressor. In the reorganisation phase, change is embraced an accepted either in part or in whole. Flach (1988) also identified two stages of resilience: disintegration and reintegration. During the first stage stress disrupts normal functioning and leads to chaos. During the reintegration stage however, resilience is initiated which leads to the development of a new structure and a higher level of functioning relative to pre-stressor.

Researchers have shown that many people cope with disasters extremely well and are able to continue functioning at a level where they can meet the demands of daily living (Bonanno & Mancini, 2008z). However, some individuals may experience a transient stress reaction following a disaster; these reactions are typically short-term and mild-moderate in degree and do not usually interfere with the ability to continue functioning (Bonanno & Mancini, 2008).

Overall, there is a lack of clarity regarding the specific process of resilience; resilience may be a two-step trajectory or be more complex (Jacelon, 1997). What is known, however, is that the active processes involved in building resilience involves actions; first, as individuals and communities helping themselves and second, as a set of government interventions to build more resilient social, economic, physical and natural environments (Winkworth et al., 2009). Resilient individuals and communities "adapt to new circumstance, learn from disaster experiences, and are capable of attaining higher levels of functioning" (Winkworth et al., 2009, p.6).

5. THE RESILIENCE TREE

Drawing upon the research discussed so far, in this report resilience is understood as:

> The ability to mobilise individual and collective resources and skills, in order to absorb disruption, maintain healthy psychological and physical functioning and adapt to changes arising during and after a disaster or other adverse event. Note that collective resources include community, organisational, and institutional resources.

A range of factors are understood to shape resilience, and these are illustrated in an integrated model of resilience (see Figure 5) that draws upon previous work. The integrated model includes aspects of Patton's work (2006), for example, as well as the notion of hope suggested by Hobfoll et al (2007). The model is conceptual rather than explanatory in

nature, but does draw upon empirical research. Additionally, it is intended to be relevant to the context of the Canterbury earthquakes (i.e. numerous adverse events creating long term uncertainty and change) and to be meaningful for a range of different audiences (e.g. governmental agency personnel, community groups, the citizens of Canterbury).

The model takes the form of a tree, incorporating the idea of an organism which with the right conditions is able to grow, flourish, and stand strong. In its entirety, the tree represents resilient individuals and households. The branches represent the community, organisations, and institutional environment, all of which have the potential to support individual and household resilience. The foliage identifies a number of factors that may increase or decrease levels of resilience, such as leadership and social capital, each of which is discussed below.

The tree is connected to the ground via its trunk, with the trunk representing fairness and equity and the ground representing the wider cultural environment. Within the ground the tree is fed via its roots, and here hope, unity of purpose and communication are of particular importance.

The resilience tree draws upon the metaphor of a living organism. To grow and flourish in unpredictable conditions, plants need to sense their environment and react accordingly (Chamovitz, 2012). In the human world, this awareness is similar to Paton's notion of critical awareness and Hobfoll's principle of safety. Critical awareness is an important predictor of preparedness. Developing critical awareness involves discussions about hazards that helps legitimise hazards as a salient issue (Paton, 2007a).

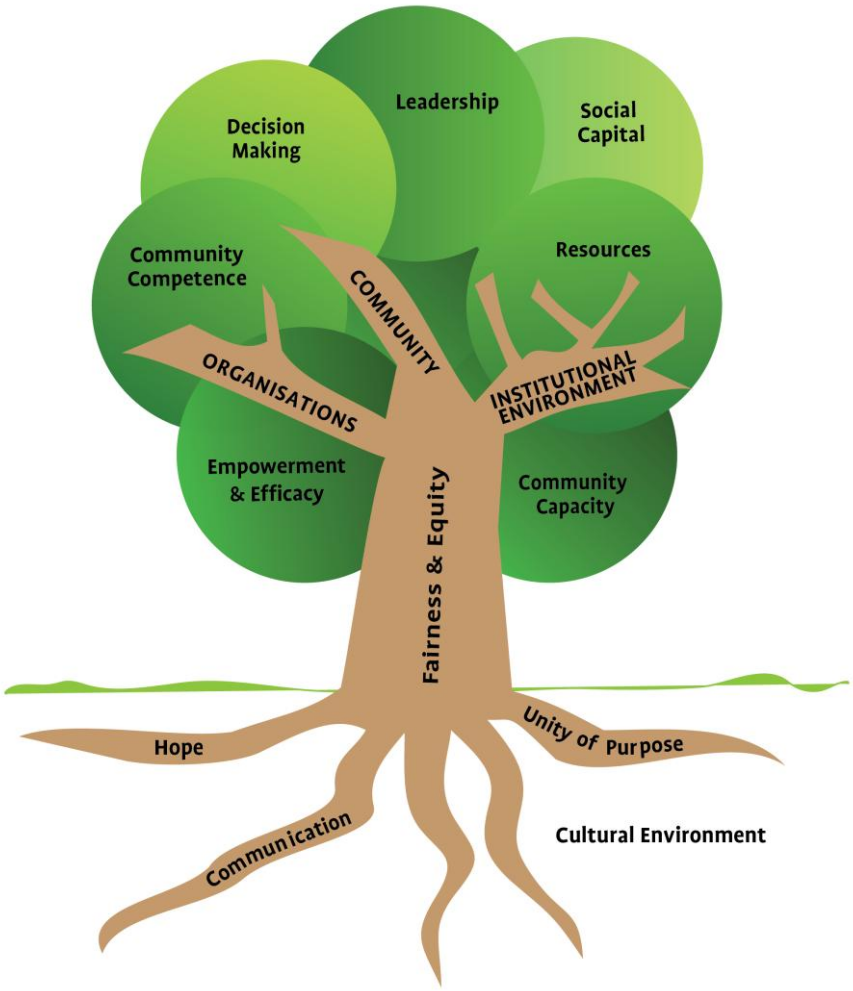

Figure 5. The individual and household resilience tree

The ground: cultural environment

The ground from which the tree grows, and by which it may be nourished, has a number of dimensions. The *cultural environment* is understood in the broadest sense and incorporates particular ways of life, attitudes, behaviours, connections to and relationships with others. It also includes values: the morals, beliefs, attitudes and standards held by particular cultural groups. It includes culture that relates to ethnicity, class, socialisation, sexual orientation, age and so on (Papps & Ramsden, 1996). Unger (2010) emphasises the importance for

resources to be provided and experienced in culturally meaningful ways in order to promote resilience. The cultural environment is seen as something that influences all domains – individuals and households, the community, organisations and institutions – and hence it is represented as the ground from which resilience grows

The roots: effective communication, hope, unity of purpose

In addition to the cultural environment, the resilience of individuals and households is shaped by the social dynamics of the community and places of which they are a part. Effective and timely communication, hopefulness and optimism, and a unity of purpose are all factors which support individual and household resilience. Effective communication is important because it enables individuals and households to be appropriately aware of their options and choice. Decisions can then be taken on an informed basis, sometimes *before* a situation becomes potentially difficult or challenging.

Hope and optimism relate to an individual or household's understanding of what is coming and whether it will be manageable or not, given the resources currently available to them. It is about a belief that it will be possible to work through present or upcoming difficulties. As such, hope and optimism contribute to the emotional energy needed to persist in the face of sustained difficulties or obstacles. Hopefulness and optimism are of course not solely the property of individuals and households; they can also be shared by households within the communities, and inspirational leadership may be significant here. The notion of unity of purpose builds upon shared hope and optimism. Unity of purpose is about shared aspirations and a level of commitment to a common cause (e.g. community recovery from disaster, or rebuilding and investing in a neighbourhood as opposed to leaving it). While most communities contain a range of different and sometimes conflicting interests and aspirations, the ability to achieve shared goals that to some extent transcend these differences enables a community to harness something of its members' energy and resources for a common purpose. The connectedness and respect upon which such unity is

achieved do, in turn, contribute to the resilience of individuals and households within the community.

The trunk: fairness and equity

The resilience tree is supported by a trunk labelled 'fairness and equity'. This is our take on the necessity for procedural and distributive justice within the wider socio-political environment. The socio-political environment includes the social structures that underpin our lives. These include the capitalist economy, gender relations, race relations, and the relationships characteristic of social class. Overall, these factors are the power relations that structure our lives, and this is the reason that the most 'structural' element of the flower represents these relationships. The trunk provides support for the tree as a whole, and also transports the nutrients in the soil (the cultural environment) to the foliage (or the factors which shape resilience). It is through power laden social relations that the expression of resilience is made easy or difficult.

If social relations are organised in such a way that there is procedural justice, the ability to participate, and to make one's voice heard and achieve fair outcomes, then people are much more likely to be resilient. Michael Marmot (2004) has reviewed research showing that social equity, social participation and control/autonomy are important predictors of physical and mental wellbeing. Philip Buckle argues that the principles for nurturing resilience include the principles of good governance – transparency, accountability, inclusiveness and agreed priorities (Buckle, 2006, p. 99). Furthermore, if there is distributive justice, or the equitable distribution of resources and capacities, community cohesion (or social capital) is increased and people – particularly marginalised groups – are less vulnerable to the effects of disasters. A study by Larsen et al (2011) found that the social exclusion of marginalised ethnic and family groups after the tsunami in Thailand led to an exacerbation of their underlying vulnerabilities and a reduction in overall community resilience. Given the conflicting interests within communities, some degree of social conflict

is inevitable; however, Paton et al. (2006) argue that if this conflict is well managed, it can actually increase community resilience. This suggests the immense importance of fairness and equity in the way power relations are expressed as well as the critical role of leadership in navigating conflicting interests during periods of stress.

The branches

The branches of the tree represent three domains – the community, organisations and institutions -- which may be impacted post-disaster and which, in turn, shape the resilience of individuals and households. Resilience in each of the domains may potentially impact on resilience of each the other domains.

The foliage

The foliage represents a number of social and psychosocial factors that have the capacity to influence individual and household resilience.

Leadership

Leadership is the capacity to motivate self and mobilise others, including their resources, to achieve a common purpose or solve a shared problem through wise collective action. This capacity includes the ability to maintain a flow of effective communication, engender hope and leverage a shared culture in accomplishing the common purpose. This capacity is latent in every human being and is characterized by a strong sense of personal competence and capacity to positively and fairly affect change. Leadership is a capacity that can be exercised personally, in a household or community, as well as in organisations and institutions.

Decision Making

This is the process of choosing an effective option from a range of possible courses of action. The choice is based on analysis of available information, advice from domain experts and consultation with those who will be impacted by the decision. Effective decisions

produce good short and medium term results while supporting a trajectory of positive long term consequences.

Community Competence

Community competence comprises community dynamics that influence collective efficacy or capacity. The extent to which the community encourages participation in making decisions about salient community issues, the existence of mechanisms to articulate collective views, and the existence of procedures for managing relations with wider society. A community with high-level competence will have the capacity to formulate ideas, transmit them to the institution and mobilize and sustain action to implement initiatives within the community. To fully realize the potential of this capability requires a corresponding level of civic reciprocity.

The ability of a community to realise its goals will be a function of the degree to which societal institutions (e.g. civic agencies, emergency planners) possess an organizational culture that embraces the value of empowering communities and translates this into decisions and action that support bottom-up, community led initiatives. That is the degree to which civic agencies sustain community capacity by distributing power, resources and expertise in ways that empower community members.

Empowerment and Efficacy

Individual empowerment and efficacy are characterised as perseverance and optimism despite adversity. Factors that contribute to this include proactive, problem-focused coping and an underlying sense of self-reliance, social responsibility and commitment to community (family, neighbours). Access to basic resources is necessary. Furthermore, empowerment and efficacy is influenced by personal dispositions.

In addition to the factors that define and contribute to individual empowerment and efficacy, community efficacy requires strong interconnections. Thus, social support and trust

are key. This is promoted through the adaptive capacity and empowerment of the individuals within a community, and is linked to individual capacity to respond and remain resilient. Community efficacy requires inspired, committed leadership that provides information through effective communication. It is also important to provide opportunities for individuals/public to have meaningful roles and to contribute. However, sufficient resources are crucial and empowerment without resources is noted to be counterproductive (Hobfoll et al., 2007). Thus, economic, institutional, social and ecological dimensions of the community must be taken into account.

Resources

Bourdieu (1984; 1998), a French anthropologist and sociologist, expanded the term 'capital' to include more than just economic resources. In his model, capital is any sort of resource that gives a person or group the capacity to achieve goals within a particular field of action. Capital can take cultural shape, in the form of skills, expertise, dispositions and tacit knowledge. It can take symbolic form, as degrees, qualifications, awards and other markers of status. It can take social form, as networks of relationships that create social cohesion and facilitate one in accomplishing one's ends, and it can take economic form – as money, property, and other material assets. These diverse resources are brought by individuals to the task of reconstruction and adaptive change, but they can also be held by organisations and communities. Crucially, these resources are not distributed equally throughout the community and this inequality can contribute to variations in human vulnerability to disaster.

Social Capital

The term 'social capital' is often used interchangeably with 'capacity building' and 'social cohesion'. Although there are subtle theoretical differences between these concepts, all have described factors that contribute to the social/economic stability and general well-being of a community (Winkworth et al., 2009). These factors include trust, support and social networks that are important to resilience following adversity (Winkworth et al., 2009).

Particularly important are 'bonding networks'. These are informal networks that refer to the connections between families and close friends that help people 'get by' and cope with the adversities encountered in everyday living (Winkworth et al., 2009).

Social capital has two different conceptualisations in common usage. Putnam's (1995) conceptualisation sees it as 'features of social organisation such as civic participation, norms of reciprocity and trust in others' (Stephens, 2008, p. 1174). Bourdieu (1984; 1998) develops social capital as one of several types of capital that individuals may hold; each of these operates specifically within particular fields of practice.

Social capital is a key construct in maintaining social resilience and the psychosocial elements of health (Stephens, 2008). Social capital can be understood as the resources accessed through membership in social networks (Stephens, 2008; Carpiano, 2006). These can involve social support, social leverage (e.g. information about opportunities and resources, and connections that bring opportunities to bear), informal social control, and community organisation (Capriano, 2006). All of these facets of social capital provide needed resources in the recovery period after a disaster. Bourdieu's approach is extremely useful for looking at the social component of individual resilience, while Putnam's conceptualisation might be useful for thinking about community resilience in a broader sense. Many models draw on Putnam's conception of social capital, which sees it as an unalloyed good thing. However, Bourdieu's model brings out the fact that social capital can work in ways that increase inequality and undermine resilience, as well as advancing it (Bourdieu, 1984, 1998; Carpiano, 2006; Larsen et al., 2011). The institutional environment needs to support equity and justice in order for social capital to operate in helpful rather than problematic ways.

Community Capacity

As Paton (2006) notes, people bring key resources to the community. These include specific knowledge and expertise as well as dispositions such as commitment, persistence and self-efficacy. Through cooperative effort, however, the breadth of collective resources that can be brought to bear far exceed the sum of the parts (Paton, 2006). This is the meaning of our term: *community capacity*. This collective capacity can be tapped in communities that encourage grassroots participation in decision-making, and have good procedures for managing group relations (Paton, 2006). Institutions need to support bottom up, community-led, initiatives in order to tap these collective resources adequately. However, as Larsen et al. (2011) note, the struggle for resources and for realisation of different visions of 'recovery' can result in marked differences in financial assistance for, and input into, recovery from disaster for different social groups. Where a lack of trust existed between stakeholders, pre-existing conflicts were simply exacerbated in a new competition for resources (Larsen et al., 2011, p. 487). The institutional environment needs to provide fair and just means for distributing resources, and also for tapping into pre-existing and developing community capacity.

PART II: RECOMMENDATIONS

Having reviewed several key ideas from the resilience literature, we now consider the implications of this knowledge for post-disaster recovery work in Canterbury. We begin with some of implications for post-disaster resilience practice in general, before focusing more specifically on the work of the Earthquake Coordination service in Canterbury.

6. IMPLICATIONS FOR P0ST-DISASTER RESILIENCE PRACTICE

With reference to the different elements of the resilience tree (see Figure 5), we can identify a series of post-disaster practices to enhance and promote individual and household resilience. These are general and high-level guidelines for practices that will enable resilience.

Individual and household resilience

- Individual and household culture and values should be considered, respected and valued.
- At risk individuals and households should be identified and provided with extra resources.
- Research suggests that self-determination may be enhanced by the financial position of communities and individuals; those with greater wealth may have increased choice and capacity to organise their recovery needs (Winkworth et al., 2009).
- The ability to continue to think and plan effectively under adversity is important for resilience (Masten & Obradovic, 2008). Consequences of being in a state of protracted stress significantly impact decision-making ability.
- An individual's resilience does not only arise from internal capacities. The individual is affected by the wider community, organisations, institutions, and so on. It is

therefore is important to avoid blaming the individual if resilience does not occur (Masten & Obradovic, 2006).

- Provide practical and emotional support to those who lack close support, people to listen, and friends to understand.

The ground: cultural environment

- Design culturally relevant interventions that increase the likelihood of clients engaging in the recovery process.
- Develop interventions with flexible models of delivery that are adaptive to people's needs and break barriers between service silos.

The roots: communication, hope, unity of purpose

- Effective and timely communication: governmental, non-governmental and community organisations should take particular care to communicate important post-disaster information in a manner which is clear, timely and accessible to a wide range of different social and community groups. This should include leveraging existing local leaders and "communication gatekeepers" so that messages are received through trusted channels.
- Hope and optimism: community and organisational leaders should be mindful of the power of encouragement and the reporting of good news to foster hopefulness and optimism. Efforts should be taken to provide individuals and householders with the outcomes of decisions as promptly as possible, to avoid contributing to a sense of indeterminacy and confusion.
- Information about recovery should be made available to individuals, families, and community generally to help them understand their own and others' responses, and

to facilitate greater understanding and tolerance of feelings and experiences, and that individuals recover at their own pace and in their own way.

- Encourage individuals to pursue achievable goals so there is greater opportunity for success in the attainment of goals. This will increase hope, and hence the determination to persevere.
- Develop and encourage the use of problem-focused coping strategies that may ameliorate stress and enhance resilience.

The trunk: fairness and equity

- People should be enabled to achieve fair outcomes.
- People could be enabled to participate in the work of policy and advocacy, by contributing their own experiences and stories, and by doing other politically orientated work.

The branches

Community

- Identify those with greater resilience and social capital who may be able to be engaged to help promote resilience in their communities.
- Identify and include community subgroups in enabling community mobilization. Do not ignore or undermine existing or traditional mechanisms. Best practice involves projects that are designed, managed and owned by the community (Ager et al., 2010).
- Make use of existing groups based around schools, churches, service groups, clubs, business, and other communities of interest.
- Facilitate the coming together of people to organise community events and activities, to support each other emotionally and socially, and to provide information

to assist people in making decisions. Public participation may foster a sense of community ownership in the recovery process (Petterson, 1999).

- Opportunities to bring people together for contact and support should be structured.
- Commemorative events such as memorial services and anniversaries to mark losses should be held. As well as commemorating loss (e.g. loved ones, loved animals, assets and environments) attempts should be made to help people look forward with hope.

Organisations

- A "culture of learning" should be established.
- Coordination between agencies and working at many levels is important, rather than just providing direct services.
- Organisations must develop skills for working at the community and household level (Ager et al., 2010).
- Sectoral and cross-sectoral collaborations should be developed to support achievement of community self-help programmes.
- Organisations should establish community assistance programmes, including supporting matching paid time off for staff involvement in well structured volunteer programmes.
- Self-help and mutual help groups should be encouraged and supported. There should be a particular focus on volunteerism to harness energy, creativity and a sense of control that this type of involvement can create.

Institutional Environment

- Programs should be evaluated qualitative and quantitative data, which should be used to adjust projects and inform future planning. Evaluation should consider the project impact on social dynamics and power structures within communities.
- The re-establishment and maintenance of schooling is a key protective factor for children.
- Well-operating schools indicate that a community is functionally competent (Masten & Obradovic, 2008). Schools also afford many opportunities for mastery experiences and play a larger and important symbolic role in many communities following a disaster (Masten & Obradovic, 2008).
- Youth interventions need to go beyond formal schooling and include non-formal activities such as recreational opportunities and youth clubs.
- Re-establishing livelihoods is key (Ager et al., 2010).
- Assist in linking powerful formal institutions (i.e. government and non-government agencies). This is important for social and economic development and may enhance trust in governance systems. Linking may be done through directly engaging with government officials or joining political advocacy groups.
- Assist the linking of individuals and groups within powerful institutions such as government and business following a disaster. Research has shown this can contribute to empowerment and self-determination (Winkworth et al., 2009). This will also leverage businesses' desire to be involved in seeing local communities recover and prosper. Government needs to engage institutions beyond the welfare sector such as those concerned with arts and the environment.

The foliage

Leadership

- Recognise the already-existing leaders within communities and leverage that leadership by creating environments that encourage learning, provide coaching and minimise fear of failure.
- Link existing leaders within communities to powerful government and business leaders through formal and informal avenues to access resources and strengthen recovery and resilience outcomes. This will also significantly increase the effectiveness of communication and quality of decision making.
- Encourage existing leaders in community groups (clubs, churches, schools, etc.) to network with similar community groups in less impacted neighbourhoods for support in achieving recovery and resilience outcomes.
- Encourage individuals in most impacted areas to see themselves as leaders in their families, circle of friends and neighbourhoods.

Empowerment and efficacy

This can be promoted in four primary ways (Bandura, 1986, 1997):

- Mastery experience: Help individuals and collectives (household etc) perceive that action/performance has been successful and success is due to effort or ability (internal attribution).
- Vicarious learning: Provide opportunities for others to model overcoming challenges through sharing experiences/stories of success.
- Social persuasion: Encouragement or specific performance feedback, talks, workshops, and professional development opportunities. Need to provide continuing networking opportunities for information and education about psychological recovery to empower people to undertake their own recovery.

- Affective states: Research has shown that the level of arousal can impact one's perception of self-capability. Provide psycho-education about anxiety and stress and how to manage these.

Decision Making

- Supporting people to make their own decisions through three broad roles (Victorian Advocacy League for Individuals with Disability, n.d.):
    - Standing behind – providing support (e.g. training, information and advice) which empowers the person to self-advocate.
    - Standing beside – providing assistance (e.g. offering prompts and reminders) to assist the person to raise issues with others.
    - Standing before – providing representation (e.g. acting or speaking on behalf of the person).

- Increase access to timely information and expert advice to yield decisions producing good short and medium term results while creating a trajectory of positive long term consequences. This could include linking to tertiary students with the capacity to research effective solutions and decision.

Social Capital

- Attend to the diverse forms of resources that people have, in the form of cultural capacities, dispositions and skills (e.g. knowing how the insurance system works), symbolic capital (e.g. degrees and other markers of status), social resources (e.g., being acquainted with people who can help) and material assets.
- Assistance should be provided in bringing neighbourhoods together.
- People should be encouraged to think about the diverse ways that social capital can work for them.

7. IMPACTS OF THE CANTERBURY EARTHQUAKES ON INDIVIDUALS AND HOUSEHOLDS

Zunin and Meyers (2000) identify six broad phases of response in communities after a disaster (see figure 6):

i. *Pre-disaster* phase – in view of an impending threat (e.g., tsunami) risk is communicated and people are advised on what they should do.
ii. *Heroic* phase – this refers to the initial phase immediately following a disaster where disaster survivors become true 'first responders'.
iii. *Honeymoon* phase – this phase is characterised by community cohesion. Individuals may be elated and happy to be alive. However, there is an awareness that this phase will not last.
iv. *Disillusionment* phase – during this phase the reality of the disaster is realised. Assistance should be provided for individuals who are distressed and referrals made to mental health services when necessary. The psychological needs of entire communities should be assessed, including short-term, medium term and long-term needs.
v. Working through grief phase – during this phase a minority of survivors may require psychotherapy and/or medication. Certain events may trigger memories of the disaster and anniversaries of the disaster may act as setbacks to recovery.
vi. *Reconstruction* phase – this is the final phase that involves moving into 'a new beginning'. Although individuals and communities may have recovered from the disaster, some may be less able to cope with another disaster. Note that the new level of community functioning tends to be higher than the original pre-disaster level of community functioning.

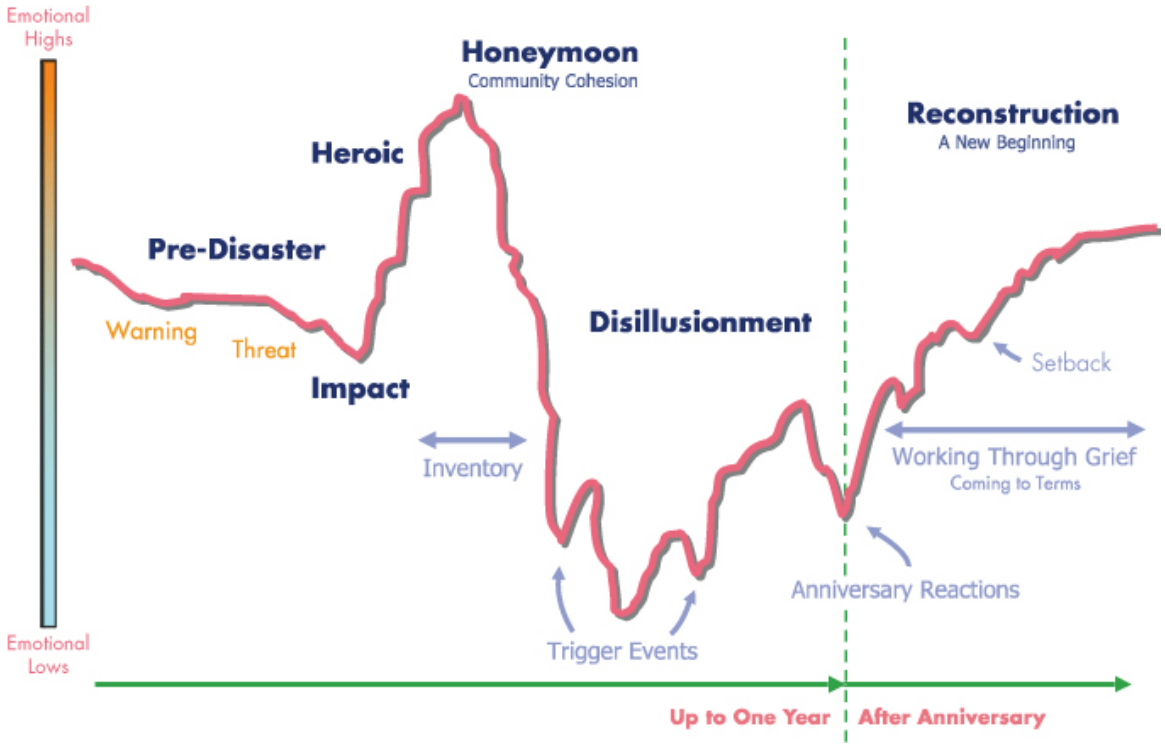

Figure 6. Phases of community response after a disaster

Source: California Department of Mental Health (2012), based on Zunin & Meyers (2000)

During each of these phases individuals and communities experience increased levels of stress that may impact on cognitive functioning, physical health and interpersonal relationships. While the above phases of community response may provide some guidance as to possible patterns of response within Canterbury, the Canterbury pattern maybe somewhat different, and possibly more prolonged, given the repeated significant earthquakes.

The ongoing risk of earthquakes and high probability of a significant earthquake (over 5.0 on the Richter scale in the next 12 months) and continued uncertainty in Canterbury, mean that the acute stress response may be elevated for prolonged periods for many. The physiological stress response is a hardwired normal response. At the perception of threat adrenaline and cortisol are released, blood pressure and pulse increase and the

blood centres around vital parts (heart, brain). The coagulants in blood increase and pain sensation is decreased. Non-vital processes slow down (metabolism, reproductive system) and some cognitive functions are enhanced. Sugar and fat are metabolised to provide energy.

Exposure to disasters may produce heightened sense of vulnerability (Gordon, 2012). Additionally, earthquakes, aftershocks and the uncertainty that follows may be interpreted as a threat and treated by the body as such. However, the ongoing nature of the earthquakes can inhibit recovery from the flight/fight response in a number of ways. The frequent stress caused by aftershocks can result in repeated activation of the stress response. For some, even though it is the same stressor (aftershock) and same activation pattern (stress response), their systems do not adapt. For others, there is an inability to shut off the response when threat is removed (aftershock ceases) resulting in a higher than normal physiological preparedness to fight or flight. Repeated or prolonged activation of the stress response can result in exhaustion so that the stress response becomes inadequate due to prolonged exposure and other stress systems are activated.

Additionally, the result is that chronic stress may develop including feeling exhausted or tired much of the time, more irritable, difficulty concentrating and thinking clearly (earthquake brain), increased anxiety, burnout and possibly depression. Furthermore, there may be long term secondary (stress-related) physical costs (Bonanno, Brewin, Kaniasty & La Greca, 2010).

As chronic stress may lead to difficulties with memory and concentration, and a reduction in energy, individuals (and groups or communities) may get caught up in specific details and find it difficult to separate important from irrelevant information. Subsequently, the ability to plan, prioritise and make decisions may be impaired. As a consequence, there may be a tendency to postpone major decisions.

Prolonged exposure to unresponsive environments or uncontrollable events is likely to compromise an individual's sense of efficacy (Masten and Obradovic, 2008) and learned helplessness may develop (Seligman, 1975). When exposure to adversity is prolonged, the proportion of people who exhibit psychopathology (such as PTSD or depression) may reach higher levels (Bonanno & Mancini, 2008).

While some studies show improved social relationships post-disaster (especially within the immediate family), the bulk of the evidence suggests that the stress of disasters, particularly when prolonged as in Canterbury, can erode both interpersonal relationships and sense of community (Bonanno et al., 2010). Contributing to this is reduced participation in social activities and community events, increased social isolation, less contact between extended family members and friendship groups, loss of attachment to the place of disaster, and a lifestyle that is characterised by survival rather than enjoyment (Gordon, 2012).

8. RECOMMENDATIONS FOR EARTHQUAKE SUPPORT CO-ORDINATION SERVICE PRACTICE

The Earthquake Support Co-ordination Service (ESCS) was initially established to provide support for relocating families as a result of damage caused by the September 2010 earthquake. After the 22 February 2011 earthquake this was broadened to include individuals and families displaced due to the quake who have:

- Had to move out while homes are repaired and/or land remediated.
- Lost their home completely or their land has been red-zoned, and require assistance to relocate.
- Ongoing earthquake issues e.g. suspected displacement and are in uncertain situations awaiting clarity from EQC, Insurance, and Government etc.

The service is delivered by a virtual team of both central government and non-governmental organisations, with workers working alongside individual families as well as neighbourhoods and communities to provide support to access the necessary services, information etc.

The following recommendations for the ESCS have been developed with consideration of the review of the resilience literature and the current Canterbury context:

1. Services continue to be offered to individuals/households as well as groups and communities.
2. Services continue to be provided for at least another 18 months (i.e., until approximately 3 years after the 22 February 2011 earthquake), and that the need for further ongoing services be reviewed at that point.
3. A robust screening and assessment process be utilised to readily identify those individuals who have anxiety or depressive disorders, and require referral to mental health services.
4. Target lower socioeconomic areas.
5. Develop a screening tool to identify other at risk groups in order to give prioritise services to these individuals, household and communities.
6. Earthquake Support Co-ordinators continue to be aware of the ongoing psychosocial effects and how these may be playing out for individuals. This includes chronic stress leading to feeling exhausted or tired much of the time, irritability, difficulty concentrating and thinking clearly (earthquake brain), increased anxiety, burnout and depression, and the development of risk of stress-related health conditions.
7. Whether working with individuals/householders, groups or communities, the approach of the coordinators is one of enabling the empowering, and building self-efficacy and hope, rather than to put things right or fixing things for individuals, households, groups or communities concerned.
8. The coordinators enable the individuals/householders, groups or communities to feel express any feelings of frustration and to feel heard.

9. In order to achieve the above two recommendations training be provided for coordinators in motivational interviewing and intentional peer support (see below).
10. To work at a policy/advocacy level, as well as working at an individual and household level. If people's concerns can be fed through to the policy/advocacy team, they may feel they are having a voice and this will assist resilience.
11. Enable people to participate in policy and advocacy through focus groups, reference groups, or more innovative approaches such as photo-voice, or support the development of neighbourhood groups that engage in their own advocacy (e.g. Insurance Watch).
12. Encourage people and communities to recognise their diverse resources and put them to work addressing their needs.
13. Assign some coordinators by neighbourhood, so a coordinator is working with neighbours. Part of the work of this coordinator then might be to help bring these neighbours together into grassroots associations that can advocate for the whole area. This will increase community capacity and social capital.
14. Encourage people to think about the diverse ways social capital may work for them, such as social support (e.g. from friends and neighbours), social leverage (e.g. to accomplish ends such as getting action from EQC, City Council and insurers), informal social control (e.g. of young people's behaviour in the area) and grassroots social participation.
15. Training and mentoring be offered to community leaders so as to strengthen their ability to weave connections and realise potential alliances between individuals and households with diverse interests.
16. Consideration be given to finding ways of leveraging the Kiwi culture of egalitarianism and commitment to the public good to support resource sharing across segments of the broader community (as was seen with the Student Volunteer Army during the immediate response to the event).

17. Public health campaigns be initiated and maintained over the next 18 months, which provide information about the recovery process; stress and anxiety; management of stress, particularly the importance of engaging in physical activity and pleasurable/fun activities; and the importance of attending to interpersonal relationships.
18. A process of monitoring and evaluation be employed by the ESCS on an ongoing basis.

The following are brief descriptions of Motivational Interviewing (MI) and Intentional Peer Support (IPS), which are interventions which may assist the Earthquake Support Coordinators in their work with individuals (MI) and with groups (MI and IPS) including building the capacity of existing or new groups (IPS).

Motivational Interviewing

Motivational Interviewing is a collaborative conversation designed to increase an individual's motivation for and movement toward a specific goal by eliciting and exploring the person's own reasons for change within an atmosphere of acceptance and compassion (Miller & Rollnick, 2012). MI aims to support self-efficacy and provides a means for practitioners to avoid the "righting reflex" – the natural tendency to want to put things right and find solutions for individuals.

Additionally, MI provides a means of working with ambivalence, which is viewed as a normal response to change. MI has been found to be effective with individuals who are ambivalent as well those who are angry or frustrated, as it enables the individual to feel heard and at the same time encourages them to focus on the possibility of change.

While MI was originally developed to help people with addictions and more recently with a range of health behaviour change, there is a novel use of MI with stroke patients in which

MI was used to support and encourage individual's motivation to adjust and adapt to having a stroke (Watkins et al., 2011) in which there was reduced rates of depression and mortality at 12 month follow-up.

This study suggests the potential MI might have within the context of the Canterbury Earthquakes. That is, MI could be used with individuals or groups to encourage them to think about the future, what hurdles they might expect to fact in the recovery, how confident they feel about approaching these hurdles, and identify their own solutions to problems.

Intentional Peer Support

Intentional Peer Support aims to facilitate self-determination and empowerment through purposeful relationships (Mead and MacNeil, 2006). It is a process where either individuals (or groups) use the relationship to look at things from new angles, develop greater awareness of personal and relational patterns, and to support and challenge each other as we try new things. It has the underlying belief that finding hope and taking personal responsibility is possible for everyone.

Connection is the core of IPS, with peer supporters working to create relationships which allow the individual (or group) to give as well as receive. Peer supporters assist the individual (or group) to identify what will work for them and they almost never provide advice or solutions. The focus is in envisioning what is wanted and finding ways of moving towards that (Meads, 2005).

Some of the aspects of IPS which appear particularly suited to the Canterbury context are that:

- It doesn't start with the assumption of "a problem." Instead it involves listening for how and why each of us has learned to make sense of our experiences, and then uses the relationship to create new ways of seeing, thinking, and doing.

- IPS promotes a 'trauma-informed' way of relating- instead of asking 'what's wrong' it encourages individuals to think about 'what happened' and where they want to be.

- IPS looks beyond the notion of individuals needing to change and examines our lives in the context of our relationships and communities.

- Peer Support relationships are viewed as partnerships that enable both parties to learn and grow- rather than as one person needing to 'help' another.

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