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# Activating Community Resilience During Emergency Response

FRAMEWORK

August 2020

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## FRAMEWORK

*Prepared by the  
Torrens Resilience Institute  
Flinders University  
Adelaide, Australia*

*August 2020*



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## **PREFACE**

### **Statement of Funding**

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Views and findings associated with this initiative/project are expressed independently and do not necessarily represent the views of State and Commonwealth funding bodies.

### **Acknowledgements**

This report was prepared by the Torrens Resilience Institute of Flinders University based on document reviews, interviews and community-based focus groups, and in consultation with

industry representatives from the South Australian Fire and Emergency Services Commission (SAFECOM), the South Australian State Emergency Service (SASES), the South Australian Country Fire Service (CFS), South Australian Metropolitan Fire Service (MFS), the South Australia Police (SAPOL), and SA Ambulance Service (SAAS).

Flinders University acknowledges the Traditional Owners and Custodians, both past and present, of the various locations the University operates on, and recognises their continued relationship and responsibility to these Lands and waters.

## **GLOSSARY AND ABBREVIATIONS**

<b>Item</b>	<b>Description</b>
SAFECOM	SA Fire and Emergency Commission
SASES	SA State Emergency Service
MFS	Metropolitan Fire Services
SAPOL	SA Police
SAAS	SA Ambulance Services
CFS	Country Fire Services
NDRP	Natural Disaster Resilience Program
ES	Emergency Services

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# INTRODUCTION

## Background

Reducing disaster risk and building resilience are fundamental goals of emergency management and emergency service organisations.

These goals are of increased importance in the context of more frequent disaster events that are having greater impact, and the emergence of more complex and hybrid events that may have unexpected outcomes<sup>1</sup>. In this more complicated and dynamic operating environment, emergency services (ES) are challenged to respond effectively and to ensure that the response phase impacts positively upon the ability of communities to self-respond, rebuild, and improve resilience during the immediate response/relief phase, building a good foundation for longer-term recovery and the development phases that follow.

This project considers the dynamic nature of community resilience and investigates the factors that may activate and sustain the resilience of a community during the immediate and short-term emergency response phase and influence longer-term recovery and resilience building.

## Aim

The project has been underpinned by a structure-agency conceptual framework for activating community resilience across three levels of analysis, *systemic*, *societal*, and *individual* (or macro, meso, and micro levels), designed to inform operational policy, decision-making, and training, and to inform strategies that support and sustain community resilience during an emergency.

The framework identifies elements and relationships important to sustaining and maintaining the highest possible level of resilience within a community during an emergency. The project focuses on South Australia, but the framework is applicable to other Australian jurisdictions, as well as internationally.

## APPROACH

The focus of the project is on the dynamic interaction between ES and communities to elucidate the relationships between ES responses, the operating environment, and the enablement of the highest possible level of community resilience during ES response operations.

The project examines the recent experiences of senior ES leaders, apparent and emergent community leaders, and other community members in communities affected by recent major emergencies in South Australia.

A literature review covering the academic and grey literature has also been undertaken.

An Advisory Committee was formed to provide guidance, help with identifying communities recently affected by major emergencies, identify suitable interviewees and focus group members, and to support the interpretation of the findings

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<sup>1</sup> United Nations Office for Disaster Risk Reduction, 2015, *Sendai Framework for Disaster Risk Reduction, 2015-2030*: <https://www.undrr.org/publication/sendai-framework-disaster-risk-reduction-2015-2030>. Accessed online, 3 September 2020.

## Advisory Committee

The Project Advisory Committee comprised representatives of the South Australian Fire and Emergency Services Commission (SAFECOM), South Australian State Emergency Service (SASES), South Australian Country Fire Service (CFS), South Australian Metropolitan Fire Service (MFS), South Australia Police (SAPOL), and SA Ambulance Service (SAAS).

The Advisory Committee guided the project and assisted with identifying emergency events, potential ES leaders, and participating communities. A total of four meetings were held, with the first taking place on 5 August 2019. Other meetings were held on 8 November 2019, and 14 February 2020, with the final meeting on 8 May 2020 taking place via electronic means due to COVID-19 restrictions.

## Literature Review

A literature review was conducted to identify key concepts and issues associated with community resilience in the response phase of emergencies, and to consider the national and international experience. Relevant academic (publication) databases were searched including Scopus, ProQuest, Web of Science, MedLine, PubMed, and Turning Research into Practice (TRIP), while Google Scholar and the Bushfire and Natural Hazards CRC website were used to identify the relevant grey literature.

Relevant community resilience and emergency response concepts were identified during the initial searches and this information was used to further refine and focus the literature review. Table 1 outlines the search terms used. Appendix 1 shows how the search terms were broadened and how searches were combined.

*Table 1: Key concepts and search terms*

Concept	Search terms
Concept 1 was <b>actor + actions</b> , intended to cover the emergency service agency carrying out the response, as well as any actions they may have taken during the response.	<ul style="list-style-type: none"> <li>• Emergency services/management/agency/agencies</li> <li>• State Emergency Services</li> <li>• Fire services/brigade/authority/authorities</li> <li>• Police/law enforcement</li> <li>• Ambulance</li> </ul>
Concept 2 was <b>recipient + actions and impact</b> , to ensure a strong community focus in the literature, and their interactions with the ES.	<ul style="list-style-type: none"> <li>• Community</li> <li>• Local neighbourhood</li> </ul> <p>AND</p> <ul style="list-style-type: none"> <li>• Engagement</li> <li>• Participation</li> <li>• Leadership</li> <li>• Interaction</li> <li>• Civil defence</li> <li>• Resilience</li> <li>• Sustainability</li> <li>• Vulnerability</li> </ul>

<p>Concept 3 was <b>context</b>, to restrict the literature to community interactions with ES during an event.</p>	<ul style="list-style-type: none"> <li>• Disaster</li> <li>• Severe/extreme/disruptive event/weather/hazard</li> <li>• Flood*</li> <li>• Fire</li> <li>• Earthquake</li> <li>• Tsunami</li> <li>• Landslide</li> <li>• Mass casualty</li> <li>• Outbreak</li> </ul>
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Articles on ‘shared responsibility’ were also searched. Titles were read to determine relevance, and if considered of interest, the abstracts were reviewed. Following the review of the abstract, papers were either read in full or discarded. There remained a difficulty in separating *response* concerns from *recovery* concerns. This was not surprising, because recovery is considered by ES agencies and experts to begin during the response phase, and response and recovery phase actions are often undertaken simultaneously.

### Selecting the communities and emergency events to be included

The project team searched the websites of the participating ES organisations, together with news reports, and compiled a list of 29 events that had occurred in South Australia since 2005. The list was discussed with the Advisory Committee, after which a shortlist of six more recent events that involved significant ES involvement was developed. A final list of four emergencies that would be included in the study was created, based on scale, scope, and impact considerations. These emergencies and the directly impacted communities were:

- Humbug Scrub (Sampson Flat fires)
- Hamley Bridge (Pinery fires)
- Virginia (Floods)
- Old Noarlunga (Floods)

### Interviews with ES leaders

We interviewed 15 senior ES leaders from SASES, CFS, MFS, SAPOL, and SAAS about their experiences during one or more of the four selected major emergencies in South Australia.

Each interview lasted about one hour and was recorded and transcribed. All interviews took place at the participants’ places of work. The interview recordings (digital electronic files) are stored securely on the protected TRI research directory in accordance with human research ethics requirements.

### Post-project survey

A post-project online survey of senior ES personnel from SASES, CFS, MFS, SAPOL, and SAAS will be conducted six months after the release of the final report to evaluate the insights and the impacts associated with the report and the framework. The link to the survey will be

sent to the Advisory Committee members for distribution within their relevant organisations. The survey will be anonymous and voluntary.

## **Community focus groups**

As noted above, the Advisory Committee assisted in identifying four communities affected by major emergency events in recent years (at least two of which were considered regional), and community leaders and members from these four communities were invited to participate in focus groups via community forums, advertised through social media channels.

The forums were held as follows:

- Old Noarlunga Institute Hall, 19 February 2020 - *Old Noarlunga (Floods)*
- Hamley Bridge, The Institute, 10 March 2020 - *Hamley Bridge (Pinery fires)*
- One Tree Hill, Institute Hall, 13 March 2020 - *Humbug Scrub (Sampson Flat fires)*

For public safety, and in consultation with SAFECOM, it was decided not to conduct the scheduled meeting in Virginia, as COVID-19 restrictions had been implemented by the Government of South Australia at that time.

The focus groups each lasted about one hour and were held in a community hall or other community facility.

The members of the focus groups included community leaders and community members who interacted with ES during the selected historical emergency events. No community members were interviewed individually, with all attending focus group meetings.

## LITERATURE REVIEW FINDINGS

### Key concepts

The review of the literature identified two principal concepts that underpin the interactions between communities and ES during the response phase of a major emergency, *resilience* and *shared responsibility*. These concepts inform our understanding of this interaction and the strategies that have the potential to activate the resilience of a community.

**Resilience** is a concept that has recently found its way into human systems research. Taken from the Latin word, *resilire*, which means ‘to rebound’ or ‘to recoil’, resilience had become an important concept by the 19th Century in British naval architecture and materials science, where it was used as a measurement of the comparative strengths of the various woods and materials used in the construction of the Royal Navy’s warships. Scientist Robert Mallet worked on this concept and developed a measure, known as the modulus of resilience, for assessing the capacity of materials to stand up to adverse conditions. This measure has been used in other applications, notably the evaluation of the suitability of materials used for building homes and public infrastructure<sup>2</sup>.

Recently, resilience has been used with increasing frequency in areas and disciplines as varied as health, medicine, economics, information management, security, emergency management, and several fields among the various social sciences. It has been used in the analysis of individual human characteristics, as well as of human systems such as organisations, institutions, and communities<sup>3</sup>.

In the review, both the published articles and non-academic publications concluded that community resilience is a function of several different components, characteristics, or aspects of a community. In many cases, authors have arrived at similar or comparable components. Some authors call them social, economic, health, political, and physical ‘capitals’<sup>4</sup>, while others call them ‘aspects’, ‘resources’, ‘enablers’, or ‘outcomes’. There are differences in emphasis, focus, and/or prioritisation, but the overall focus is on quite similar components.

The literature review has assisted us to draw out the range of components that give us insight into the relative state of community resilience. For example, Maguire and Cartwright<sup>5</sup> developed resilience criteria consisting of *equity*, *quality*, *sustainability*, and *ownership*; in measuring resilience, they recommended their resilience toolkit to users to assess community assets when evaluating their communities.

These assets comprise of people and their skills, knowledge, experience, and motivation, encompassing associations or groups of people working with common interests as volunteers, institutions, or as paid groups of people who are, in some way, structurally organised.

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<sup>2</sup> McAslan, A., 2010, *The Concept of Resilience: Understanding Its Origins, Meaning And Utility*, A Strawman Paper, <https://www.flinders.edu.au/content/dam/documents/research/torrens-resilience-institute/resilience-origins-and-utility.pdf>, Accessed online, 3 September 2020.

<sup>3</sup> Braes, B. & Brooks, D., 2010, *Organisational Resilience: A Propositional Study to Understand and Identify the Essential Concepts*, 3rd Australian Security and Intelligence Conference, Edith Cowan University, Perth Western Australia, 30th November 2010, <https://ro.ecu.edu.au/asi/2/>. Accessed online, 3 September 2020.

<sup>4</sup> Cocklin, C. & Dibden, J., 2005, *Sustainability and Change in Rural Australia*, Sydney: University of New South Wales Press; Mayunga, J., 2007, *Understanding and Applying the Concept of Community Disaster Resilience: A Capital-Based Approach*, USA: <https://doi.org/10.1146/annurev.energy.32.051807.090348>; Callaghan, E. & Colton, J., 2008, Building Sustainable and Resilient Communities: a balancing of community capital, in *Environment, Development and Sustainability: A Multidisciplinary Approach to the Theory and Practice of Sustainable Development*, 10(6), p. 942.

<sup>5</sup> Maguire, B. & Cartwright, S., 2008, *Assessing A Community's Capacity to Manage Change: A Resilience Approach to Social Assessment*, Bureau of Rural Sciences, Australian Government.

Community assets also include physical assets and the connections and dependencies between them.

A different approach based on similar concepts is proposed by Longstaff, et al.<sup>6</sup> in which a social assessment tool for resilience has been used to assess the following connected issues: *internal community structure, community history, and community vulnerabilities*.

The assessment of community resources and adaptive capacity are also included in this grouping of connected societal characteristics.

Addressing the idea that societal characteristics are interdependent and connected, Hallegatte et al.<sup>9</sup> took a systems approach, assessing resilience through sub-system analysis, using several community characteristics. The sub-systems adopted by Hallegatte et al.<sup>7</sup> included diversity, robustness, connectedness, functional cross-scale links, and learning capacity.

The literature demonstrates a lack of consensus on the definition of resilience. The United Nations Office for Disaster Risk Reduction<sup>8</sup> (UNDRR) definition, for example, fits well in the context of this project, defining resilience as *‘the ability of a system, community or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions’*.

For the purposes of this project, community resilience has been defined as follows:

*Beyond the resilience of individuals or individual organisations, a community will prove resilient in the event of a severe emergency or disaster when members of the population are connected to one another and work together, so that they are able to: function and sustain critical systems, even under stress; adapt to changes in the physical, social or economic environment; be self-reliant if external resources are limited or cut off; and learn from experience to improve over time (Torrens Resilience Institute, 2012)<sup>9</sup>.*

**Shared responsibility** is an important concept in disaster resilience. In Australia, the term has been a central part of policy since the Royal Commission into the Black Saturday bushfires in 2009<sup>10</sup>, which stated that a *‘fundamental aspect of the Commission’s recommendations is that everyone—the State, municipal councils, individuals, household members and the broader community—must accept greater responsibility for bushfire safety in the future and that many of these responsibilities are shared’* (p. 6 of the Final Report).

The National Strategy for Disaster Resilience (NSDR)<sup>11</sup>, developed by the Council of Australian Governments and released in 2011, further embedded this idea into Australian emergency management. The NSDR was intended to be a guide for a whole-of-Australia approach to disaster resilience, and aimed to build community and organisational resilience,

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<sup>6</sup> Longstaff, P., Armstrong, N., Perrin, K., Parker, W. & Hidek, M., 2010, *Building Resilient Communities: A Preliminary Framework for Assessment, Homeland Security Affairs*, 6(3).

<sup>7</sup> Hallegatte, S., Ranger, N., Mestre, O., Dumas, P., Corfee-Morlot, J., Herweijer, C. & Wood, R., 2011, Assessing climate change impacts, sea level rise and storm surge risk in port cities: a case study on Copenhagen, in *Climatic Change*, 104, pp. 113-137.

<sup>8</sup> United Nations Office for Disaster Risk Reduction, 2009, *2009 UNISDR Terminology on Disaster Risk Reduction*, Geneva (<http://www.unisdr.org/we/inform/terminology>).

<sup>9</sup> Torrens Resilience Institute, 2012, *Developing a Model and the Tools to Measure Community Resilience*, Final Report: <https://www.flinders.edu.au/content/dam/documents/research/torrens-resilience-institute/community-resilience-report-toolkit.pdf>. Accessed online, 3 September 2020.

<sup>10</sup> Victorian Government, 2010, *2009 Victorian Bushfires Royal Commission, Final Report*. July 2010, Government Printer for the State of Victoria. [http://royalcommission.vic.gov.au/finaldocuments/summary/PF/VBRC\\_Summary\\_PF.pdf](http://royalcommission.vic.gov.au/finaldocuments/summary/PF/VBRC_Summary_PF.pdf). Accessed online 2 September 2020.

<sup>11</sup> Council of Australian Governments, 2011, *National Strategy for Disaster Resilience: Building our Nation’s Resilience to Disasters*. Australian Government, 2011: [https://www.preventionweb.net/files/18017\\_nationalstrategydisasterresilience.pdf](https://www.preventionweb.net/files/18017_nationalstrategydisasterresilience.pdf), p. IV. Accessed online, 3 September 2020.

describing *shared responsibility* as an essential component of future strategy and policy. Similarly, the UNDRR<sup>12</sup> has stated that ‘*while States have the overall responsibility for reducing disaster risk, it is a shared responsibility between Governments and relevant stakeholders*’.

Shared responsibility implies that ‘*disaster resilience is the collective responsibility of all sectors of society, including all levels of government, business, the non-government sector and individuals*’<sup>13</sup>. Collective action is believed to be more effective than any action undertaken by one section of government, or one individual. By making disaster resilience the responsibility of everyone, the government hopes to leverage this collective action into more disaster-resilient communities.

It is important to note that shared responsibility is not equal responsibility, and that there is recognition of the different resourcing capabilities of various sectors.

## Literature review – key issues

Several key issues arising from the literature review and related to the concepts of *resilience* or *shared responsibility* are noted in this section:

- ***Policy issues – ‘who is sharing what’ poorly defined***

Despite the commitment to shared responsibility outlined in the NSDR, there is little direction in policy regarding who should be responsible for any given activities. For example, where the role of an actor is enshrined in legislation, such as the South Australian State Emergency Services (SES) [legislative powers](#)<sup>14</sup> to ‘*deal with any emergency ... where the emergency is caused by flood or storm damage*’, there are implications of legal responsibility, duty of care, and potential liability that complicate the sharing of responsibility with others.

Where there is no relevant law, responsibilities are difficult to define, and there may be disagreement between actors on how to share these responsibilities.

- ***Communication – still largely top-down***

Communication from government departments and emergency services remains largely top-down, with information being provided to community members that they are then asked to act upon, rather than community members being able to influence, for example, the type or timeliness of, the information. This has been highlighted as a problem in several papers.

- The goal of risk communication is to get the public to undertake a task (e.g., prepare)<sup>15</sup>.
- Communication is best if tailored, but this is difficult to achieve<sup>16</sup>.

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<sup>12</sup> United Nations Office for Disaster Risk Reduction, 2009, *2009 UNISDR Terminology on Disaster Risk Reduction*, Geneva (<http://www.unisdr.org/we/inform/terminology>), p. 23.

<sup>13</sup> Council of Australian Governments, 2011, *National Strategy for Disaster Resilience: Building our Nation’s Resilience to Disasters*. Australian Government, 2011: [https://www.preventionweb.net/files/18017\\_nationalstrategydisasterresilience.pdf](https://www.preventionweb.net/files/18017_nationalstrategydisasterresilience.pdf), p. IV. Accessed online, 3 September 2020.

<sup>14</sup> Government of South Australia, 2005, Fire and Emergency Services Act 2005, Version: 1.7.2020, <https://www.legislation.sa.gov.au/LZ/C/A/FIRE%20AND%20EMERGENCY%20SERVICES%20ACT%202005/CURRENT/2005.40.AUT.H.PDF>. Accessed online, 3 September 2020.

<sup>15</sup> Uscher-Pines, L. & Kellermann, A., 2013, The challenges and rewards of engaging a skeptical public, in *Israel Journal of Health Policy Research*, 2, p. 12.

<sup>16</sup> Sharp, E., Thwaites, R., Curtis, A. & Millar, J. 2013, Factors affecting community-agency trust before, during and after a wildfire: An Australian case study, in *Journal of Environmental Management*, 130, pp. 10-19.

- Communication prior to a fire (emergency) is important in building trust (meaning people will listen to, and act on, the messaging)<sup>16</sup>.
- ***Community resistance and lack of buy-in***

Despite the efforts of government(s) and the emergency services to ensure that the Australian public have some efficacy and can keep themselves safe during an emergency, there has been a lack of community buy-in and community-based action. For example, most Australians in bushfire-prone areas do not have a bushfire plan, and the number of people with flood plans in areas prone to flooding is even lower.

- ***Risk understanding***

A prominent challenge for the concept of shared responsibility is that it requires a shared understanding of risk. This can be difficult to facilitate given that:

- Overstating risks (repeatedly) means people are likely to tune out.
- Understating risks means people will not act.
- There is a misunderstanding of terms such as ‘a one in a hundred-year flood’.
- Communication with the public is difficult to pitch: if the message is too broad, people will tune out; if it is too specific, the advice may take away people’s agency and sense that they need to do something for themselves.
- High levels of risk perception do not always lead to active preparation<sup>17</sup>.

- ***Insurance***

Insurance requirements and arrangements complicate community understanding and may shift responsibility for risks<sup>18</sup>.

- ‘Handing over’ risk to someone else (i.e., community members do not have to prepare for emergencies because the financial risk is covered).
- Where policies are not suitable, the onus is placed on insurance companies rather than the policy holder to identify the need to change the insurance cover.

- ***‘Leave Early or Stay and Defend’***

The message ‘Leave Early or Stay and Defend’ has been a key message for Australian bushfire preparation in recent years and is an example of a shared responsibility approach. In this case, ES will provide people with up-to-date and accurate information through various channels, including ABC Radio, emergency services websites, and in some cases via text, to help people decide what to do, and whether to enact their bushfire plan.

However, this ‘sharing’ of responsibility relies on community members:

- Having prepared prior to the event
- Having the ability to access information, and

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<sup>17</sup> Felletti, S. & Paglieri, F., 2019, Trust your peers! How trust among citizens can foster collective risk prevention, in *International Journal of Disaster Risk Reduction*, 36, 101082.

<sup>18</sup> McLennan, B. & Handmer, J., 2012, Reframing responsibility: Sharing for bushfire risk management in Australia after Black Saturday, in *Environmental Hazards*, 11(1), pp. 1-15. DOI: 10.1080/17477891.2011.608835; Box, P., Thomalla, F. & Van Den Honert, R., 2013, Flood Risk in Australia: whose responsibility is it, anyway? in *Water (Switzerland)*, 5, pp. 1580-1597; Bird, D. 2009, The use of questionnaires for acquiring information on public perception of natural hazards and risk mitigation: A review of current knowledge and practice, in *Natural Hazards and Earth System Sciences*, 9, p. 1307; Slavikova, L. 2016, Effects of Government Flood Expenditures: The problem of crowding-out, in *Journal of Flood Risk Management, Special Issue*: <https://doi.org/10.1111/jfr3.12265>.



- Acting on the information as soon as they get it

Several papers<sup>19</sup> have suggested that community members wait for others in their social circle to act for fear of over-reacting, which undermines community safety. This reflects the psychological phenomenon described by confirmation and coherence theories of trust and communication, where ‘trusted others’ in a close social network are often used to confirm decisions and the accuracy of information.

- ***Volunteer fatigue***

There appears to be tension between the idea that the community would like to be more involved in responding during an emergency and the lived experience on the ground.

Feedback suggests that literature distributed to households is too broad to capture the community’s attention, and that information needs to be tailored to individual community circumstances. There is difficulty in getting community members to participate in local presentations and discussions that would be necessary to achieve a truly participatory, inclusive process.

- If we cannot work out how to convey the importance of these kinds of activities to individuals, there is a risk that shared responsibility will remain a concept without applicability in the Australian context.<sup>20</sup> When asked in a survey about what the SES could do in future events, 13% of respondents mentioned things that were not under SES responsibility e.g., dam management, while 9% suggested more volunteers and resources. In the final question when asked about what they could personally do, most respondents did not mention any actions they could personally take, instead talking about dam management or early warning systems.
- Lukasiewicz, Dovers, and Eburn<sup>21</sup> stated that volunteering tends to be valued only when coordination is established (which hampers spontaneous volunteering which can result in less self-reliance from the community).

- ***Financial non-commitment***

There is evidence that even where community members are willing to accept some responsibility, they often lack the necessary financial resources and time to do so. Community members who do demonstrate a commitment to acting, may be unsure how to best prepare themselves – despite the assistance available (e.g., brochures, websites etc).

- Henstra, Thistlethwaite, Brown, and Scott<sup>22</sup> found that 48% of respondents were only willing to pay less than \$500CAD (\$550AUD), while 74% were only willing to pay under \$1,000CAD (\$1,100AUD) for property-level flood protection, which would have left them under-insured.

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<sup>19</sup> McLennan, J., Paton, D. & Beatson, R., 2015, Psychological differences between south-eastern Australian householders who intend to leave if threatened by a wildfire and those who intend to stay and defend, in *International Journal of Disaster Risk Reduction*, 11, pp. 35-46.

<sup>20</sup> Box, P., Bird, D., Haynes, K. & King, D., 2016, Shared responsibility and social vulnerability in the 2011 Brisbane flood, in *Natural Hazards*, 81(3), pp. 1549-1568.

<sup>21</sup> Lukasiewicz, A., Dovers, S. & Eburn, M., 2017, Shared responsibility: The who, what and how, in *Environmental Hazards*, 16(4), pp. 291-313.

<sup>22</sup> Thistlethwaite, J., Henstra, D., Brown, C. & Scott, D., 2018, How flood experience and risk perception influences protective actions and behaviours among Canadian homeowners, in *Environmental Management*, 61(2), pp. 197-208.

- ***Giving ‘community’ responsibility when they can’t be held accountable (legality)***

Legally, a community cannot be responsible in the same way as a government/council/brigade etc., as they are not a legal entity. Often community-led resilience is organised by motivated individuals who do not make up or represent the majority of the community, and who have no legal standing as an entity or association<sup>23</sup>.

- ***Community knowledge – an untapped resource***

Throughout the literature, there is acknowledgement that local knowledge of the landscape, weather, roads, and community capabilities, is critical to effectively building community resilience. It is this core knowledge and capability that the concept of shared responsibility seeks to facilitate and bolster. For example, ‘knowledge’ was found to be the principal driver of resilience via an understanding of aspects of heritage and capital in India<sup>24</sup>. Further, the Council of Australian Governments (COAG) has suggested that integrating local knowledge about local conditions could improve trust in local agencies<sup>25</sup>, all of which assists agencies and local communities to work together.

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<sup>23</sup> McLennan, J., Reid, K. & Beilin, R. 2019, Shared responsibility, community engagement and resilience: International perspectives, in *Australian Journal of Emergency Management*, 34(3), p. 41.

<sup>24</sup> Johnson, R., Edwards, E., Gardener, J. & Diduck, A., 2018, Community vulnerability and resilience in disaster risk reduction: An example from Phojal Nalla, Himachal Pradesh, India, in *Regional Environmental Change*, 18, pp. 2073-2087.

<sup>25</sup> Council of Australian Governments, 2011, *National Strategy for Disaster Resilience: Building our Nation’s Resilience to Disasters*. Australian Government, 2011: [https://www.preventionweb.net/files/18017\\_nationalstrategydisasterresilience.pdf](https://www.preventionweb.net/files/18017_nationalstrategydisasterresilience.pdf), p. IV. Accessed online, 3 September 2020.

## QUALITATIVE FINDINGS

Interviews with ES leaders and community-based focus groups, held in the four communities included in this project, provided information about a wide range of issues and concerns. The project produced a library of interview and focus group transcripts that were analysed during the development of the framework. The Structure-Agency Framework described in this report has assisted the research team to interpret the data and describe a systemic framework to guide future policy and practice development. This section of the report provides a sample of exemplars (interview and focus group excerpts) that give a sense of the thinking and issues discussed by ES leaders and community members in their interviews or at the community-based focus group meetings. The most relevant excerpts have been selected for this section as the collected data is quite extensive and cannot be completely described in this report.

### Systemic (Macro)

#### Communication and Coordination

Several systemic issues were identified, including those related to the coordination of the response, access to information, preparedness, communication, and coordination with ES. For example:

*'... And there's one spot where if we'd had one fire truck at one spot they could have put the fire out at that point and it would have saved fire further north and would have prevented that fire being there for the next four, five, six days, and it would have prevented a lot of heartache. One fire truck is all I needed, and three disappeared'.*

*'... one of our absolute prime pieces of information, clearly, was the CFS website and the information that's there. It's very up to date'.*

*'I'd like CFS to add a more preventative role rather than just putting out down to the brigades, and the publication of stuff that regularly comes out, or the same story every pre-season about, "Oh, we can't do this, we can't do that. We can't have trucks at every ...," – it's very monotonous, but I would like to see a more preventative role by the brigades. You know, I recognise that they've got other things to do in their life, but it's not just putting out fires, rescuing people, or attending car things'.*

*'I mean, I appreciate that most of the guys and women in the trucks, they really try to do the right thing. They give it all they have. But I think where it's lacking is in the middle level, in the command level where improvisations really can be made and would really be beneficial. But I don't know if it's not possible to do a little bit more, like, education at that level that this is the modern technology, this can be done'.*

*'... most of us had no idea what was going on, particularly the farmers, ... and for protecting sheep or anything, ... that not knowing what actually is going on, even if it had said that there was a large fire coming and you need to evacuate now might have been a bit useful'.*

*'At the beginning, there was nothing, there was no information coming from anywhere, the council disappeared. We had no emergency services and there were people like ■■■■ milling around in the Market Square thinking surely somebody's going to bring some sand. But it was, I think it was two days later before sand arrived ... and dumped it all and a big pile of bags, we were left, we were left as, I daresay pensioners ... on*

*our own with a big pile of sand and bags.’ ‘I was shovelling away for hours putting them into ladies and gentlemen’s cars like I was 15 years old.’*

## **Societal (Meso)**

### **Local knowledge**

There exists a strong expectation within communities that local knowledge should be used more effectively during responses. ES leaders expressed difficulty in identifying and accessing suitable sources of local knowledge during larger scale operations.

*‘Yeah. I mean, we’ve said this now so often, but to try to make better use of local knowledge during the fire and also in situation when there is no emergency. I mean, today there is enough possibilities. I mean, we all know that the social networks are very active everywhere’.*

*‘... police knowing a community and being known to a community; I don’t think that exists anymore’.*

### **Poorly organised community response**

Communities frequently respond to unfolding emergencies by making donations and providing food. Local ES facilities often become a focal point for these donations and other community activities.

*‘... a lot of them probably wouldn’t have felt comfortable to come to the CFS or anywhere’; ‘the newer families and people that were more in a real panic’.*

*‘... just ended up bizarre, everyone was donating things, clothes, fridges, anything, but no one was really overseeing it, so you ended up with these trestle tables everywhere of stuff being given ...’; ‘but no one was actually responsible for giving it out or sorting it, ... and who was cooking meals for who, for people that had lost their house and had nothing yet, and it was just this - afterwards just felt like this big muddle’.*

*‘I don’t see in the community, any sort of acknowledgement that lessons have been learnt and if such a thing were to happen again, we would be better prepared and have more coordinated help’.*

## **Individual (Micro)**

### **Individual competence**

Many respondents felt that community members were disregarded during the response phase when they could have provided skilled assistance, information, and advice to ES responding locally.

*‘... the commanders forget that there are actually people there who have prepared on their own and are quite capable of doing all sorts of things, but our experience was you get completely, utterly, totally ignored. I mean, it was reasonably amazing. Like, we were standing on our property, official fire hoses in hand, our diesel pump running, lots of water and all of that, and one of the fire command cars came racing down our driveway, the guy jumped out of the car and ran across the land, completely utterly ignoring us. And then he came racing back and I ask him, “May I ask, what are you*

*actually looking for?” And he said, “Yeah, I need to see the fire over there”. And I said, “Well, you will not see it from that lookout or from where you were running to. You’ve got to go there. There’s a little hill where you can see the whole thing. I just was there”. “Ah”. Then he ran out there, came running back, jumped into his car and drove off. I mean, to me that is ridiculous’.*

*‘... say if I was caught somewhere I know where I’d be able to go to, what I’d do, things like having a woollen blanket in the ute so you can wrap yourself in it, things like that, having those documents ready in a bag you can grab, and your wallet maybe, and your phone, phone charger and all those things’.*

## **Feeling ignored and unheard**

In some instances, the presence of community members inside of the emergency zone was ignored or misunderstood.

*‘The next day where there were no fires anywhere near us, they brought a bulldozer in and bulldozed the track right through our land, through the most protected habitat, right through the middle of it. I said, “Are you crazy? What’s this track for?” “Yes, we need another access to that valley”. Which is, if you have local knowledge, absolutely complete, excuse the expression, bullshit. Because if they had only bothered to talk for about five seconds with me, and we were home, I could have told them you can bulldoze an access track from there without destroying just about anything and getting exactly the same access’.*

*‘CFS trucks got out and went and left the locals to fend for themselves and get out, which they did do, but the chaos was terrible. The fear of these people with their screaming, and we heard that. We saw that’.*

*‘I was in my sewing room with the radio on, I didn’t even know it was happening and there were fire engines everywhere and then I heard this knocking on the door, a real bang, bang, bang. And it was my son-in-law saying, don’t you know? I didn’t even know it was going on’. ‘We had no police. We were invisible’.*

# ACTIVATING COMMUNITY RESILIENCE DURING EMERGENCY RESPONSE

## Structure-Agency Framework

A framework has been developed to describe the key features of, and inter-relationships between agents and structure, and in relation to the *shared responsibility* of individuals, communities, and ES during *response* to major emergency events. The framework incorporates and connects the key findings of the project and is built from an analysis of the information provided in the ES interviews and in the community-based fora.

Agents and structure are defined for this report in the following manner. *Agents* have agency; that is, they are individuals (micro level), groups/organisations (meso level), and communities (macro level), that have the capacity to act independently and to make choices pertaining to their situation. *Structure* refers to the recurrent patterned arrangements which influence, enhance or limit the choices and/or opportunities available to *agents* (individuals, groups, and communities). In the case of the structure-agency conceptual framework developed in this report, agents are individual ES commanders or community members (micro), ES organisations or community groups (meso), and communities (macro).

Social structures are always constituted by individuals and groups acting and interacting in specific ways. For example, a community at risk from wildfire may enact legislation that defines the emergency management responsibilities of ES organisations serving that community. These ES organisations may have responsibility for community preparedness and community (hazard) education. Community members may (or may not) participate in preparedness activities, possibly because community values and norms preclude government from imposing compulsory education, or because they do not understand the risk they are exposed to, or because they feel that preparation for emergency is not their responsibility. Therefore, agents and structures cannot be separated because they are mutually constitutive, interdependent, and inter-related. A complex set of cross-scale (macro, meso, and micro level) decisions and interactions determine how shared responsibility and emergency response will play out in any community.

The structure-agency interactions described above influence, more or less, how an individual or group can act, as a free agent or in a way that is constrained or affected by societal boundaries, such as those imposed by legislation, resourcing, expectations, education, and so on.

The structure-agency conceptual framework described in this report maps out the principal groups, levels, resources, and interactions associated with the interplay between ES and communities that may enable or disable the protection and sustainment of community resilience during the response phase to emergencies. The framework represents the principal themes and connections identified through the ES interviews and community-based focus groups.

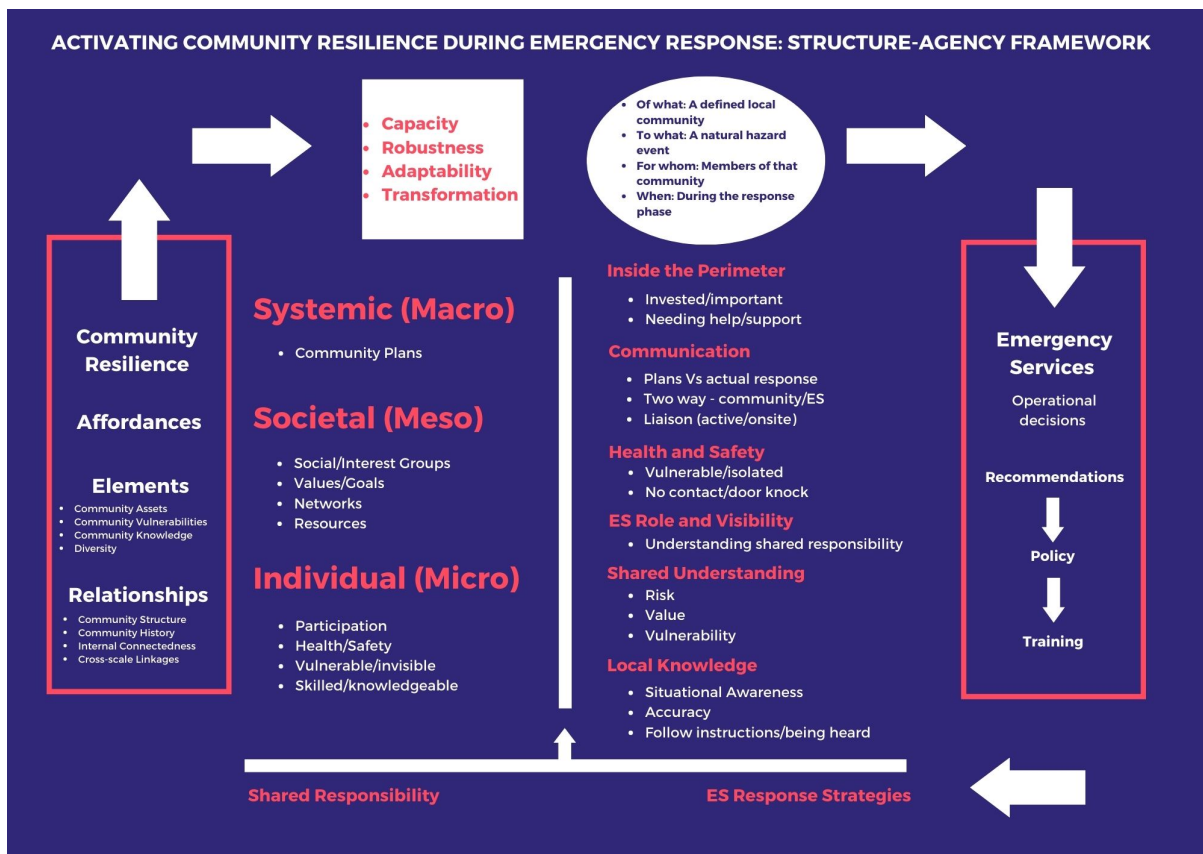


Figure 1. Structure-Agency Framework. The framework describes the macro, meso, and micro level components and the relationships that enable shared responsibility and activate the resilience of communities during the response phase to emergencies

Figure 1 (Structure-Agency Framework), describes the interplay between shared responsibility and ES planning and response strategies. The top left corner of the framework represents the *state* of community resilience. This state of resilience depends on the dynamic interaction of a community's *capacity*, *robustness*, *adaptability*, and *transformation* that sustain an acceptable and ongoing level of community resilience. This state of resilience needs to be defined, and remains a conceptual idea or an abstract construct unless:

- boundaries of the relevant system are defined, i.e., the resilience '*of what?*'
- sources of disruption, shock, or stress are defined, i.e., the resilience '*to what?*'
- the purpose or perspective of interest is defined, i.e., resilience '*for whom?*', and
- the relevant time domain is defined, i.e., resilience '*when, at what time?*'

Community resilience during an emergency depends on *Affordances*, the quality or property of an asset or relationship that defines its possible uses or makes clear how it can or should be used to sustain community resilience. Community resilience affordances include both *Elements* (community assets, community vulnerabilities, community knowledge, and community diversity) and *Relationships* (community structure, community history, internal connectedness, and cross-scale linkages).

*Community assets* refers to the infrastructure, such as community halls and other facilities, that may be used during an emergency. *Community vulnerabilities* refers to the level of physical and societal exposure to the hazard, including the relative (and dynamic) risk, and the potential

consequence(s) of the emergency event. *Community knowledge* refers to the (overall) knowledge and cumulative experience of emergencies within the community, and also, the inherent residing knowledge about the community. *Diversity* refers to the demographic features of the community including the range of ages of the residents, their skills and cultural backgrounds, the health status of the community including the extent of isolation or frailty of community members, the range of housing types, the financial resources of community members, and so on. These *Elements* provide the foundation for the resilience of the community (of what?) at any point in time (when?) with respect to any hazard (to what?) for the protection of community members (for whom?). They are distinct features of the community, often unique and complicated, and consisting of many interconnecting parts.

Community *relationships* can be understood through *community structure*, which includes the key roles and responsibilities within the community as understood by community members. *Community history* includes past experience of emergencies and other disruptive events, and both the positive and negative lessons that have come from that experience. *Internal connectedness* includes the relationships among community leaders across organisations, clubs, and associations, and among community members within local areas such as a street, housing complex, or a residential aged care facility. *Cross-scale linkages* refers to the functional relationships across and between local community and regional and state-wide authorities, organisations, and service providers. These are complex relationships, constantly shifting and developing over time, and are essential contributors to the overall resilience of the community.

Resilience can be understood at the *systemic*, *societal*, or *individual* scale, and is often described as a boundary condition or state which is related to many interdependent conditions, extending beyond traditional risk thinking (single hazard/type, risk, consequence) to include consideration of value, exposure, and vulnerability in complex societal systems. Resilience thinking provides the foundation for a high-level and cross-scale approach to the development of the capacity and capability needed to absorb, adapt, and transform in response to (system) disruption.

Resilience is tested through disturbance from within, or without, whether sudden or slow onset. In an individual, this might be due to a lack of the experience, information, resources, or capability needed to prepare for, or respond to, an emergency situation; in a social group, association, or organisation, this may take the form of a decline in collective identity and purpose associated with the rise of a competing internal narrative, or perhaps an enhancement of the group's cohesion and shared goals in the face of an external existential (emergency) threat; and in a community, this may be due to a loss of trust and confidence in government institutions, such as emergency services, or other factors that disable the elements and relationships that underpin community resilience.

The Structure-Agency Framework builds on a much broader base of attempts to assess the resilience properties of complex systems. The approach is founded on the belief that while it is not possible to trace cause and effect pathways through these complex systems, there are nevertheless internal element aggregations whose manipulation can be seen to generate emergent (generally positive) effects. Identifying and understanding the way these 'levers' affect the system provides the means to monitor and sense the system's trends. Changes in these internal components serve as proxy indicators of the system's high-level response and behaviours.

In the Structure-Agency Framework for resilience, several 'levers' have been identified that play an important role in sustaining resilience during the emergency response phase. These



include, at the systemic level, the presence of and knowledge about community plans. The community forums expressed concern about the current state of local government emergency plans and the extent to which their input had been considered and incorporated into these plans. Community plans (and planning) provided a focal point for communities in preparing for, and effectively contributing to, an emergency response.

At the societal level, *social and interest groups* that helped to connect people and underpin community relationships and knowledge, *shared values and goals* built from a shared understanding of the community and related to what was important to or valued by the community such as heritage sites and community facilities, the presence and activity of *networks* that connected people including across scales, and the availability of *resources*, were described as important to effective community response.

At the individual level, *participation*, described as getting involved in the community and being recognised as a community member, *health and safety* related to the ability and willingness to help in what ways and under what circumstances, *vulnerability and invisibility* which was a concern expressed at several forums relating to pre-existing knowledge about who is vulnerable, where they are located, and who will connect with and help those people during an emergency, and *skills and knowledge*, which refers to the tendency for local community member capability to be ignored by responding ES, and which is, at times, also poorly understood within the community itself.

These levers operationalise the resilience of the community and underpin shared responsibility. Community members can effectively respond and help one another when these requirements have been activated and are supported. While these features of a community may seem to be at some distance from the more practical interventions we might normally understand to be emergency responses, such as using chainsaws or sand-bagging neighbours' homes, they are important underpinnings for resilience within communities and can be facilitated and developed by local authorities in the pre-event phase (planning and preparation). A strong community supported by established and working connections, with knowledge about the community, and permission (or a sense of autonomy) is more likely to successfully respond to an emergency event.

The right-hand side of the Structure-Agency Framework describes the relationships between the resilience of the community and ES response strategies. Firstly, and importantly, the framework links ES operational decisions and response strategy to the recommendations of reports and community consultations, and the development of policy and training that supports the empowerment and engagement of communities during the response phase. The Framework describes an approach based on the risk management cycle, which includes a feedback loop from consultation, resilience capacity building, and ES policy and training development, through to the development of response strategies.

Several principal themes have been identified that are important to effective partnership and shared responsibility between communities and ES. These include strategies that acknowledge and respond to the needs of community members who remain inside the perimeter of the emergency response operation. These community members may have chosen to stay or have been unable to leave. At times, they will be taking active steps to respond themselves, or have knowledge, skills, and capabilities that could be helpful in the response.

The effectiveness of the response to emergencies will be improved when there is good communication of information between communities and ES and vice versa, where a liaison point is made available and the community is aware of this resource, and where the ES

response, in-so-far as this is possible in a real-world event, is complementary with those arrangements laid down in the community emergency plan.

This project has identified a recurring issue with the sporadic and incomplete nature of efforts to contact and support isolated and vulnerable members of communities during the response phase. Communities and ES responders will need to develop improved arrangements for identifying and communicating with these vulnerable community members.

It was apparent throughout the interviews and the community-based focus groups that there is a shared view that working in partnership with communities during response was both necessary and useful. There were issues raised about the lack of visibility/availability of a contact point for ES within the perimeter (including in local communities), and the view that ES units attending the emergency often showed very limited understanding of how shared responsibility should work, and what capabilities or assets were available within the community.

At the strategic and policy levels, there is value in developing shared understanding through community consultation of risk, value, and vulnerability. Community emergency plans may be the best place to document this shared understanding and should consider those community assets that are considered most valuable. In this context, value is not (necessarily) a pecuniary measure, but rather, is related to the utility and usefulness, heritage or history, and importance or uniqueness of a community asset. By considering value, our estimates of risk and vulnerability may be moderated or changed. An asset that is vulnerable and yet not valued (relatively), is of less importance than an asset that is important and unique for the community.

A recurring concern for communities and ES was the difficulty in connecting response strategies to important local knowledge. There were many examples of such difficulties, some concerning access to the emergency (such as fire breaks through heritage areas), and in many cases related to the overall response strategy that often resulted in local crews being tasked away from their community and responders coming from other communities, in these larger emergency events. Several key themes are related to this finding, including poor situational awareness, inaccurate information, and the expectation among ES responders, as expressed by community members, that the community was unlikely to have useful information to share and that community members should 'do as they are told'.

The Framework draws on the themes that have emerged from a large set of interview and community-based focus group data. The Framework is, necessarily, a distillation and simplification of the many ideas and experiences of the participants. The Structure-Agency Framework has proven to be useful for the analysis as it summarises and links the key features of, and the inter-relationships between, agents and structure in relation to the *shared responsibility* of individuals, communities, and ES during *response* to (major) emergency events.

## CONCLUSIONS

The conclusions of this report should be used to develop new approaches to working with communities and support an increase in the level of activity and resources where these matters are already being effectively addressed.

### Community emergency plans

- This project has concluded that community emergency plans (and planning) provide a focal point for communities in preparing for, and effectively contributing to, emergency response. Local government plays a key role in facilitating planning for emergencies that involves substantial consultation with, and participation of, community members. Plans should consider value and identification of what is important to the community as a whole, while ES responses during an emergency should, wherever possible, be complementary with, or when it is appropriate, follow, arrangements laid down in community plans.

### Value

- Community consultations should seek to develop a shared understanding of what *elements* and *relationships* are valued in the community, including consideration of the utility and usefulness, heritage and history, and importance or uniqueness of community *assets*.

### Policy and training

- Emergency Services should develop policy, doctrine, and training informed by a framework for engagement with communities that supports the activation of community resilience during the emergency response phase. Connecting with and supporting communities to undertake their own responses and to support their own community, including while ES operations are underway, is a very challenging task. Strategies to achieve this may include the establishment of localised and highly visible community liaison points, or operational practices that whenever possible deploy (some) 'home ground' crews locally to provide community knowledge and connection for other units.

### Vulnerable and isolated

- There appears to be a problem with the current level of communication and support provided to more vulnerable or isolated community members during the response phase of an emergency. A strategy is needed that allocates responsibility for providing information to community members and, where necessary, to include active door knocking or other direct contact in an organised fashion, possibly utilising community assets in some cases.

### Participation

- An improved understanding of the barriers and enablers of active participation by community members during an emergency response, is required. How do community members become involved in community emergency planning and what activities, associations, or other structures facilitate this? While community members express their desire to be informed, engaged, and to actively help during emergencies, ES responders express difficulty in connecting with those community members who wish to help and who may have information or skills that could be used.

## **Actions**

- Local government emergency planning should be informed by the findings of this report, and where possible, consider and articulate the role(s) of, and expectations for, community members during the response phase in their emergency plans. ES should consider possible changes to policy, plans, doctrine, and training to establish closer liaison and cooperation between ES and communities during emergency response.

## **SUMMARY**

It is generally acknowledged that there will be an increase in the frequency and severity of emergencies caused by natural hazards in the coming years. Within this context, resourcing and support of communities affects the ability of communities to share responsibility with better equipped government agencies/programs. Lack of buy-in from community members (lack of time spent by community members in preparedness-related activities) and other concerns, including legal limits and liability for actions taken, and the absence of any community-based coordinating arrangement, means that communities remain inadequately structured or supported to assume more active roles in emergency response.

However, most studies recommend a more localised approach that includes community engagement and support for community-led response initiatives.

Any such community-based, or ES-community partnerships must overcome common problems associated with communication and relationship building. Communication remains largely top-down (government(s)/agencies to community) rather than collaborative. Response is still largely seen as something ‘done’ to a community, while ‘shared responsibility’ is only understood to concern the planning and preparation period leading up to an event. It is frequently assumed that community members will leave early/stay out of the way/not help unless they are a member of a volunteer ES group.

The Structure-Agency Framework for activating community resilience during emergency response provides insight into how communities can be better supported when they are affected by major emergencies.

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## APPENDICES

### Appendix 1: List of Project Advisory Committee Members

<b>Organisation</b>	<b>Name</b>
<b>SES</b>	Liz Connell, Manager Community Resilience, South Australian State Emergency Service
<b>CFS</b>	Fiona Dunstan, Country Fire Services, Manager Information Operations, South Australia Fire & Emergency Services Commission Functional Lead Public Information
<b>MFS</b>	Assistant Chief Fire Officer (ACFO) Colin Lindsay, Assistant Chief Fire Officer, Community Safety & Resilience Department, South Australian Metropolitan Fire Service
<b>SAPOL</b>	Senior Sergeant First Class Russell Dippy, Senior Sergeant First Class, Acting Officer in Charge, Emergency and Major Event Section (42), SA Police Headquarters, South Australian Police
<b>SAAS</b>	Janette Stephens, Operations Manager, Emergency Preparedness, Resilience and Response, Statewide Operational Services, South Australia Ambulance Service
<b>SAFECOM</b>	Miriam Lumb, Project Manager (Disaster Resilience Strategy), South Australia Fire & Emergency Services Commission



## Appendix 2: Searches of academic literature

Concept 1 – Actor ± Actions	Concept 2 – Recipient ± Actions and Impact	Concept 3 – Context	Search – Shared responsibility	Combined search [1] + [2] + [3] + [4] + [5]	Combined search [1] + [2] + [3] + [4] + [6]
Emergency services/ management/agency(ies) SES Fire services/brigade/ authority(ies) Police/law enforcement Ambulance	Community Local Neighbourhood  and  Engagement Participation Leadership Interaction Civil defence Resilience Sustainability Vulnerability	Disaster severe/extreme/disruptive event/weather/hazard flood* *fire* earthquake tsunami landslide mass casualty outbreak	Shared responsibility	Results: = 451 documents  (( TITLE-ABS-KEY ( "emergency services" ) OR TITLE-ABS-KEY ( "emergency management" ) OR TITLE-ABS-KEY ( "emergency agenc*" ) OR TITLE-ABS-KEY ( "fire service*" ) OR TITLE-ABS-KEY ( "fire brigade*" ) OR TITLE-ABS-KEY ( "fire authorit*" ) OR TITLE-ABS-KEY ( police ) OR TITLE-ABS-KEY ( "law enforcement" ) OR TITLE-ABS-KEY ( ses ) OR TITLE-ABS-KEY ( ambulance ) OR TITLE-ABS-KEY ( "emergency medicine services" ) ) ) AND (( TITLE-ABS-KEY ( impact ) OR TITLE-ABS-KEY ( influence ) OR TITLE-ABS-KEY ( actions ) OR TITLE-ABS-KEY ( operations ) OR TITLE-ABS-KEY ( "resource allocation" ) OR TITLE-ABS-KEY ( "decision making" ) OR TITLE-ABS-KEY ( aid ) OR TITLE-ABS-KEY ( logistics ) OR TITLE-ABS-KEY ( "decision theory" ) OR TITLE-ABS-KEY ( prioritization ) OR TITLE-	Results: 5 documents  (( TITLE-ABS-KEY ( "emergency services" ) OR TITLE-ABS-KEY ( "emergency management" ) OR TITLE-ABS-KEY ( "emergency agenc*" ) OR TITLE-ABS-KEY ( "fire service*" ) OR TITLE-ABS-KEY ( "fire brigade*" ) OR TITLE-ABS-KEY ( "fire authorit*" ) OR TITLE-ABS-KEY ( police ) OR TITLE-ABS-KEY ( "law enforcement" ) OR TITLE-ABS-KEY ( ses ) OR TITLE-ABS-KEY ( ambulance ) OR TITLE-ABS-KEY ( "emergency medicine services" ) ) ) AND (( TITLE-ABS-KEY ( impact ) OR TITLE-ABS-KEY ( influence ) OR TITLE-ABS-KEY ( actions ) OR TITLE-ABS-KEY ( operations ) OR TITLE-ABS-KEY ( "resource allocation" ) OR TITLE-ABS-KEY ( "decision making" ) OR TITLE-ABS-KEY ( aid ) OR TITLE-ABS-KEY ( logistics ) OR TITLE-ABS-KEY ( "decision theory" ) OR TITLE-
( TITLE-ABS-KEY ( "emergency services" ) OR TITLE-ABS-KEY ( "emergency management" ) OR TITLE-ABS-KEY ( "emergency agenc*" ) OR TITLE-ABS-KEY ( "fire service*" ) OR TITLE-ABS-KEY ( "fire brigade*" ) OR TITLE-ABS-KEY ( "fire authorit*" ) OR TITLE-ABS-KEY ( police ) OR TITLE-ABS-KEY ( "law enforcement" ) OR TITLE-ABS-KEY ( ses ) OR TITLE-ABS-KEY ( ambulance ) OR TITLE-ABS-KEY ( "emergency medicine services" ) )		( TITLE-ABS-KEY ( disaster ) OR TITLE-ABS-KEY ( "disruptive event" ) OR TITLE-ABS-KEY ( "severe weather" ) OR TITLE-ABS-KEY ( "mass casualty" ) OR TITLE-ABS-KEY ( *fire* ) OR TITLE-ABS-KEY ( flood* ) OR TITLE-ABS-KEY ( earthquake ) OR TITLE-ABS-KEY ( outbreak ) OR TITLE-ABS-KEY ( tsunami ) OR TITLE-ABS-KEY ( landslide ) OR TITLE-ABS-KEY ( mudslide ) OR TITLE-ABS-KEY ( avalanche ) OR TITLE-ABS-KEY (	TITLE-ABS-KEY ( "shared responsibility" )  [6] – 2,495		

[1] – 505,147		cyclone ) OR TITLE-ABS-KEY ( typhoon ) OR TITLE-ABS-KEY ( "severe storm" ) OR TITLE-ABS-KEY ( "extreme weather" ) OR TITLE-ABS-KEY ( "twister" ) OR TITLE-ABS-KEY ( "tornado" ) )		ABS-KEY ( "risk management" ) OR TITLE-ABS-KEY ( investment ) ) AND ( ( TITLE-ABS-KEY ( community ) OR TITLE-ABS-KEY ( neighbourhood ) OR TITLE-ABS-KEY ( local ) OR TITLE-ABS-KEY ( "civil society" ) ) AND TITLE-ABS-KEY ( leadership ) OR TITLE-ABS-KEY ( engagement ) OR TITLE-ABS-KEY ( "civil defence" ) OR TITLE-ABS-KEY ( participation ) OR TITLE-ABS-KEY ( interaction ) OR TITLE-ABS-KEY ( resilience ) OR TITLE-ABS-KEY ( vulnerab* ) OR TITLE-ABS-KEY ( sustainab* ) ) ) AND ( ( TITLE-ABS-KEY ( disaster ) OR TITLE-ABS-KEY ( "disruptive event" ) OR TITLE-ABS-KEY ( "severe weather" ) OR TITLE-ABS-KEY ( "mass casualty" ) OR TITLE-ABS-KEY ( *fire* ) OR TITLE-ABS-KEY ( flood* ) OR TITLE-ABS-KEY ( earthquake ) OR TITLE-ABS-KEY ( outbreak ) OR TITLE-ABS-KEY ( tsunami ) OR TITLE-ABS-KEY ( landslide ) OR TITLE-ABS-KEY ( mudslide ) OR TITLE-ABS-KEY ( avalanche ) OR TITLE-ABS-KEY ( cyclone ) OR TITLE-ABS-KEY ( typhoon ) OR TITLE-ABS-KEY ( "severe storm" )	ABS-KEY ( "risk management" ) OR TITLE-ABS-KEY ( investment ) ) AND ( ( TITLE-ABS-KEY ( community ) OR TITLE-ABS-KEY ( neighbourhood ) OR TITLE-ABS-KEY ( local ) OR TITLE-ABS-KEY ( "civil society" ) ) AND TITLE-ABS-KEY ( leadership ) OR TITLE-ABS-KEY ( engagement ) OR TITLE-ABS-KEY ( "civil defence" ) OR TITLE-ABS-KEY ( participation ) OR TITLE-ABS-KEY ( interaction ) OR TITLE-ABS-KEY ( resilience ) OR TITLE-ABS-KEY ( vulnerab* ) OR TITLE-ABS-KEY ( sustainab* ) ) ) AND ( ( TITLE-ABS-KEY ( disaster ) OR TITLE-ABS-KEY ( "disruptive event" ) OR TITLE-ABS-KEY ( "severe weather" ) OR TITLE-ABS-KEY ( "mass casualty" ) OR TITLE-ABS-KEY ( *fire* ) OR TITLE-ABS-KEY ( flood* ) OR TITLE-ABS-KEY ( earthquake ) OR TITLE-ABS-KEY ( outbreak ) OR TITLE-ABS-KEY ( tsunami ) OR TITLE-ABS-KEY ( landslide ) OR TITLE-ABS-KEY ( mudslide ) OR TITLE-ABS-KEY ( avalanche ) OR TITLE-ABS-KEY ( cyclone ) OR TITLE-ABS-KEY ( typhoon ) OR TITLE-ABS-KEY ( "severe storm" )
Impact Influence Actions Operations Resource allocation Decision making/theory Humanitarian aid/logistics Prioritization Risk management Investment Resources Planning	( TITLE-ABS-KEY ( community ) OR TITLE-ABS-KEY ( neighbourhood ) OR TITLE-ABS-KEY ( local ) OR TITLE-ABS-KEY ( "civil society" ) ) AND TITLE-ABS-KEY ( leadership ) OR TITLE-ABS-KEY ( engagement ) OR TITLE-ABS-KEY ( "civil defence" ) OR TITLE-ABS-KEY ( participation ) OR TITLE-ABS-KEY ( interaction ) OR TITLE-ABS-KEY ( resilience ) OR TITLE-ABS-KEY ( vulnerab* ) OR TITLE-ABS-KEY ( sustainab* ) )	Response Immediate/emergency/disaster response			
( TITLE-ABS-KEY ( impact ) OR TITLE-ABS-KEY ( influence ) OR TITLE-ABS-KEY ( actions ) OR TITLE-ABS-KEY ( operations ) OR TITLE-ABS-KEY ( "resource allocation" ) OR TITLE-ABS-KEY ( "decision making" ) OR TITLE-ABS-KEY ( aid ) OR TITLE-ABS-KEY ( logistics ) OR TITLE-ABS-KEY ( "decision theory" ) OR TITLE-ABS-KEY ( prioritization ) OR TITLE-ABS-KEY ( "risk	[3] – 517,620	( TITLE-ABS-KEY ( emergency ) OR TITLE-ABS-KEY ( immediate ) OR TITLE-ABS-KEY ( disaster ) AND TITLE-ABS-KEY ( response ) )  [5] – 120,462			

<p>management" ) OR TITLE-ABS-KEY ( investment ) )</p> <p>[2] – 11,000,876</p>				<p>) OR TITLE-ABS-KEY ( "extreme weather" ) OR TITLE-ABS-KEY ( "twister" ) OR TITLE-ABS-KEY ( "tornado" ) ) AND ( ( TITLE-ABS-KEY ( emergency ) OR TITLE-ABS-KEY ( immediate ) OR TITLE-ABS-KEY ( disaster ) AND TITLE-ABS-KEY ( response ) ) )</p>	<p>) OR TITLE-ABS-KEY ( "extreme weather" ) OR TITLE-ABS-KEY ( "twister" ) OR TITLE-ABS-KEY ( "tornado" ) ) AND ( TITLE-ABS-KEY ( "shared responsibility" ) )</p> <p><b>Combined search</b> [4] + [6]</p> <p>Results: 82 documents</p> <p>TITLE-ABS-KEY ( "shared responsibility" AND "disaster" OR "disruptive event" OR "severe weather" OR "mass casualty" OR "fire" OR "flood" OR "earthquake" OR "tsunami" OR "landslide" OR "mudslide" ) OR "avalanche" OR "cyclone" OR "typhoon" OR "severe storm" OR "extreme weather" OR "twister" OR "tornado" )</p> <p><b>Combined search</b> [1] + [6]</p> <p>Results: 57 documents</p> <p>TITLE-ABS-KEY ( "shared responsibility" AND "emergency services" OR "emergency management" OR "emergency agency" OR "fire service" OR "fire brigade" OR "fire authority" OR "police" OR "law enforcement" OR "ses" OR "</p>
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				<p>ambulance" OR "emergency medicine services" )</p> <p><b>Combined search</b> [1] + [3] + [6]</p> <p>Results: 14 documents</p> <p>TITLE-ABS-KEY ( "shared responsibility" AND "emergency services" OR "emergency management" OR "emergency agency" OR "fire service" OR "fire brigade" OR "fire authority" OR "police" OR "law enforcement" OR "ses" OR "ambulance" OR "emergency medicine services" ) AND TITLE-ABS-KEY ( "community" OR "neighbourhood" OR "local" OR "civil society" AND "leadership" OR "engagement" OR "civil defence" OR "participation" OR "interaction" OR "resilience" OR "vulnerable" OR "sustainable"</p> <p><b>Combined search</b> [1] + [2] + [3] + [4] + [6]</p> <p>Results: 13 documents</p> <p>( TITLE-ABS-KEY ( "emergency services" OR "emergency management" OR "emergency agency" OR "fire service" OR "fire brigade" OR "fire authority" OR "police" OR "l</p>
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				aw enforcement" OR "ambulance " OR "service" ) AND TITLE-ABS-KEY ( "impact" OR "influence" OR "actions" OR "operations" O R " resource allocation" OR "decision making" OR "aid" OR "logis tics" OR "decision theory" OR "prioritisation" O R "risk management" OR "investment " ) AND TITLE-ABS-KEY ( "community" OR "neighbourh ood" OR "local" OR "civil society" OR "leadership" OR "engagement" OR "civil defence" OR "participation" OR "interaction" OR "resilien ce" OR "vulnerab*" OR "sustainab*" ) AND TITLE- ABS-KEY ( "disaster" OR "disruptive event" OR "severe weather" OR "mass casualty" OR "fire" OR "flood" OR "earth quake" OR "outbreak" OR "t sunami" OR "landslide" OR "mudslide" OR "avalanche" OR "cyclone" OR "typhoon" OR "severe storm" OR "extreme weather" ) AND TITLE-ABS- KEY ( "shared responsibility" ) )
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## Appendix 3: Questions for ES Leaders

### QUESTIONS FOR ES LEADERS

- Please tell me about your role and experience attending the XXXXXXXX ...
- What services did you provide that assisted or affected the community during the response?
- What decisions caused you greatest concern when responding to the needs of the community?
- How did you prioritise and effectively make the necessary decisions?
- Did you have any information about how the community itself was responding to the emergency and what their needs were?
- In what ways might community members act to protect themselves so that they survive better through (are resilient) during the response phase? (note this isn't about preparatory steps or recovery)
- What decisions and actions can community members take during an emergency that are helpful?
- To what extent does the emergency service response limit or disempower community members?
- What necessary decisions have the potential to limit the response capacity of the community (such as road closures)?
- What interactions did you have with “community” and how did these influence your decisions?
- Is it possible to respond during an emergency such as this and continue to make decisions that support the community’s own ability to protect itself and others?
- Do you have any positive or negative examples of interactions with the community during the response?
- Did you receive any feedback from community after the event? Can you summarise that.