Hazelwood Health Study Community Wellbeing Stream

Community Wellbeing Stream Report

Volume 1: Community perceptions of the impact of the smoke event on community wellbeing and of the effectiveness of communication during and after the smoke event

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Disclaimer: This report presents a preliminary analysis which has not been submitted to independent peer review. Subsequent scholarly manuscripts which undergo independent peer review may vary in their findings or interpretation.

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List of Acronyms

AEMI	Australian Emergency Management Institute
CBEM	Community-Based Emergency Management
CFA	Country Fire Authority
CHO	Chief Health Officer
CORRC	Centre of Research for Resilient Communities
EMV	Emergency Management Victoria
EPA	Environment Protection Authority Victoria
HHS	Hazelwood Health Study
HMFI	Hazelwood Mine Fire Inquiry
IRSD	Index of Relative Socio-economic Disadvantage
MNH	Morwell Neighbourhood House
OL	Occupy Latrobe Facebook
PAR	Participatory Action Research
SECV	State Electricity Commission Victoria
SEIFA	Socio-Economic Indexes for Areas
TATWB	The Air That We Breathe Facebook
UNISDR	United Nations International Strategy for Disaster Risk Reduction
VCOSS	Victorian Council of Social Services
VOTV	Voices of The Valley
VicHealth	The Victorian Health Promotion Foundation

1   Executive Summary

This report comprises the first of two volumes of research exploring the impact of the 2014 Hazelwood mine fire on the community wellbeing of the people of Morwell and Latrobe Valley. The key aims of the Community Wellbeing Stream project are to investigate community perceptions of:

1. the impact of the smoke event on community wellbeing,

2. the elements that are important for effective communication during and after the smoke event, and

3. the effectiveness of community rebuilding activities.

Volume 1 focuses on the first two of these three aims: determining the community perceptions of the impact of the smoke event on community wellbeing and the elements that are important for effective communication during and after the smoke event. The third aim is addressed in Volume 2: *Community Wellbeing Report Volume 2: Perceptions of the Effectiveness of Community Rebuilding Activities.*

To address these research aims, we drew on a mix of qualitative and quantitative research methods to develop an extensive evidence base, using this to form a narrative which incorporates a range of community voices. The data was gathered from Years 1-3 of the Hazelwood Health Study (HHS) Community Wellbeing research stream, and builds upon work carried out by Wood *et al.* (2015) in their Initial Impact Study of the smoke event. This extensive data collection comprised interviews (individual interviews and focus group discussions) with a total of 85 people, and analysis of 1,096 media reports and 1,709 social media posts.

Sources included focus groups with community members, interviews with key informants from community organisations and agencies involved in the emergency response and recovery, local journalists and social media users reporting on and discussing the event, and an extensive collection of news media reports and social media posts and other archival sources. News media and social media items were analysed to provide a snapshot of the degree of attention the Hazelwood mine fire was receiving from the beginning of the crisis until Year 3 of the study.

Volume 2 explores the community's perceptions of the effectiveness of community rebuilding activities. Once again, a combination of media and social media analysis, and key stakeholder interviews was utilised, culminating in the completion of a participatory action research project, all of which provide insights into the recovery process and the effectiveness of community rebuilding.

By combining the results of the qualitative and quantitative analyses of these different sets of data with our review of the published literature and the chronology of the event detailing official communication, we have been able to gain an understanding of the community's experience of the mine fire event, the impact this had on community wellbeing, challenges to providing effective community-engaged disaster communication, and community perceptions of the effectiveness of community rebuilding activities. These findings therefore have important implications which can inform policy and planning, and best practice in communication for similar future disasters.

Unlike other disasters like fire and flood with clear impacts on infrastructure, the impacts in the Hazelwood mine fire were more to do with exposure to the smoke and the associated health and psychological impacts, the extent and nature of which are under investigation by other research streams within the HHS. Furthermore, as the Community Wellbeing Stream's findings demonstrate, there was a substantial impact on community wellbeing, most notably a loss of trust in authorities when dealing with a crisis. This loss of trust has also, however, led some members of the community and community groups to take matters into their own hands by finding ways to support one another, meet the needs of those impacted by the fire, and lobby for government to address the concerns of the community. Problems with official communication during the smoke event played a prominent part in the community's distress. Local media and social media have been important in filling communication gaps – providing information and representing the concerns of the wider community, while at the same time reflecting some of the divisions and conflicts in this diverse community.

Much has been written on disasters and the recovery process, and on the role of communication in managing disasters, so Section 3 reviews the relevant literature. Section 4 details the methods, data sources and forms of analysis used to derive the findings. Section 5 presents the findings, drawing out themes from the data, and Section 6 extracts the key findings and their implications for the future. The key themes determined were:

1. what the community experienced;
2. communication issues;
3. factors leading to a loss of trust;
4. community empowerment and activism.

The findings also show that members of the community need to feel valued, respected and supported during a crisis; that they would like to know what the future holds for their community; and that they seek a stronger engagement in shaping this future. The hope is that their involvement in shaping a future vision for the town can help to give people a positive outlook and sense of pride in Morwell. This speaks to a fifth theme, community perceptions of the recovery and rebuilding process, which is discussed separately in Volume 2. It should be noted that recovery is complex, occurs over many years in a context that is continuously changing and which lacks a clear endpoint (see Volume 1, Section 3.5). The ongoing release of HHS reports on scientific evidence of health impacts will continue to influence the recovery process.

1.1 What the community experienced

The Hazelwood mine fire had significant impacts on the communities in Morwell and the Latrobe Valley more broadly. People suffered physically, and this impact was compounded by the emotional toll due to the length of the event and the lack of clear information about the disaster and its impacts, as well as the daily inconvenience of attempting to remove ash and dust (Volume 1, Section 5.2).

As our findings demonstrate, there was a **considerable impact on community wellbeing**, most notably a **loss of trust in authorities** when dealing with a crisis. Nonetheless, this led some members of the community and community groups to find ways to support one another, meet the needs of those impacted by the fire, and lobby for government to address the concerns of the community. **Problems with official communication** during the

smoke event played a prominent part in the community's distress, and local media and social media have been important in filling communication gaps. From these challenges emerged the **possibility for growth** following the event, with these groups now advocating for a positive future for Morwell and the wider community.

1.2   Communication

Communication issues impacted on the way the community experienced the crisis (Volume 1, Section 5.3). Our study found that **communication from authorities** responding to the emergency was perceived by the community to be flawed, at times contradictory, not reflecting their experiences and not meeting all of their needs. The community's perception was that their needs for timely, accurate and empathetic communication from authorities were not met. A relatively narrow range of channels was used in the initial communication to the public by authorities. The **lack of an appropriate communication plan** tailored to the needs of the community and implemented at the beginning of the crisis, eroded the community's trust in authorities.

The community experienced an **information vacuum** in relation to some aspects of the smoke event, particularly in relation to its health impacts. Because of this perceived information vacuum, local media and social media took on a particularly important role during this crisis. **Local media and social media** provided more plentiful sources of information for the community than official sources and were better able to meet the community's information and communication needs. However, the use of social media in particular was not without its problems, relating to issues around who can speak on behalf of the community and which information sources can be trusted.

The **elements important for effective communication** (according to our interviewees, and supported by a review of previous research) were:

- use media and social media as a sounding board and a strategic resource;
- communication should be fast, accurate and honest;
- use a broad range of channels;
- face-to-face communication is important to communicate with the community;
- use a trusted spokesperson, preferably someone local;
- communicate with empathy;
- ensure continuity of spokespeople;
- form a local communications team.

Government, agencies and other authorities should consider **how best to use the media ecology of mainstream and social media given the differing roles they play in disaster and recovery**. This communication space is dynamic in its responsiveness to the concerns of the community and authorities, and, as our analysis demonstrates, knowledge of how it is used to communicate different messages at different times within the disaster and recovery periods can be more effectively incorporated into emergency plans (See Volume 2, Section 2.2).

1.3   Factors leading to a loss of trust

There were five main factors leading to the community's loss of trust in authorities (See Volume 1, Section 5.4 and Volume 2, Section 2).

The first related to the **problems with communication and information** noted above. People's loss of trust was a result of inadequate, and at times non-existent, communication between authorities and the community. There was at times a mismatch between the information people received and their experience on the ground, which led to a sense that their experience was not validated. In addition to the anger and frustration felt by the community in relation to the poor communication from authorities, this flawed communication also led to a perception that authorities were attempting to conceal the nature of the event and its impact on the community.

Second, **the lack of an emergency plan** was raised by participants as a serious concern. The community looks to government and authorities for leadership in disaster situations and failure to provide effective leadership reinforces mistrust. Local government and agencies expressed frustration with the handling of the state-level emergency management response and lack of coordination between different authorities associated with the initial fire event.

Third, in 2017, there **continued to be a perception that there was no emergency plan**, despite Emergency Management Victoria (EMV) having been tasked with the job and having started the process (see Volume 2, Section 2.4). Developing a future emergency plan which is appropriate for this community is important for community recovery. Stakeholders we interviewed emphasised that such a plan needs to be appropriately resourced, to include clear and effective communication processes, to be supported by clear lines of responsibility, and to manage the transition from emergency to recovery effectively.

Fourth, at the time of being interviewed, two years after the event, some in the community felt that the government, authorities and GDF Suez (later Engie) **had not accepted responsibility for what happened and were not held accountable.** This caused anger.

Fifth, unpacking the recovery and rebuilding process after the mine fire requires an **understanding of the historical basis for the economic and social fabric of the Latrobe Valley** (see Volume 2, Section 2.3). Pre-existing vulnerabilities shaped the response of this community to the event and their recovery process. These stemmed in part from divisions within the intersecting communities which make up Morwell and the Latrobe Valley, differing relationships to the mining and power industries, some groups having experienced intergenerational disadvantage, and a belief among many of negative external perceptions of the Valley. These vulnerabilities and perceptions need to be taken into account in efforts to rebuild trust with this community.

1.4   Community empowerment and activism

One of the most important perceptions held by those interviewed was the sense that agencies and all levels of government had abandoned them, and that these organisations failed to provide adequate information about the potential health effects of the smoke event. In response to this, **community members organised public rallies, created a social media presence and network and began to demand answers** to their questions and

concerns (Volume 1, Section 5.5). These initiatives were important to addressing the concerns of the community and determining ways forward. However, many also questioned the motives of those who took on this work, while others were concerned about the repercussions on the reputation of the community by taking part in activism.

Social media took on an important function in **empowering the community** to self-organise in response to the crisis. However, some questioned the authority of a few community members to speak on behalf of the range and diversity of people in Morwell and the wider Latrobe Valley. Thus, **social media inadvertently contributed to divisions** already present within the community. Social media was an important avenue for members of the community to question and challenge the poor response from government and other authorities. For some, social media also assisted in creating a stronger sense of community. This intimate and rapid form of communication helped reactivate social relationships and constitute a base to support a range of community projects.

1.5   Community perceptions of recovery and rebuilding efforts

Volume 2 of this research specifically focuses on the findings on community recovery and rebuilding. Many members of the community **did not recognise the work that was done as part of the official community rebuilding effort**, and some felt that some of these activities were of little benefit. In addition, some activities were one-off events. Yet, since 2015 there have been many initiatives by local and state government as well as other agencies (see Volume 2, Section 2.5 and Volume 2, Appendix 2).

Many of those interviewed questioned the idea of recovery, especially if this assumed a return to prior social and economic conditions. A key issue that emerged during community consultations for the first Mine Fire Inquiry in 2014 was **the desire for the development of a long-term vision for Morwell and the Latrobe Valley**, which was then reinforced at the second Mine Fire Inquiry in 2015.

Over time the community's focus has shifted from concerns about physical health to a focus on community wellbeing more broadly. **Recovery is now conceptualised in terms of job creation and sustainability**, particularly as the Latrobe Valley faces the implications of a transition from coal, and the closure of its mines, the first of which was the closure of Hazelwood in March 2017.

Recovery activities perceived as most effective by the community were which those where a responsible agency and one or more community groups formed a **partnership** to address a common goal, and in which communication was open and dialogic.

Morwell and the Latrobe Valley possess **diverse forms of capital** (social, cultural, economic) which should be built on as part of the recovery process (see Volume 2, Section 2.6). The Participatory Action Research project carried out in 2017, culminating in the Hopes for the Future photographic exhibition, indicated that there is optimism and a strong desire from members of the community to be **part of the conversation about the future**.

1.6   Summary

The primary significance of this program of work is its ability to inform the community, local government, and various community and health agencies about the way the community's

resilience was affected and how the community perceives its capacity to respond effectively to any similar event in the future. The study also informs these stakeholders of the factors which are most critical for communication during a crisis, and how to ensure communication includes the community, speaks to them through the appropriate channels, and listens and responds to their concerns. The hope is that this report can provide valuable insights that can inform future policy and practice in ways that minimise harmful impacts on community wellbeing by adopting well-informed evidence-based practices in responding to and managing a complex crisis of this kind in the future.

While all the concerns arising from this research have potential implications for policy and planning, in the final sections of Volume 1 (Section 6.3) and Volume 2 (Section 3.7) we focus on **communication, planning for future disasters** and **strategies for community rebuilding.** Recurring themes from our evidence base show that there is a requirement to listen to the community, address their concerns and communicate with them honestly, accurately and empathically, using appropriate channels and trusted spokespersons. To do so promotes a relationship of trust between community members and agencies involved in disaster, so necessary for effective disaster response and management. In addition, we argue for the development of a disaster management plan which recognises the specific needs and risks for this community, and which includes a communications and community engagement strategy.

We also make note that the phases associated with disaster and recovery are not linear, and that recovery often lacks a clear endpoint. This is especially significant in disaster recovery for events such as the HMF; recovery is associated with rebuilding efforts, but it is not always clear what is being rebuilt. In addition, the impact of the HMF on the Latrobe Valley was complicated by pre-existing social inequities and vulnerabilities. Our narrative analysis suggests that although the narrative of recovery is complicated, some progress has been made towards recovery, and that this recovery is more than a return to something that may or may not have served the community well in the past.

The authors of this report are confident that it provides valuable insights that can inform policy and practice in ways that minimise harmful impacts on community wellbeing by adopting well-informed evidence-based practices in responding to, and managing, a complex crisis of this kind in the future. We would be pleased to facilitate and/or participate in further discussion and verification of these implications for the future with the community and stakeholders.

2   Introduction

2.1   Aims and objectives

This Report comprises Volume 1 of the Community Wellbeing Stream's work between 2015 and 2017. The key aims of the Community Wellbeing Stream project are to investigate community perceptions of:

4. the impact of the smoke event on community wellbeing,

5. the elements that are important for effective communication during and after the smoke event, and

6. the effectiveness of community rebuilding activities.

This report focuses on the first two of these three aims: determining the community perceptions of the impact of the smoke event on community wellbeing and the elements that are important for effective communication during and after the smoke event. The third aim will be addressed in a second volume: *Community Wellbeing Report Volume 2: Perceptions of the Effectiveness of Community Rebuilding Activities.*

2.2   Background

On 9 February 2014 the town of Morwell in Victoria, Australia, was confronted with several bushfires (specifically the Hernes Oak and Driffield bushfires) which resulted in a fire at the Morwell open cut coal mine adjacent to the Hazelwood power station. This event is commonly referred to as the Hazelwood mine fire. For 45 days (until 25 March 2014) the local communities within the Latrobe Valley, but in particular Morwell, were impacted and at times 'overwhelmed' (*Hazelwood Mine Fire Inquiry* 2014: 257) by smoke, ash and raised carbon monoxide levels from the Hazelwood mine fire. Residents and workers in Morwell and surrounding communities reported concerns about their health, the emergency response, and communication from authorities. During the fire and associated smoke event, health professionals anecdotally reported that residents presented to them not only with respiratory and other physical effects but also more general health and wellbeing concerns related to the fire. The impact on community wellbeing was also conveyed in the media (including social media), in evidence given to the Hazelwood Mine Fire Inquiries (Teague *et al.* 2014, 2016) and in perceptions related in a small-scale project conducted by a team of researchers at Federation University in 2014 (Wood *et al.* 2015).

Local communities became increasingly concerned about the perceived health risks of exposure to the smoke and gas emissions from the burning coal as members of the community noted increased ill health in family members, neighbours and friends (submissions to the Hazelwood Mine Fire Inquiry Report 2014). This fire, initially treated as a fire emergency, 'evolved into a chronic technological disaster … and a significant and lengthy environmental and health crisis' (*Hazelwood Mine Fire Inquiry Report* 2014: 28; see also Duffy *et al.* 2017; Duffy & Whyte 2017).

There was a strong community call for an investigation into the health impacts, culminating in a petition with over 21,000 signatures. In response, the Victorian Department of Health (now Department of Health and Human Services) made a decision to fund a 10-year longitudinal Health Study (the Hazelwood Health Study).

The Hazelwood mine fire disaster is a disaster of a different magnitude and impact to that of a disaster such as a bush fire. There was no physical infrastructure or building loss (apart from the mine and its infrastructure). Once the event was over and the smoke had dissipated, there was little physical evidence or reminder that it had happened, apart from coal dust and ash in houses, which still causes concern for some residents. There were no obvious or usual recovery activities to be undertaken by groups such as the Community Recovery Committee (CRC), a group more used to working with the aftermath of bush fires. As noted in the submission made by the Latrobe City Council to the second mine fire inquiry:

> the mine fire event was quite unlike other fire events in that no community assets were lost, no homes were lost and there was little damage to social and community infrastructure. … there has been no 'traditional' resilience work which has presented itself, such as the rebuilding of community halls, re-establishment of community walking tracks and paths (Latrobe City Council 2015/2016).

As one of our interviewees put it: '[it's] hard to pinpoint what you're rebuilding when you can't actually see what's been lost. It's like the difference between a broken leg and a mental illness' (media professional 2).

The Hazelwood mine fire of 2014 was a disaster that impacted upon an already disadvantaged community. For example, a 1996 study into the burden of disease in Victoria showed that 'the Gippsland region, and in particular the Latrobe Valley, had a higher than state average of healthy years lost due to disease' (*Hazelwood Mine Fire Inquiry Report* 2014: 250) with 'males in the Latrobe Valley [having] the largest number of years lost to disease of any area in Gippsland' (p. 251; see also part 4 Health and Wellbeing *Hazelwood Mine Fire Inquiry Report* 2014).

In addition, this was a complex emergency. While there was the initial high risk but relatively short timeframe effect of the Hernes Oak and Driffield bushfires, the mine fire event lasted for over six weeks (i.e. 45 days). The Latrobe Valley communities experienced relentless waves of smoke and ash, along with concern regarding exposure to carbon monoxide and toxic materials associated with the burning of brown coal. This was unlike the experience of a more typical Australian bushfire. Consequently, there is very little background literature or research that examines people's experiences of such ongoing and persistent events.

A key issue that emerged during community consultations for the first *Hazelwood Mine Fire Inquiry* was the desire for the development of a long-term vision for Morwell and the Latrobe Valley (*Hazelwood Mine Fire Inquiry Report* 2014: 47) and this was reinforced in the second Hazelwood Mine Fire Inquiry:

> The Board heard that involving the community in rebuilding pride in the Latrobe Valley, and progressing a vision for the economic future of the Latrobe Valley, is an important part of improving the health and wellbeing of the population (Teague *et al.* 2016: 63).

The work of the Community Wellbeing Stream is not designed to gather specific health information about individuals; rather it focuses on people's perceptions of the more general health effects in the community and the fire's impact on community wellbeing. The primary significance of this study is therefore its ability to inform the community, local government, and various community and health agencies about the way the community's resilience was

affected and how the community perceives its capacity to respond effectively to any similar event in the future. Since communication is a key element in effective disaster response and recovery, the study also informs these stakeholders of the factors which are most critical for communication during a crisis – how to ensure communication includes the community, speaks to them through the appropriate channels, and listens and responds to their concerns.

The focus of the Community Wellbeing Stream in the first 3 years of the HHS was on providing narrative evidence of the perceived impact of the Hazelwood mine fire smoke event in Morwell and surrounding communities. In this report the literature relating to disaster communication, resilience and recovery, in the context of disasters such as the Hazelwood coal mine fire, is reviewed. The methodology is described and the findings relating to community perceptions of the impact of the smoke event on community wellbeing and the elements that are important for effective communication during and after the smoke event are discussed. Volume 2 will analyse community perceptions of the effectiveness of community rebuilding activities after the smoke event.

3   Literature review

3.1   Overview

A feature of a disaster is … the way in which it changes the lives of those most affected, both individually and collectively (Mutch 2014: 6).

This literature review maps the research underpinning current knowledge of the impact of disaster on community wellbeing. Community wellbeing relates closely to community resilience, and thus contributes to research examining community recovery and resilience more broadly (Davis *et al.* 2005; Norris *et al.* 2008; Poortinga 2012). Therefore, this review provides an overview of these four key terms – community wellbeing, disaster, recovery and resilience. In addition, it includes consideration of the specific role of communication in a community's experience of and recovery from disaster, drawing on the extensive literature on disaster management and crisis communication.[1] In reviewing this literature, it focuses on the role of media and social media in disasters, the issue of trust in relation to communication, and best practice in disaster communication, and their relation to resilience and recovery. It concludes by outlining the complex relations between these interconnected processes.

3.2   Defining community wellbeing

Previous research on wellbeing talks about wellbeing as a combination of individual and social factors. Morton, in a review of community wellbeing indicators for local government, writes that 'personal wellbeing measures people's experiences of their positive and negative emotions, satisfaction, vitality, resilience, self-esteem, and sense of positive functioning in the world' whereas 'social wellbeing measures people's experiences of supportive relationships and sense of trust and belonging with others' (Morton 2013: 174). Wiseman and Brasher argue that:

> Community wellbeing is the combination of social, economic, environmental, cultural, and political conditions identified by individuals and their communities as essential for them to flourish and fulfil their potential (2008: 358).

In essence, community wellbeing is about connectedness and having one's voice heard. Atkinson *et al.* argue that community wellbeing may refer to 'living well together at a community scale' or it may refer to the 'role that community scale aspects have in facilitating local individual wellbeing' (2017: 5). Our program of work is concerned with the former rather than the latter – in other words, with examining community wellbeing as something that is not merely the outcome of individual wellbeing of members of a community, but includes the collective and subjective sense of wellbeing of the community as a whole; in particular, the ways that community functions, sees itself and talks about itself (Atkinson *et al*. 2017).

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[1] These areas overlap to some extent, with disaster management including but not limited to communication issues, while crisis communication includes crises which pose a reputational risk to organisations but which may not originate in a natural disaster (or one of complex causes including human origin).

3.3   Defining disaster

Disasters are significant events which imply major harm and losses for those who are exposed to them (Birkmann *et al.* 2008). The United Nations International Strategy for Disaster Risk Reduction (UNISDR) defines a disaster as:

> a serious disruption of the functioning of a community or a society causing widespread human, material, economic, or environmental losses which exceed the ability of the affected community or society to cope using its own resources (UNISDR 2004: 17).

Disasters come in many forms, natural or human-induced, acute or prolonged and have varying impacts on communities. As Winkworth (2007) explains, generally there is consensus that a disaster is an event that involves:

- the destruction of property, injury, and/or loss of life;
- has an identifiable beginning and end;
- adversely affects a relatively large group of people;
- is 'public' and shared by members of more than one family;
- is out of the realm of ordinary experience;
- and psychologically, is traumatic enough to induce distress in almost anyone.

Even so, 'not all disasters neatly fit simplified definitions' (Mutch 2014: 6). One common way to define disasters is as either natural or human-induced (technological).

Natural disasters, which include events such as bushfires, hurricanes, floods and tornados, are defined as 'the consequences of events triggered by natural hazards that overwhelm local response capacity and seriously affect the social and economic development of a region' (Mutch 2014:6).

Human-induced or technological disasters, which include events such as oil spills, ground water poisoning and a mine collapse, are defined as:

> danger originating from technological or industrial accidents, dangerous procedures, infrastructure failures or certain human activities, which may cause loss of life or injury, property damage, social and economic disruption or environmental degradation' (The International Federation of Red Cross and Red Crescent Societies, as cited in *Hazelwood Mine Fire Inquiry* 2014: 386).

As technological disasters are the result of accidents or other forms of human failure and therefore 'invoke human culpability' (Cline *et al.* 2010: 2), there is a sense that they should or could have been averted. As Scott *et al.* state:

> Technological disasters differ from 'natural' disasters, such as tornadoes, because they represent a loss of control over processes perceived to be controllable. Perceived loss of control leads the public to lose trust in regulatory agencies, government, and officials because citizens regard such disasters as emanating from the failure of these actors and agencies to do the job entrusted to them (2012: 405).

3.3.1   Acute or prolonged disasters

An important aspect that defines and differentiates disasters is timing, both the speed of onset and the duration of the disaster. It is often timing that differentiates natural and

technological disasters. As noted in the *Hazelwood Mine Fire Inquiry Report,* 'time (the speed of onset and duration) often distinguishes technological disasters from natural ones. … Technological disasters are more often protracted or 'chronic' events, as distinct from the episodic nature of natural disasters' (Teague *et al.* 2014: 386).

Speed of onset refers to whether the event was a rapid-onset disaster 'for which a clear initiating "event" marks the start of the disaster' or a slowly emerging disaster 'whose ongoing process is "discovered" … often years or even decades into the disaster' (Cline *et al.* 2010: 2). An example of a slowly emerging disaster is the asbestos-related disaster in the Latrobe Valley that resulted from prolonged exposure to asbestos for workers in the power industry. Health effects from asbestos exposure can have a latency of 20 or more years before they become apparent. Duration is about the length of time of a disaster, for example the hours or days of a hurricane or bushfire, which is classified as short and has a 'relatively clear end point' compared to the weeks, months or even years of a 'slowly evolving disaster … [sometimes] with no clear end point in sight' (Cline *et al.* 2010: 2).

The impacts of disasters can include: immediate physical danger, income loss, economic and productivity losses, infrastructure damage, housing loss, health impacts including psychological trauma, loss of social connectedness, a loss of a sense of belonging and a decline in community wellbeing. A particular impact of prolonged or chronic disasters is that 'people can be left feeling "in limbo" when danger, risk and health effects are being considered' (*Hazelwood Mine Fire Inquiry* 2014: 386), not knowing when the danger is over or how the impact may manifest.

3.3.2   Classifying the Hazelwood mine fire

The Hazelwood mine fire can best be conceptualised as a human-induced or technological disaster (Teague *et al.* 2014, Jones *et al.* 2018). It is perhaps neither acute and short term, nor prolonged and protracted, but has elements of each of these factors. There was no widespread destruction of property (apart from at the mine site) but there was widespread and prolonged inundation of smoke and ash over Morwell and other neighbouring towns in the Latrobe Valley. The impacts were both immediate and potentially long-term in terms of physical health and individual and community wellbeing. The Hazelwood Mine Fire Inquiry concluded that the mine fire disaster led to 'long-term health and anxiety impacts for the local community' (Teague *et al.* 2014 quoting expert witness Lachlan Drummond: 385).

3.3.3   Studies on similar disasters and related health concerns

The Hazelwood mine fire is often referred to as an 'unprecedented' event due to 'the scale of the fire in a brown coal mine, the length of time that the fire burned and its proximity to the town' (EPA Victoria 2015: 1). Yet, there are instances of similar health impacts that, while not necessarily originating in mine fires, nonetheless are associated with ongoing pollution and exposure to $PM_{2.5}$. This includes the so-called 'Great Smog' that occurred for five days in London in December 1952, which formed because the smoke and fumes from coal stoves and local factories were not able to disperse due to weather conditions (Wilkins 1954). While official estimates at the time attributed 4,000 deaths to the Great Smog (Wilkins 1954), more recent research determined this pollution led to around 12,000 fatalities (Bell *et al.* 2004). This event was significant because it changed how we consider pollution; that rather than something to be accepted as part of contemporary life, the

effects of pollution needed to be addressed (Laskin 2006). Yet, this has not prevented similar pollution 'events' occurring, the most recent in Eastern China in 2013 (Zhang *et al.* 2014).

In addition to the health impacts on these communities, what we also find in these previous studies are the difficulties in getting governments to act on this type of environmental hazard to human health – an impact on community wellbeing that was raised in studies on the coal fire in Centralia, a small town in eastern Pennsylvania (Kroll-Smith & Couch 2009; Nolter & Vice 2004). In May 1962 members of the community decided to reduce the volume of the town's garbage in an abandoned strip-mining cut on the edge of the town by burning it, but the fire spread to coal tunnels beneath and continues to burn today. Due to the danger from asphyxiation by carbon monoxide gas (Kroll-Smith & Couch 1990) the mines were closed in August 1962. The ongoing fires and the danger they pose have destroyed both the physical structure of Centralia and displaced the community (Nolter & Vice 2003). This situation has prevented people progressing to recovery and imposed a seemingly permanent period of instability (Kroll-Smith & Couch 1990) – findings that resonate with those of the Psychological Impact Stream of the HHS who have examined the psychosocial impacts upon the residents of Morwell following the mine fire (Jones *et al.* 2018).

3.4   Managing communication during and after a disaster

Alongside actions such as firefighting or flood rescue efforts and provision of emergency relief centres, communication with the affected community is a key aspect of any disaster response. This section begins by defining communication, then examines benchmarks and core principles in crisis and disaster communication, as they are outlined in a review of academic literature (Seeger 2006), and influential policy guides (Australian Red Cross 2010; Skuse *et al.* 2014). Further insights are drawn from the disaster communication literature in relation to emerging paradigms of best practice.

3.4.1 Defining communication in the context of disaster management

Some models of communication see it as essentially a linear process of information exchange and dissemination, in which successful communication is achieved when the sender's message reaches the receiver/audience intact and is understood as intended (Schirato & Yell 2000; Fiske 2010), also known as a transmission model (Carey 2009). This is the dominant model in disaster communication; according to Perez-Lugo: 'the media transmit the official version of the situation, the audience passively receives it, and acts accordingly' (2004: 211). However, in disaster communication, as in many other contexts, it is crucial to consider how the community makes sense of the information and messaging from a range of sources, including emergency communicators, requiring an alternative model. This alternative model considers context and the social relations between those communicating as important factors in how communication is understood. It also recognises the role of communication in forming social relations (whether of connection or conflict) (Carey 2009; Schirato & Yell 2000).

In the context of the HMFI, Jim Macnamara[2] criticised authorities' emergency communications during the Hazelwood mine fire for adopting a model that presumed the

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[2] Jim Macnamara was commissioned by the HMFI to review communications during the crisis, and appeared as an expert witness at the HMFI hearings. He subsequently published an academic article which informs this review.

primary purpose was one-way transmission of information. Macnamara (2015:11-12) argues that a transmission model focused on distributing information has been thoroughly critiqued, for its failure to take into account the reception and interpretation of meaning. He further argues that the Emergency Management Manual Victoria (2014) defines communication in transmission terms, as 'the practice of sending, gathering, managing and evaluating information' (EMV, cited by Macnamara 2015: 11). Such a definition does not assist emergency managers to consider reception of messages, meanings inferred, and interpretation (key issues identified as problems by the HMFI).

Disaster communication encompasses at least three key stages:
1. Pre-crisis or Preparedness stage, which equips an organisation to deal with a crisis and reduces risk and impact when crises occur;
2. Crisis or Response stage, while the crisis is occurring, which requires communication in the form of initial warnings, notifications, instructions and follow-up communication during the course of a crisis;
3. Recovery stage, which involves the process of clean-up and rebuilding, physically, psychologically and socially.
                    (adapted from Macnamara 2015: 5).

In this report, because of the complexities of defining 'recovery' (see section 3.8 below), we will use the term 'post-disaster' when referring to the third of these disaster communication stages, acknowledging that the recovery process is complex, ongoing and there is frequently no clear beginning or end point. In addition, it is important to note that the pre-crisis or preparedness stage does not always precede stages 2 and 3. As Volume 2 of this report will discuss in greater detail, there was a lack of preparation and planning for this particular crisis. Planning therefore should be ongoing and part of a continuous cycle, as discussed in the next section on best practice.

3.4.2 Best practices in crisis/disaster communication

In a review of best practices in crisis communication, Seeger (2006) identifies ten actions and values that are regarded by experts in the field as constituting best practice:
1. Process approaches and policy development
2. Pre-event planning
3. Partnerships with the public
4. Listen to the public's concerns and understand the audience
5. Honesty, candour and openness
6. Collaborate and coordinate with credible sources
7. Meet the needs of the media and remain accessible
8. Communicate with compassion, concern and empathy
9. Accept ambiguity and uncertainty
10. Communicate messages of self-efficacy.

The practices described were drawn from a review of the research literature on public crises or disasters and verified by an expert crisis communication panel (2006: 235). Each is discussed in more detail below.

The first practice is to fully integrate communication strategies in broader disaster response planning and decision-making (Seeger 2006: 236). A process approach should be employed which addresses 'the entire range of strategies from pre- to post-event' (237). Secondly, pre-event planning should identify potential risks and also plan responses to those risks, and integrate communications strategy into those plans (237). Third, the literature supports accepting the public 'as a legitimate and equal partner' (238). This includes both sharing information with the public as well as listening to them and treating their concerns as legitimate. Importantly, withholding information in the (mistaken) belief that it may cause public panic is detrimental, as this decreases the likelihood that the public will respond appropriately (Tierney, cited in Seeger 2006: 238). An extension of this advice is the fourth practice, which is that emergency management organisations should develop credibility and trust through ongoing interaction with the public. If they fail to develop a trusting relationship prior to the crisis, they will have 'an exceptionally difficult time doing so after a crisis occurs' (239).

The fifth practice entails upholding values of honesty, candour and openness in all communications. If information about a crisis is not shared openly it risks reducing trust (240). This includes acknowledging uncertainty and ambiguity (the ninth practice in Seeger's list). As Seeger notes, 'waiting until all uncertainty is reduced is usually too late' (241). Public health literature and risk communication research also emphasise the importance of providing the public with 'messages of self-efficacy' in the form of information about how to reduce their harm (the tenth practice listed). For these messages to conform to the other standards (relating to honesty and trust) it is vital that the recommended actions 'should have both real and apparent utility in reducing harm' (242).

The remaining three practices are: collaborate and coordinate with credible sources; meet the needs of the media and remain accessible; and communicate with compassion, concern and empathy. Coordinating and collaborating is about establishing strategic partnerships before an event occurs, which may take the form of a pre-crisis network (practice number six). This also assists with coordinated and coherent communication across multiple agencies and stakeholders. One such stakeholder is the media. As the primary conduit to the public, the media play a key role and so crisis communicators should use the media as a strategic resource (practice number seven). Finally, communicating with compassion and empathy (practice number eight) is an essential skill for emergency spokespeople. Seeger argues that 'if the public sees an expression of genuine concern and empathy, it has more faith that the actions being undertaken or recommended are appropriate and legitimate' (241). These recommendations for best practice are summarised in Figure 1 below:

Figure 3.1: Best practices in risk and crisis communication (source: National Center for Food Protection and Defense, cited in Seeger 2006, 236).

The Australian Civil-Military Centre in partnership with the University of Adelaide released a resource guide for communication in complex emergencies in 2014 (Skuse *et al.* 2014). Although it has a clear international focus with respect to the case studies it employs, the guide also provides a summary of twelve principles for effective communication during acute emergencies and longer-term crises. These twelve steps form a cyclical process, as illustrated in Figure 2.2 (reproduced under Creative Commons licence BY-NC-SA 3.0).
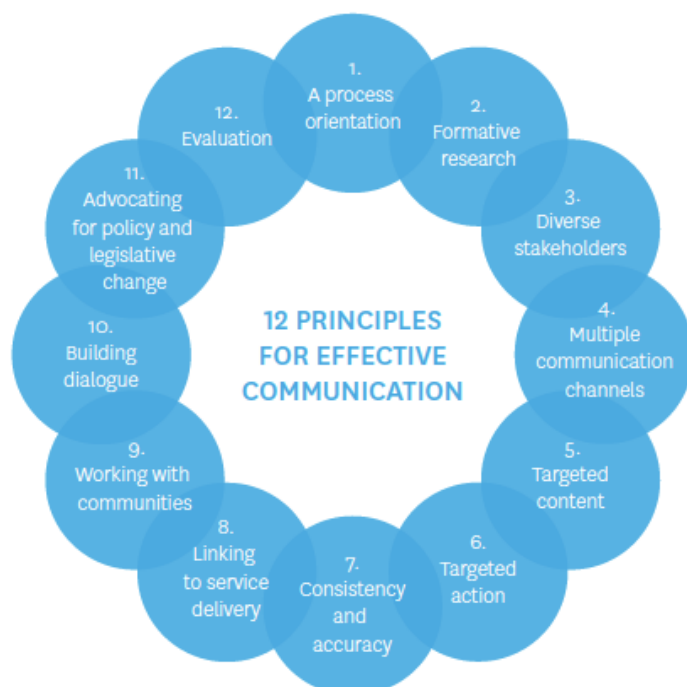

Figure 3.2: 12 Principles for Effective Communication in Complex Emergencies (Skuse *et al.*, 2014).

Skuse *et al.*'s (2014) principles support and extend the ten best practices summarised above. Key points elaborated on in their model include:

- Communications need to be based on a rigorous risk assessment process, which does not make assumptions about what vulnerable groups need to know or how best to communicate with them;

- When it comes to communicating with different stakeholders, the policy (with reference to the Australian Red Cross) recommends the use of multiple communication channels from interpersonal, participatory, print material, radio, television, film and video, internet-based, and mobile-based;

- The policy recognises the need for information designed to protect but also information that relates to the psychological impacts of disaster or conflict, the needs of specific vulnerable groups, child protection, human rights, and service delivery;

- The principle of consistency and accuracy needs to be upheld to ensure that messages do not contradict one another and have credibility;

- The need to work with communities to build effective dialogue through a range of strategies (such as community meetings, working with community leaders, mobilising communities through events and performances, and encouraging forms of participatory evaluation);

- In building dialogue, bringing diverse groups of people together has the potential to produce conflict. Effective dialogue needs to reflect multiple voices and the right to a different opinion.

- Communication should be continuously evaluated in order to identify miscommunications and correct errors, to re-design communication and messages as a crisis unfolds, to understand the impact of communications on knowledge, attitudes, practices, and behaviours, and provide content that will enhance the effectiveness of community stakeholders.

3.4.3   Best practices for communicating in recovery

Focusing on the post-disaster period, the Red Cross have published a guide to communicating in recovery which focuses on a community's longer term needs, including the 'restoration of emotional, social, economic and physical wellbeing' (Australian Red Cross 2010: 12). The guide outlines nine principles for recovery communications:

1. Public information, not public relations.
2. Respect people.
3. Build on local assets – Asset Based Community Development (ABCD).
4. The right to know.
5. Acknowledge the impact.
6. Ask the community how they want to receive information.
7. Remember the unaffected.
8. Repeat information.
9. No spin (Australian Red Cross 2010: 18-19).

The first principle emphasises that public information should supplant public relations. Whereas the role of public relations is to promote the interests of an organisation, the role of public information is to provide information to relevant members of the public in order to assist them. The second principle is respect people; this involves not only seeing their vulnerability but also their potential to communicate, to act rationally, and make decisions for themselves. Third, the Red Cross advocates an asset-based community development approach (ABCD) to build on local assets. This approach involves identifying and strengthening existing resources and utilising these wherever possible. Likewise, Skuse *et al.* (2014) suggest that longer-term communication is about strengthening civic responsibility and creating inter-group dialogue. Fourth is the right to know and treating the community with the same status as services and organisations. Fifth is to acknowledge the impact that disasters have on people emotionally and psychologically and the need to validate those experiences. The sixth and seventh principles relate to the communication of messages by recommending that services and organisations ask the community how they want to receive information and repeat information. They argue that a system of community consultation is required to ensure this. The eighth principle is to remember the 'unaffected' by appreciating that people do not have to suffer physical losses to be impacted by disaster. The ninth and final principle is no spin. Communication that contains political rhetoric, branding, or other forms of co-opting the message is counter-productive and damages the reputation of the information provider.

One area which is under-emphasised in the above sets of principles, except for the Red Cross guide, is the need to factor in the psychological and emotional impacts of a disaster on communities. This is picked up in the work of Anne Eyre (2006, 2008), who has reviewed best practice in emergencies from a humanitarian response perspective. Eyre argues that addressing people's social and psychological needs is just as important as providing information, but the importance of this is often underestimated by government agencies in responding to a disaster (2006). Disasters, for Eyre, are primarily about people – managing and supporting them – and to do so effectively it is important not to stereotype victims as a homogeneous group. The implications of this are that communication methods should be tailored to the demographic and socioeconomic vulnerabilities of specific groups (Australian Red Cross 2010; Belblidia 2010).

Finally, another emerging aspect of best practice, is that of socially distributed rather than 'command and control' communications. An extension of the collaborative, partnership-based approach recommended above (Seeger 2006; Skuse *et al.* 2014; Australian Red Cross 2010). Dufty (2012: n.p.) argues for the need to shift from being the 'combat agency' telling others what to do, to a model of community engagement, coordination and knowledge sharing. In this model, socially distributed rather than top-down or 'command and control' communications are recommended. Publicly available computer-mediated communication systems (community websites, blogs, Twitter, social networking sites, mapping sites) could be integrated into official systems to empower citizens to share and access information in order to make the best decisions for local conditions (Bourk & Holland 2014; Palen & Liu 2007).

In summary, current literature regarding best practice in major emergencies emphasises the need for timely, accurate, honest and empathetic communication, coordination between agencies, a community partnership approach, the use of multiple channels, and socially

distributed communication. Communication should also address social and psychological needs and not merely focus on the provision of information. There is wide agreement on best practice principles, however their application will necessarily vary according to localised conditions and needs to be adapted to the specific context.

3.4.4   Role of media during and after disasters

The role of media in disasters is complex and multi-faceted. According to Dominick (1996), the media have several main functions, including providing information, creating community and providing emotional support and companionship. The importance of each of these functions in the context of a disaster can shift depending on the perspective (emergency management organisation, affected community, or general public), and the disaster phase (Perez-Lugo 2004).

The media plays a role in providing information to enable communities and emergency authorities to better prepare for an emergency, to accurately assess risk, and to make sound decisions regarding the emergency response and recovery (Perez-Lugo 2004; Miles & Morse 2007). Perez-Lugo notes that disaster research has tended to focus predominantly on this role of information provision to the public, however this does not take account of the varying needs and uses of the media by those directly experiencing the impact of a disaster, including the need for social connection and support (Perez-Lugo 2004).

Any account of how media are used during and after a disaster or crisis needs to consider differences between local and state or national media. In their study of local, state and national media use during a bushfire, Cohen, Hughes and White (2007) found that local knowledge was very important for communities: 'the closer the media source is to the particular community, the more trustworthy and credible it is perceived to be' and 'local knowledge is assumed to be one of the main advantages that local media have over the state based media' (Cohen *et al.* 2007: 93). Local media were viewed as better placed than state-based media to provide accurate and relevant information before, during and after the disaster. In addition, media reporting was seen as having an important role during recovery, in helping communities to manage and promote positive messages, which in turn can assist with economic recovery (Cohen *et al.* 2007: 95).

As noted above, during and after a crisis the media's role is not limited to information dissemination, but media also provide a sense of social connection, across different audiences and spaces. Miles and Morse point out that in the case of disasters, at the social level, 'mass media functions as a "social glue" by disseminating common information … across geographic boundaries' (Miles & Morse 2007: 366). Perez-Lugo adds that 'the need for emotional support can be even greater in situations like disasters in which people experience intensive crises and disruption of their daily lives' (2004: 213).

Again, it is important to differentiate the way this functions at a local level versus a state or national level. Local media provide relatively direct opportunities for community members to tell their stories and have their experiences represented, whether on local television, in the local newspaper, or through participation on local talkback radio. Local media are also well placed to take advantage of content generated by the community, supporting 'the increasingly active role of audiences in generating and supplying news content' (North & Dearman 2010: 81). On the other hand, wider news coverage of a disaster has an important

function in mobilising state and national level support and empathy, and political action (Yell 2012).

3.4.5 Role of social media during and after disasters

Social media increasingly plays a substantial role in disaster communications, both by emergency services organisations and within communities. 'It is widely accepted that social media – predominantly Twitter and Facebook – is now a critical channel for the distribution of emergency warnings and information, and that it represents a shift from more conventional means of communication' (EMV 2014: 47). Internationally, most emergency agencies now use a combination of social and traditional media to disseminate key messages (Dufty 2014: 5).

In Australia, social media such as Facebook and Twitter emerged as significant methods of disseminating information during the 2011 floods in Queensland (EMV 2014; Bird *et al.* 2012). Social media's advantages include timely information exchange and promotion of connectedness (Taylor *et al.* 2012), qualities which are particularly important to their users during a crisis. According to Anikeeva *et al*. (2015: 23-24), Twitter is most useful for the dissemination of frequent and timely updates, whereas Facebook enables users to connect and share their experiences throughout different phases of a disaster. A considerable body of literature now exists on the use of social media in disasters, including disaster management. With the brevity of messages and use of searchable hashtags on Twitter, it presents a more accessible research option, meaning there has been greater analysis of Twitter use by citizens experiencing disasters than other forms of social media (Reuter & Speilhofer 2017; Simon *et al.* 2015).

However, there has been research carried out on the use of Facebook during disasters. Kulumeka (2014) conducted a study comparing the use of Facebook during the Hazelwood mine fire with the use of Chinese social media platform Tianyua during the 2008 Sichuan earthquake. He found that in both cases, these sites were used by those affected to share or seek information, support each other, express emotion, try to make sense of events, and organise action.

Social media, through its association with 'unofficial' user-generated content, is perceived as having greater potential to spread misinformation (Mehta *et al.* 2017; Murthy and Gross 2017; Dufty 2016; Anikeeva *et al.* 2015). With this potential in mind, public officials tend to view peer-to-peer communications with mistrust, as 'backchannels' (Keim & Noji 2010: 47). This suspicion may be attributed to the open nature of social media. In direct contrast to the traditionally top-down approach characterising information dissemination by authorities, communication via social media is multilevel and multidirectional (Jurgens & Helsloot 2018). Social media enable 'information to be shared not only from the top down, but also from user to user and from the ground up to emergency officials' (Belblidia 2010: 25). Whilst this may be challenging to authorities, there are mitigating factors reducing the potential spread of misinformation. Bird *et al.* argue that social media actually afford official agencies the opportunity to 'tap into and review information communication networks… and "mythbust" conflicting and inaccurate information' (2012: 32). In addition, Bird *et al.* (2012) found that members of social media groups will often correct any inaccurate posts, regulating the information made available.

Information shared via social media can challenge and, in some cases, contradict official sources, but it also can also draw the attention of users to messages disseminated by authorities, as well as coverage by traditional media, for example by retweeting and linking to information provided by emergency services (Bruns *et al.* 2012). From a practical perspective, social media can provide users with a means of accessing information when it is not available through more traditional channels (Jurgens & Helsloot 2018; Neubaum *et al.* 2014).

Activity on social media sites can also provide authorities with information regarding public reactions to a disaster and how that disaster is being managed (For-mukwai 2010: 5). The HMFI Report made the point that 'social media can be a very effective tool for hearing and reading what the community are saying and how they are responding, in turn enabling interventions to acknowledge and correct rumour and innuendo' (2014: 400). Embracing the open nature of social media is requiring official agencies to transition from a top-down approach to communication built on engaging and sharing knowledge with communities (Dufty 2012).

Social media can fulfil an important role in enabling users to share their own stories when they do not feel heard by authorities or see their experiences of a disaster reflected in reporting by traditional media (Tandoc & Takahshi 2017; Neubaum *et al.* 2014, Murthy & Gross 2017). Social media offers 'a means of communal expression and … a mode of self-therapy' (Murthy & Gross 2017: 368). Such emotional support is vital when, through disaster, people are in crisis and their lives disrupted (Perez-Lugo 2004).

Social media play a role in assisting communities to cope during a crisis and to recover after a crisis, in other words, in developing resilience (discussed in more detail in Section 3.7 below). Affected communities may gain resilience by 'replacing their helplessness with dignity, control as well as personal and collective responsibility' (Keim & Noji 2010: 47). Greater access to information through both formal and informal networks on social media increases the flow of information, reducing vulnerability to disasters by strengthening community connections (Belblinia 2010). Social media can provide a means for empowering communities to help themselves 'through provision of accurate, timely and relevant information and a mechanism to connect with others' (Taylor *et al*. 2012: 26).

3.4.6   Disaster communication and trust

The literature on disaster communications emphasises the influence of trust on how the community regards and responds to information provided by authorities during a crisis. Grannat (2004) argues that creating and sustaining trust between official organisations, the news media and the public is crucial for developing effective partnerships. Indeed, the level of trust a community holds for an information source is a greater influence on their behaviour than the content of the communication itself (Paton 2007). Evidence suggests that people trust those they know, and that emergency and other disaster communication should be issued by as local a source as possible (Cohen *et al.* 2007; Walker *et al.* 2017). While communities expect emergency communications to come from the appropriate authorities (such as health organisations and government departments), the authority of the information is undermined, along with trust in the organisation, if the information received is contradictory (Hagan *et al.* 2008). Trust in authorities is built over the long term (Hagan *et al.* 2008) and easily damaged. The HMFI noted the importance of displaying

empathy in communicating with communities during a crisis. The authors of the report argued that communities want to feel heard and understood, and that bureaucratic, generic and cold communications are less likely to be trusted (Teague *et al.* 2014).

In order to establish their position as authoritative voices and gain the trust of community members, agencies and organisations charged with the responsibility of disseminating information to a community experiencing a disaster must be visible to that community. It is expected that authorities in positions of leadership will be accessible and facilitate information flow (Littlefield & Quenette 2007: 30). They must provide clear guidance in situations where community members are at risk and require information to plan, make decisions and act. Feedback gathered by Victoria's Virtual Operations Support Team (VOST) – made up of social media in emergency management (SMEM) operators who collect and post information about emergencies during disasters – supports this. When VOST representatives attended one of the community meetings held in Morwell during the mine fire to canvass attendees on their information needs, the feedback was that the community wanted 'leadership and action' (Australian Emergency Management Knowledge Hub 2015: 6). How risk is communicated 'remains a critical component in how a community chooses to protect itself' (Belblidia 2010: 28). Hagan *et al.* (2008: 35) argue that in disaster situations where authorities are mistrusted, people will ignore or contravene official instructions, putting themselves at greater risk. Without clear guidance, community members cannot adequately protect themselves.

In the field of disaster communications, it is important to understand the community's perceptions of authorities, why they do or do not trust these organisations, and which information sources they do trust. If trust is lacking, authorities should acknowledge this and take appropriate action. Openness in risk communication, which is integral to building trust, relies on authorities admitting when they are uncertain or are experiencing difficulties (Grannat 2004; Seeger 2006; Skuse *et al*. 2014). Littlefield and Quenette (2007) recommend that any shortcomings in crisis responses by authorities be acknowledged via media. This requires not only that authorities be cognisant of the community's perceptions of crisis responses but that they value these perceptions and seek to maintain/regain trust through effective communication with the community, publicly acknowledging challenges.

As discussed above (see sections 3.4 and 3.5), trust in the credibility of information is also related to the communication channel. Concern about the reach of rumour and innuendo on social media has driven scepticism about the credibility of information posted on social media during disasters. For this reason, traditional forms of media are generally considered more credible than social media (Taylor *et al.* 2012), and local media are more trusted than state and national media (Cohen *et al.* 2007). However, social media are beginning to take on a more trusted role (Anikeeva 2015) as disaster agencies adopt a more 'distributed' rather than 'top-down' approach to information dissemination (Dufty 2012), and as social media members adopt a more critical approach to information regulation (Bird *et al.* 2012).

Rather than focus on social media as a potential threat to their ability to control disaster communications, organisations and agencies involved in disaster management can use social media to build their presence as trusted and responsive sources of information within communities. According to Bourk and Holland, in responding to the Christchurch earthquakes of 2011, authorities were initially concerned about the spread of information through unofficial channels, but came to recognise the value of a volunteer led group in

addressing 'perceived gaps in the existing information and communication environment' (2014: 38).

3.5   Defining resilience

The definition of resilience is the capacity of an individual or community to cope with stress, overcome adversity, or adapt positively to change (Carpenter *et al.* 2001; Hunt *et al.* 2011; Luthar *et al.* 2000; Macquire & Cartwright 2008; Rolfe 1999; Varghese *et al.* 2006; Walker & Salt 2006). However, resilience is more than simply recovering from a shock or crisis, or, in engineering terms, 'the ability of a system to return to an equilibrium or steady-state after a disturbance' (Davoudi 2012: 300). Communities are dynamic entities, encountering and responding to a range of changes. Ecology has offered the idea of 'the ability to adapt' to a new state of equilibrium as defining a resilient system (Davoudi 2012: 300). Such an evolutionary framing suggests resilience and adaptation is a continual process with 'the ability of complex socio-ecological systems to change, adapt, and crucially, transform in response to stresses and strains' recognising that 'we hardly ever return to where we were' (Davoudi 2012: 300). Nonetheless, the term resilience is used to encapsulate various meanings (Weichselgartner & Kelman 2015), and often associated with concepts such as vulnerability and adaptive capacity (Gallopin 2006), natural hazard reduction (Klein *et al.* 2003), politics and planning (Porter & Davoudi 2012), as well as policy and activism (MacKinnon & Derickson 2012).

In social systems, including socio-ecological systems, the idea of bouncing back or adapting to a new equilibrium is problematic. In science 'resilience' was originally defined in terms of a (closed) system's ability to return to an original state after a shock. Yet, in the social world, key criticisms are that this framework does not address issues of who gets to define and decide acceptable outcomes; it does not recognise that different groups will experience and benefit from outcomes differently; and that it lacks adequate consideration as to who has the power to decide who is included or excluded from a 'system' and how the boundary of that system is determined (Davoudi 2012).

What does need to be acknowledged is that socio-ecological systems are not only 'natural' but social and therefore socially constructed (and that even the idea of 'natural' and 'nature' are socially constructed). Social and ecological systems are intrinsically linked and interdependent (Davoudi 2012) and both will affect the resilience of human communities.

3.5.1   Factors that determine resilient communities

Recent research points to the significance of a number of factors important to the resilience of a community in facing crises and challenges. These factors incorporate a particular focus on a framework of assets in terms of 'capital' (Hunt *et al.* 2011: 113):

- human capital (the knowledge, skills, and health status of the population);
- social capital (relationships and social groupings within the community);
- produced capital (financial resources of the community and the equipment and infrastructure driving the local economy);
- natural capital (the state of the natural bio-physical environment);
- institutional capital (i.e., the public, private or not-for-profit organisations and institutions that can be drawn on as local capacity).

While there are complex factors inherent in what constitutes community resilience, nevertheless resilience thinking has become the central organising principle of emergency management planning, programs and policy (Duckworth 2015). For example, Emergency Management Victoria lists its vision for the sector as building safer and more resilient communities (Emergency Management Victoria [EMV] 2016). In this way, community resilience, disaster planning and response are changed and reframed. Bach *et al.* (2015: 311) explain the potential effects of a resilience-centred approach or framework:

> It brings people and organisations together that normally do not interact, especially from diverse sectors, and links them through a shared sense of interdependency. People and organisations which have not typically been involved in emergency and disaster policy and planning discussions are now 'at the table', and new thinking and activities are possible because of it … It stimulates new thinking by bringing different perspectives and participants to the discussion, opens up alternatives to well established government approaches to disasters, and encourages a shift of power, influence, leadership, and responsibility between government and other private and civic organisations and local residents and responsibility between government and other private and civic organisations and local residents.

These sorts of frameworks suggest that a decline or lack of one or more of these assets may reduce a community's capacity to be resilient (although increased resilience may also occur, Hunt *et al.* 2011). Therefore, resilience needs to be considered in terms of the capacity a community has to anticipate and plan for the future, taking into account how such plans can involve intentional and transformative actions to influence what sort of change takes place (Edwards & Wiseman 2010). A final point to make is that notions of resilience and recovery do intersect, and these intersections are discussed in the following section.

3.6   Defining recovery

Disaster recovery can be defined as 'the process of restoring, rebuilding, and reshaping the physical, social, economic, and natural environment through pre-event planning and post-event actions' (Smith & Wenger 2007: 237). This can be approached in broadly one of two ways (Gilbert 2010):

1. a process-oriented framework that has specific desirable outcomes, such as saving lives, preventing the destruction of property and the environment, maintaining the flow of valuable goods and services, and so on; or
2. outcome-oriented framework that focuses on such factors as the degree of recovery, time to recovery, or extent of damage avoided.

However, as Manyena (2006: 438) argues, care needs to be taken in any approach to recovery, because there can be a

> tendency to reinforce the traditional practice of disaster management, which takes a reactive stance. Disaster management interventions have a propensity to follow a paternalistic mode that can lead to the skewing of activities towards supply rather than demand.

This style of approach also risks entrenching exclusion because issues of inequality are not addressed (Manyena 2006). As Gilbert (2010) points out, Manyena's critique raises three important points:

1. by focusing on desired outcomes, communities tend to overlook important measures that would improve their ability to withstand and respond to disasters;
2. there are some process-oriented items that are valuable in their own right;
3. at what point is recovery achieved?

Thus recovery, like resilience, is not easily defined or determined. As Chang (2010: 303) points out, 'recovery is often cited as the least understood phase of the disaster cycle'. How recovery is defined is entangled within ideas and debates around the concept of resilience, and, indeed, disaster literature often uses these terms interchangeably. For example, many of the traits associated with resilience – including social support and participation, social capital, and levels of preparedness – are important in facilitating an effective recovery (Cretney 2014). In addition, recovery refers to both outcome *and* process at individual and community levels, thus recovery is about both 'a desired outcome and a process leading to a desired outcome' (Winkworth 2007: 49). Nonetheless, much of the literature refers to the immediate aftermath of a disaster event, and the need for recovery operations that address immediate needs and return a community to pre-disaster conditions as quickly as possible (Chang 2010). Thus, the focus is on reconstruction, restoration, rehabilitation and post-disaster redevelopment (Chang 2010). However, a number of researchers argue that the recovery process provides an opportunity to lessen community vulnerability and improve upon pre-disaster conditions (Birkmann *et al.* 2008; Mileti 1999; Wisner *et al.* 2004).

The work of Haas *et al.* (1977) has been important to devising a conceptual framework for understanding the stages of recovery. This framework defined disaster recovery as a four-stage and linear process encompassing emergency, restoration, replacement/ reconstruction, and betterment/ developmental reconstruction periods. More recent research challenges this supposedly orderly progression, arguing that recovery is

> an uncertain, conflict-laden process where outcomes are characterised by social disparities, strongly influenced by decision making, and conditioned on institutional capacities (Chang 2010: 305).

Thus, there is acknowledgement that recovery is complex, multidimensional and nonlinear, involving

> a process of interactions and decision making among a variety of groups and institutions, including households, organisations, businesses, the broader community and society (Milleti 1999: 240).

Further complicating processes of recovery is the lack of a clear endpoint. Recovery occurs over many years, and in a context that remains dynamic in nature (Chang 2010).

What also needs to be considered are the ways in which recovery is embedded within what Cretney (2017) calls a 'politicisation of disaster'. Cretney's work points out that recovery processes are 'intensely value laden, driven by questions of power, equity and prioritisation over what is rebuilt, by who and where' (2017: 1). This is important in determining how recovery is defined and what it will look like. A conservative approach that seeks to return to a pre-disaster set of conditions may be detrimental because this maintains latent vulnerabilities, particularly associated with social inequities and injustice (MacKinnon & Derickson 2012). While many studies on post-disaster recovery suggest that political, economic and social change is unlikely (Passerini 2000), others advocate for the 'potential

for radically progressive social change' made possible in the post-disaster period (Cretney 2017: 2).

3.7   Disasters, recovery and community resilience

Factors such as the severity of a disaster, the type of damage (that is, what and how extensive the damage is), the effectiveness of the response, whether it was a natural or human-technological disaster, will affect a community's recovery and the issues that are prioritised at points along the recovery process. The existing strengths, capacities and vulnerabilities within a community prior to the disaster will either exacerbate or ameliorate the impact of the disaster and the community's ability to recover. Within the literature on disasters there is a long list of factors that contribute to recovery and community disaster resilience, as outlined in Table 3.1.

Table 3.1 Summary of literature outlining key factors associated with resilience

Trust between communities, government agencies, authorities and other professionals	AEMI 2011; Bach *et al.* 2015; Grannat 2004; Hagan *et al.* 2008; Lindholm *et al.* 2015; Maguire & Hagan 2007; Norris *et al.* 2008; Paton *et al.* 2014; Scott *et al.* 2012; Seeger 2006; Sharpe *et al.* 2009
Leadership (including new and emerging) that locals trust, is responsive to their needs	Bach *et al.* 2015; Cohen *et al.* 2007; Maguire & Hagan 2007; McCrea *et al.* 2014; Mutch 2014; Nicholls 2012; Paton *et al.* 2014
Pre-existing sense of community and/or a post-disaster sense of community, including cultural heritage and cultural continuity	Jordan & Javernick-Will 2013; Norris *et al.* 2008; Thornley *et al.* 2015; Tierney & Oliver-Smith 2012
Dialogic communication focused on listening and responding rather than information transfer	Boon 2014; Burnside-Lawry & Akama 2013; Cline *et al.* 2010; Dufty 2012; Nicholls 2012; Seeger 2006; Sharpe *et al.* 2009; Thornley *et al.* 2015; Vallance 2011
The efficacy of the initial disaster response	Tierney & Oliver-Smith 2012
The adequate co-ordination of recovery activities with clear communication between agencies and community	Aldrich 2012; Aust. Red Cross 2010; Seeger 2006; Sharpe *et al.* 2009; Skuse *et al.* 2014
Community participation in decision-making; often facilitated by a community development approach and providing opportunities for informal and formal involvement in decision-making	AEMI 2011; Bach *et al.* 2015; Dufty 2012; Jordan & Javernick-Will 2014; McCrea *et al.* 2014; Mulligan & Nadarajah 2012; Mutch 2014; Norris *et al.* 2008; Aust. Red Cross 2010; Skuse *et al.* 2014; Taylor & Goodman 2015; Thornley *et al.* 2015
Strong social networks; strong social supports and degree of social cohesion within a community	Aldrich 2012; Aldrich & Meyer 2015; Cline *et al.* 2010; Jordan & Javernick-Will 2014; Maguire & Hagan 2007; Norris *et al.* 2008; Mutch 2014; Takazawa & Williams 2011
The wellbeing and resilience of individuals, including the emotional response to the event	Aldrich 2012; Citraningtyas *et al.* 2010; Eyre 2006 & 2008; Lindholm *et al.* 2015; Norris *et al.* 2008; Thornley *et al.* 2015
Degree of social connectedness, supported by providing for people to come together	Aldrich 2012; Chandra *et al.* 2012; Mutch 2014; Thornley *et al.* 2015
Pre-disaster strengths and vulnerabilities, including social, economic, political and historical contexts of the impacted	Belblidia 2010; Gibbs *et al.* 2015; Jordan & Javernick-Will 2014; Norris *et al.* 2008; Aust. Red

community and macro social, economic and political factors	Cross 2010; Thornley *et al.* 2015; Tierney & Oliver-Smith 2012
Good governance that includes transparency, responsiveness and flexibility	Bach *et al.* 2015; Thornley *et al.* 2015
Providing time and spaces for people to process and make 'sense' of the disaster	Chamlee-Wright & Storr 2011; Cline *et al.* 2010; Citraningtyas *et al.* 2010; Mutch & Gawith 2014; Norris *et al.* 2008
Financial resources and support that are perceived as adequate and fairly distributed	Jordan & Javernick-Will 2014; Mutch 2014; Smith & Birkland 2012; Thornley *et al.* 2015
Communication networks, including social media, community radio and newsletters	Bach *et al.* 2015; Chandra *et al.* 2010; Dufty 2012; Nicholls 2010; Aust. Red Cross 2010; Skuse *et al.* 2014; Thornley *et al.* 2015

Many of the impacts of a disaster are the reverse of the factors that build resilience, for example: a loss of trust, social connectedness and cohesion; damage to social support networks and capacities; a loss of a sense of control and self-determination; a sense of abandonment; an increase in conflict and fragmentation; and exacerbating existing disadvantage (Scott *et al.* 2012; Gangemi *et al.* 2003; Picou 2010; Thornley *et al.* 2015).

Some researchers argue that the most important factors for disaster resilience and recovery are social, more specifically, social capital or social capacities. For example, Aldrich (2012) states that social capital is 'the engine for recovery', while Aldrich and Meyer (2015: 254) emphasise that 'social, not physical, infrastructure drives resilience'. The following discussion provides more detail on those factors determined to be significant in community resilience and recovery from disaster.

3.7.1   Significance of community participation in decision-making for recovery

Participation by community members in decision-making about disaster preparation and recovery plans has been found to be crucial for effective recovery from a disaster, and a range of studies support this. Thornley *et al.* (2015: 29) in their study examining the impacts of the Canterbury (New Zealand) earthquakes in 2010 and 2011, found that community members wanted official agencies to have 'a greater understanding of, and links to, the communities they serve' and that disaster preparedness and planning needs to be 'developed in collaboration with community organisations' and characterised by 'transparency, good communication, partnership and respect for local knowledge, skills and priorities'. Paton *et al.* (2014: 256) found that the relationship between government and other agencies and the community 'can facilitate or marginalize community recovery'. Sharp *et al.* (2009) examined the implications of how the December 2006 and January 2007 bushfires in Victoria were successfully managed through relationships of trust between the community and disaster management agencies. They found that trust is a multi-dimensional and dynamic process that needs to be fostered through an on-going relationship rather than only at the time of a disaster event, explaining that

> familiarity with agency … strategies through participative planning 'before' [an event] may reassure community members that there are institutional assurances in place to protect public safety and minimise losses 'during' [an event] (Sharp *et al.* 2009: viii).

Sharp *et al.*'s study (2009) highlighted the importance of developing partnerships and a two-way relationship between the community and agencies. Importantly, inclusive and

meaningful opportunities for community participation in planning and preparation need to occur *before* a disaster event, and should include 'transparent implementation of policies and plans, which show how community consultation influenced planning outcomes' (Sharp *et al.* 2009: 42; see also Takazawa & Williams 2011). Such studies argue that professional help is least effective when professionals are perceived as 'outsiders' and works best when professionals are known within the community. Part of the reason for this is that locals become frustrated if they believe their knowledge and experience is ignored and under-valued. The result may be that recovery is 'needlessly protracted' and can even 'continue to harm the community and its people' (Takazawa & Williams 2011: 434).

Facilitating greater community participation in decision-making echoes a call by many for recovery to be more than a community-engaged process but a process led and defined by the communities themselves (AEMI 2011; Norris *et al.* 2008; Thornley *et al.* 2015). Such processes are important as participation in decision-making, planning and recovery responses 'not only empowers community members, but leads to more successful disaster recovery' (Thornley *et al.* 2015: 30). Participation also enhances people's wellbeing, their ability to contribute to the community, and is vital to fostering and strengthening community resilience (Thornley *et al.* 2015).

3.7.2 The dynamic nature of communities

Fundamental to disaster recovery is also the recognition that communities are not static but dynamic and changing entities, and part of this dynamism occurs in terms of community leadership during disasters. Paton *et al.* (2014: 261) concluded from their study of the 2009 Victorian bushfires and the 2011 Christchurch earthquake that the emergence of leaders from the community is a key predictor of resilience, noting that

> emergent leaders not only helped bring people together, they facilitated a coherent community response and linked the community with external agencies and specialists to secure the resources and help required to meet local needs … [linking the] community with government and other agencies to empower community recovery.

It is also important to acknowledge that the groups or agencies involved with disaster and recovery today may not be the most relevant groups in the future (Bach *et al.* 2015). Therefore, ensuring an ongoing involvement of community groups in planning, decision-making and partnerships with outside agencies is an integral part of the recovery process, will help build resilience and may minimise the impacts of future disasters. As Bach *et al.* (2015: 309) argue, community members must be partners with agencies and not clients, and warn that 'an overreliance on central authorities must end. Local community members must be more involved in and even lead local and regional resilience activities'.

What needs also to be noted is that *community* is defined within disaster literature as an 'entity that has geographic boundaries and shared fate' (Norris *et al.* 2008: 128). However, this definition serves to 'decontextualise a community from the broader socio-political contexts in which it comes into being' (Barrios 2014: 331). A community is a dynamic entity, shaped by processes within and beyond its geographical location. This, in turn, means that community resilience is the product of various relationships, processes, practices and governance that extend beyond the perceived boundaries of communities in space and time (Barrios 2014). This has important implications for community resilience and recovery.

3.7.3   The role of social networks, connectedness and support in recovery

A key factor in the formation of healthy and resilient communities is that of social capital. Social capital is about the relationships that connect between individuals and meaningful exchanges that form through blends of social and virtual ties. Disasters can negatively impact existing social networks, social connectedness and sense of community. Poor social connectedness, and a lack of social trust, personal agency and social resources exacerbate a community's capacity to recover; 'In short social capital is drained from impacted communities, and individuals become overwhelmed by the process'(Picou 2010: 5).

However, not all disaster impacts are negative, with many communities experiencing a surge in community connectedness in the aftermath of such events (Thornley *et al.* 2015). Cline *et al.* (2010: 3) found that greater sociality is characterised and facilitated through 'a shared identity among victims, a sympathetic stance toward those most affected, and a shared understanding of the disaster's effects and victims' needs'. Nonetheless, the strength of pre-existing and emerging social networks and the range of social supports available to community members will affect the success of recovery efforts and underpin community resilience (Cline *et al.* 2010; Takazawa & Williams 2011; Thornley *et al.* 2015).

The pre-existing communication networks that operate in the community – for example, Facebook, texting, newsletters – are important contributors to a sense of social connectedness both pre and post disaster (Thornley *et al.* 2015; see also Section 3.3.5 above). In order to understand the significance of the role played by social connection in community resilience and disaster response, the role of policy-related discourse in defining and conceptualising community is fundamental to determining how communities adequately respond to issues of social and ecological resilience, socio-cultural and environmental sustainability, community wellbeing, and disaster.

With these factors in mind, recovery from disasters has come to be synonymous with ideas of community resilience (Mutch 2014; Duckworth 2015). In such a framework, community resilience is more than the sum of individual responses to a trauma; rather, it arises out of the unique qualities or capacities of the community prior to the experience 'that allow a community to survive following a collective trauma' (Sherrieb *et al.* 2010: 228). Thus, these qualities or capacities are understood as fundamental to what make communities resilient, and are already present within that community – whether inherent or learned – prior to the experience (Norris *et al.* 2008).

3.7.4 Resilience within a disaster and emergency management context

In a disaster and emergency management context the idea of resilience is filtered through the frame of disaster and recovery from disaster. For example, a Victorian government publication defines resilience in the context of disaster as:

> the capacity of a group or organisation to withstand loss or damage or to recover from the impact of an emergency or disaster … the higher the resilience, the less likely damage may be, and the faster and more effective recovery is likely to be (Department of Human Services 2000, quoted as in Duckworth 2015: 90).

A recovery handbook developed by the AEMI (2011: 28) states: '[a] resilient community: predicts and anticipates disasters; absorbs, responds and recovers from the shock; improvises and innovates in response to disasters'. Thornley *et al.* (2015: 23) confirm this

trend and state that 'within the disaster recovery literature, resilience had been defined as the capacity of people, communities and societies to prevent, respond to and recover from the consequences of disaster'. Hence, in the disaster and emergency management context, resilience is about communities being disaster-prepared, able to respond during a disaster and engage in recovery processes post-disaster. Therefore, it is as much about building capacity before a disaster, risk mitigation and pre-disaster planning as it is about recovery (Duckworth 2015; Tierney & Oliver-Smith 2012).

Within this context, resilience is framed as a shared responsibility between government agencies, individuals and communities for emergency management, disaster preparation and emergency response. Community engagement and participation in decision-making becomes central as part of the shift from a government or emergency management agency focus to a shared individual and community responsibility (Duckworth 2015; Bach *et al.* 2015). Yet, shared responsibility is sometimes criticised as shifting the responsibility (and costs) from government to local communities (Duckworth 2015), and if the process is not properly resourced this may be the outcome or the perception.

3.7.5   The Australian experience

The National Strategy for Disaster Resilience (Council of Australian Governments 2011: 5) describes a disaster resilient community as one where:

> people understand the risks that may affect them and others in their community … people have taken steps to anticipate disasters and to protect themselves … people work together with local leaders using their knowledge and resources to prepare for and deal with disasters … people work in partnership with emergency services, their local authorities and other relevant organisations before, during and after emergencies … emergency management plans are resilience based, to build disaster resilience within communities over time.

Duckworth (2015) also sees the shift in power and participation in decision-making provided with a resilience framework – giving an opportunity for 'communities who needed to have their voice heard in emergency management' – and expanding emergency management perspectives from narrow technical knowledge to broader and alternative ideas as well as building connections with the communities they serve.

Emergency Management Victoria has developed a Community-based Emergency Management Strategy that is based on a collaborative planning and engagement approach with communities and is part of their 'all communities, all emergencies' framework: 'This approach places people at the centre of decision-making processes to support different types of communities' (EMV 2016).

3.8   Recovery: Making 'sense' of a disaster

Responses to disaster need to ensure safeguarding against vulnerability by employing processes that enhance social wellbeing and social connectedness (Adger *et al.* 2006). This, in turn, recognises grass-roots engagement and ownership of resilience and the community's capacity to respond or adapt. As John Field (2008: 3) points out, 'people's networks really do count… [these networks] are part of the wider set of relationships and norms that allow people to pursue their goals, and also serve to bind society together.'

Moreover, it is the quality of these relationships that are important. For while social capital is understood to confer resilience in communities (Cacioppo & Patrick 2008; Helliwell & Putnam 2004), its lack is one factor in increased vulnerability within communities (Kristie et al. 2006; Munasinghe 2007; Pine 2012).

3.8.1   Symbolic meanings and collective narratives

The impact of a disaster is found not just in material destruction or the health implications of exposure to toxic substances but in the meanings attributed to the disaster by people and communities. Yet, the importance of these meanings and interpretations to recovery and resilience has been underestimated (Cline *et al.* 2010). Understanding how a community reacts to and recovers from an experience such as the mine fire is shaped by the narratives it tells about that experience. Collective or communal narratives provide a 'shared meaning and purpose' and 'community recovery depends partly on collectively telling the story of the community's experience and response' (Norris *et al.* 2008:140). Finding ways to hear people's stories and of allowing them to tell and retell their stories is important for understanding how people and a community frame and understand the disaster, the potential impact of that framing for ongoing recovery, and of finding ways for people and communities to reframe and perhaps find new ways forward and new futures (Chamlee-Wright & Storr 2011; Mutch & Gawith 2014; Norris *et al.* 2008; Picou 2010).

How we think about recovery, resilience and community wellbeing will influence what we see as successful processes of recovery, what questions we ask and who we see as having the answers (Weichselgartner & Kelman 2015). Recovery and resilience are processes that evolve and are understood and enacted in variable and diverse ways by different groups within a community. Thus, recovery is a complex process of interdependent and inter-related factors that intertwine, unfold and evolve in different and varied ways 'that are not predictable and that do not seem readily amenable to a "rational planning" approach' (Tierney & Oliver-Smith 2012: 142). This means that there will be many versions of recovery and resilience.

4   Methods

4.1   Overview

There are many diverse methods that can be employed to gather data on community wellbeing. Because our aims relate to community perceptions of wellbeing and related factors (communication, the recovery effort) it was relevant to focus on subjective rather than objective indicators of community wellbeing, and in particular to gather 'individual stories, narratives or case studies, … group discussions which allow deliberation, possible consensus or points of disagreement… and local media, social media [which] shape and reflect local values' (Atkinson et al. 2017: 6). These are the forms of data collected for this program of research.

This report uses both qualitative and quantitative research methods to address its research aims. The findings in this report are based on:

- Findings presented in Wood *et al.*'s 2015 Report, *Coal Mine Fire Initial Impact on Community Health and Wellbeing Project* (referred to in this document as the Initial Impact Study);
- Seven focus group interviews with a total of 45 participants conducted in 2015, 2016 and 2017;
- Interviews with 40 key informants (including community stakeholders, media professionals and social media practitioners) in 2015, 2016 and 2017;
- 1,096 media reports/articles collected from Latrobe Valley and state-based media; and
- 1709 social media posts collected from three Latrobe Valley Facebook groups.

While not part of the funded HHS, the Initial Impact Study drew on 21 interviews conducted with key informants in 2014. These findings provided access to the stakeholders' responses to the immediate event and helped shape the approach taken by the Community Wellbeing Stream and so this earlier work has been incorporated into the current analysis.

Data collection for the Community Wellbeing Stream commenced in 2015. This report refers to the findings of data collected by this Stream between 2015-2017.

- Data collection commenced in 2015 (Year 1 of the HHS) with focus groups and key stakeholder interviews.
- Interviews with media and social media informants were held in the first half of 2016 (Year 2 of the HHS).
- Follow up interviews with key stakeholders were conducted again in 2017 (Year 3 of the HHS).
- PAR focus groups and interviews were held in late 2016 and 2017 (Years 2 and 3 of the HHS).
- Media and social media data collection commenced in 2014 as part of the methodology of the Initial Impact Study (Wood *et al.* 2015), and continued until September 2017 (Year 3 of the HHS).

4.2   Methods

Our three research aims in this program of work are to investigate community perceptions of:

1. The impact of the smoke event on community wellbeing;
2. The elements that are important for effective communication during and after a smoke event; and
3. The effectiveness of community rebuilding activities.

We adopted a mixed methods framework to address the above aims. The mixed methods approach included:

- Focus group discussions with community members (aims 1 and 3)

- Semi-structured interviews with community stakeholders (aims 1 and 3)

- Semi-structured interviews with media professionals and social media practitioners (aim 2)

- Collection of media reports and social media posts on the mine fire (aims 1, 2 and 3)

- Participatory action research, where the research team collaborated with community members on a project focused on recovery (aim 3)

- Additional archival and literature research, including the DHHS's (then Department of Health) submission provided to the HMFI detailing their communication with the community during the crisis[3] (aims 1, 2 and 3).

We also drew on data from a study (Wood *et al.* 2015) of the initial impact of the smoke event (funded by Federation University Australia). This study was carried out in 2014 by the researchers who went on to form the HHS Community Wellbeing study team.

The interviews, focus group discussions, media and social media posts were analysed qualitatively using thematic analysis to determine key themes (discussed in more detail in Section 4.5). Descriptive quantitative data was also gathered on the number of media reports and social media posts in the study period (detailed further in Section 4.5.2.2).

Qualitative interviews (both with individuals and in focus groups) are an important tool for collecting narrative evidence of the perceived impact of the Hazelwood mine fire smoke event on community wellbeing. Underpinning this component of the HHS is not only an acknowledgement of the diversity of human experience but more importantly that the qualitative approach adopted is embedded in ethical concerns for ensuring those who feel marginalised are able to contribute to discussions about the future of the Latrobe Valley. The use of semi-structured interviews – in which a set of key questions or themes are used to help guide the interview – further emphasises this by allowing participants to discuss what is important to them in the context of the mine fire's impacts (Brinkman 2014).

Participatory action research involves researchers and participants working together to examine a problematic situation or action to change it for the better (Kindon *et al.* 2007). This approach acknowledges research as a process of collaboration, whereby researchers

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[3] Department of Health (2014) Chronology of public health messaging: Hazelwood Mine Fire Inquiry Report.

and those being researched work together at all stages of the research project. The aim is to facilitate and enhance capacities already held within these communities. This methodology is time consuming, involving a process of meeting with participants to:

1. Introduce the project and discuss what is involved;
2. Identify the focus and significance of the proposed activity, and what data will be collected, e.g. interviews, photographs, ethnographic material and so on; and
3. Conduct the activity and collect the data.

This methodology was adopted to develop a community project related to our third research aim. Results of this work are reported in Volume 2 (Section 2.6).

4.3   Data sources

4.3.1   Initial Impact Study (Wood *et al.* 2015)

This study, conducted in 2014, interviewed key informants after the HMFI. Semi-structured interviews were conducted with people from the Morwell community, who were either residents or people working in Morwell in ways that contributed to the community. This choice focused on speaking with those people who could comment on the initial impact on health and wellbeing from the perspective either as residents or as people in professional or community roles. A purposive sampling strategy was used to ensure a reasonable range of viewpoints were obtained. Interviewees were drawn from health, education, social helping agencies and organisations, and community groups.

4.3.2   Focus groups with community members

Focus groups were targeted at members of the Morwell and surrounding communities. Moe and Traralgon were chosen as additional locations given their proximity to Morwell and the possible impact on communities outside Morwell.

To ensure optimal coverage of affected and vulnerable people in the community, focus group discussions were targeted at particular groups, based on the findings of Wood *et al.* (2015) and on advice sought from the HHS Community Advisory Committee (CAC).

The groups representing more vulnerable community members were approached through organisations or networks such as Morwell Neighbourhood House, Gippsland Carers Group, Gippsland Asbestos Related Diseases Support (GARDS) and Gippsland Multicultural Group.

We had initially sought to include Indigenous groups within the Latrobe Valley area, however, the Victorian Council of Social Services (VCOSS) had already undertaken a very similar study with members of this community (VCOSS 2015). This is a small community and we did not wish to overburden its members at this time. In addition, the VCOSS report seemed to reflect what we were already hearing in our interviews with members of the broader community.

The final number of focus group discussions were to be determined by data saturation, that is, when no new information or narratives arose from the focus groups.

4.3.3 Semi-structured interviews with key stakeholders

In addition to the focus groups with community members, semi-structured interviews with key stakeholders were also conducted. Key stakeholder interviews were drawn from health professionals, social agencies, aged care facilities, schools, and community groups. These interviews enabled the researchers to further explore community perceptions through these key informants who had wide contacts with community members during and after the smoke event. This source of data was particularly important given the recruitment challenges faced in the light of community research fatigue (see also section 4.4.2).

Potential interviewees included organisers, supporters and participants in community emergency and recovery activities, and all were over 18 years of age. Based on the previous study in 2014 (Wood *et al*. 2015), it was anticipated that 20 key informant interviews would be the likely maximum. Once again, the final number of interviews were determined by data saturation, that is, when no new information or narratives arose.

4.3.4   Media and social media interviews

Eligible subjects to be interviewed were (1) those individuals who were media professionals employed by local news media and who were involved in reporting on the Hazelwood event; (2) those who took on a significant role of disseminating information via the community-driven Facebook groups (identified in 4.3.6.2 below) during and immediately after the mine fire event. In total, 9 participants responded to the call for interviewees. Five journalists were interviewed from local print media and radio (Latrobe Valley Express, ABC Gippsland, TR-FM). Attempts were made to arrange interviews with journalists from the local television station WIN TV, however, these were unsuccessful.[4] Four interviews were completed with social media administrators from the three community-initiated Facebook groups included in the study (detailed in Section 4.3.6.2 below).

4.3.5 Participatory action research (PAR)

PAR involves researchers and participants working together to examine a problematic situation or action to change it for the better (Kindon et al. 2007). Thus, a PAR approach acknowledges that the interpretation and response to complex problems such as disasters are multi-layered, multi-levelled and multi-phased (Pyles & Svistova 2015). PAR is aimed at enabling those most directly affected to make positive changes (Boyle 2012). This methodology requires a significant amount of time to develop the relationships of trust between members of the groups and the research team, as well as ensuring that the projects reflect the concerns and direction participants want to take.

Our initial plan was to invite individuals from the community to participate in a PAR project. However, given the interview fatigue expressed by participants and poor recruitment in Year 1 (2015), we decided to move away from an open call to individual members of the community to participate, and instead establish more targeted discussions with specific community groups.

Our revised intent was to work with two to three community organisations and their members on a project to foster community recovery and wellbeing. The exact nature of the project was developed through partnership between the community participants and the researchers.

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[4] This was due to their busy work schedules, and also to staff turnover during the period after the mine fire.

In July 2016, intense work commenced with members of two community groups, i.e. MNH (three focus groups each with 8-11 participants) and the Morwell Rose Garden (three focus groups each with 20-25 participants). In 2016, we worked with the men's group at the Morwell Neighbourhood House and had some initial discussion with members of the Sudanese community and Mitchell House Aged Care Facility (discussion which was facilitated by the MNH). The Sudanese Community and Mitchell House did not continue with this project. We then invited the Morwell Rose Garden to participate in this project.

After working intensely with MNH and the Morwell Rose Garden Group, we refined the focus by asking participating communities to reflect upon what membership of that community means to the individual, and how this membership may (or may not) be important during events like the Hazelwood mine fire. This focus resonated strongly with our participating groups. Both of the groups we were working with (Morwell Neighbourhood House and the Morwell Rose Garden) told us they wanted to do something positive about Morwell, to counter the negative image. This fits very well with the literature on community wellbeing and resilience through fostering pride of place and place-making, particularly given the project was about the future vision of the community. What emerged from this conversation was the idea for a photographic exhibition, on the theme of 'Our hopes for the future of Morwell'.

Further PAR work was scheduled for 2017, with the goal of working with between 10-12 community groups in Morwell. However, coordinating this proved to be difficult for community groups. On the basis of feedback from the groups we were working with, we agreed we would change the way the exhibition would be created. Rather than basing it on the work of a few community groups, the exhibition was based on participation of up to 50 members of various community groups, who were each invited to think of some object that symbolised their hopes for the future of Morwell. Over 60 invitations to participate were sent to community organisations, groups and to previous interviewees. Positive responses were received from the following organisations:

- Morwell Swimming Club
- Rose Garden Walkers
- Voices of the Valley
- Latrobe Roller Derby Team
- Morwell Neighbourhood House
- Gippsland Centre Against Sexual Assault
- Life Education
- The Free Library and The Free Store
- Latrobe Valley Chess Club
- Gippsland Asbestos Related Diseases Support (GARDS)
- St Mary's Anglican Church, Morwell
- Morwell Junior Fire Brigade
- Girl Guides Morwell
- Environment Protection Authority
- Morwell Rose Garden Group
- St Luke's Opportunity Shop
- Latrobe Valley Express

- United Muslim Sisters of Latrobe Valley

Members of these groups were then invited to attend a photographic session kindly hosted by the MNH. Each individual held their chosen object while it was photographed.

Out of this process, 28 photographs with their captions were produced, enlarged and framed for exhibiting. The photographs were taken by Clive Hutchison of the Gippsland Centre for Art and Design at Federation University.

To supplement this engagement for the exhibition we decided to conduct several focus groups to add some depth to our understanding of organisation's hopes for the future of Morwell. Including the original two groups, five community organisations participated in focus groups:

- Morwell Neighbourhood House
- Morwell Rose Garden
- Latrobe Women's Roller Derby
- Morwell Junior Fire Brigade
- Muslim Sisters of Latrobe Valley.

The outcome of this PAR project was the photographic exhibition, *Our Hopes for the Future of Morwell*, exhibited in 2017 at the Switchback Gallery (Federation University, Churchill), and in 2018 at the Victorian State Parliament, Melbourne and the Mid Valley Shopping Centre, Morwell, and in the Ballarat International Foto Biennale in 2019. Analysis of this component is presented in Volume 2 (Section 2.6).

4.3.6 Media and archival research

4.3.6.1 Media

The local media included in the study were the Latrobe Valley Express, WIN TV (Gippsland), and ABC Gippsland. Media stories were collected from all these sources.

The Latrobe Valley Express (http://www.latrobevalleyexpress.com.au/) is a Morwell-based newspaper owned by Fairfax which covers the Latrobe Valley and publishes twice a week. It is available free, with a monthly readership of 65,000 (Fairfax Media ACM AdCentre 2018).

ABC Gippsland (http://www.abc.net.au/gippsland/) is part of the ABC Regional radio network, and is based at Sale. There had been an office in Morwell which was in operation during the smoke event, but it closed in 2015.[5] ABC Gippsland has a local news team as well as taking content from the ABC network. It also maintains a strong online presence.

WIN TV (Gippsland) provides local as well as state-based news, and has a local news team. At the time of the mine fire, it was affiliated with Channel Nine. However, in July 2016 it switched to affiliation with Channel Ten.[6]

Nine programming moved from WIN to Southern Cross, which broadcasts in the region as Channel Nine Gippsland.

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[5] http://www.latrobevalleyexpress.com.au/story/3131479/end-of-an-era-for-abc/
[6] https://tvtonight.com.au/2016/06/nine-southern-cross-ten-win-affiliate-changes.html

Data on the number of news items about the mine fire was also collected from metropolitan (state-wide) news media.

4.3.6.2 Social media

In studying social media use during the mine fire, we chose to focus on Facebook rather than Twitter or other types of social media. The main reason for this is because Facebook is the most popular social media platform in Australia (We are social 2016). Also, our study was interested in how the community perceived the smoke event, and how they responded. Facebook is used by community members to interact with each other, while Twitter is not strongly linked to specific communities, and is often used by those from other locations outside the community to talk about the event. In essence, while Twitter is used to talk about others, Facebook is used by people to talk among themselves and to share their experiences (Anikeeva 2015).

The three Facebook groups chosen for the study – The Air that We Breathe (TATWB), Occupy Latrobe (OL), and Voices of the Valley (VOTV) – were the most active and popular community-initiated Facebook groups during the Hazelwood mine fire. They were selected because they were active during the mine fire event, were focused on the mine fire, and were used by members to discuss and react to the mine fire. They don't necessarily represent the views of the entire population of the Latrobe Valley, but they do provide a useful case study to show how social media can be used during a crisis.

TATWB Facebook page was started by a Morwell resident and former *Big Brother* contestant with the specific purpose of generating discussion and media interest regarding the impact of the mine fire on the Latrobe Valley community. It was active from Day 10 of the fire. The 'About' page reads: 'A page to create awareness & action for the people of Latrobe Valley suffering from very poor air quality due to the Hazelwood Mine Fire'. It grew from 100 followers to 3,500 within a week of its creation, and in mid-2017 had more than 3,000 members. Activity on this page decreased significantly after the 45 day fire period.

The OL Facebook page was started by an anonymous Latrobe Valley resident as part of the Occupy Movement, and was not originally mine fire specific, but became a site of activity for residents wanting to communicate during the mine fire period. It was active from Day 12 of the fire, and the number of followers grew to about 5,000 during the fire. The page has now been renamed Latrobe Valley Evolution and focuses more on issues of post-fire transition for the Latrobe Valley. In mid-2017 it had over 12,000 followers.

The VOTV Facebook page was formed on 8 March 2014 out of the Disaster in the Latrobe Valley Facebook group (formed to organise the rally event held on 2 March to raise awareness about the impact of the mine fire). The VOTV Facebook page was active from Day 28 of the fire and is ongoing. It is a closed group (individuals must apply to the page's owners to become members) and had a membership of over 1,500 as of mid-2017. It played an important role in collecting and collating information, surveys and data on death rates in the Latrobe Valley during and after the fire, to contribute to the Hazelwood Mine Fire Inquiries, and continues to advocate for initiatives to improve the health, and social and economic wellbeing, of the community after the smoke event.

4.3.6.3 Archival research

To obtain data on the official communication during the HMFI, we drew on archival material including previously published reports and submissions, including the Department of Health's submission to the HMFI (Chronology of public health messaging, 2014), the HMFI Report (2015), and the Policy Review (Walker *et al.* 2017) published by the HHS Older Persons research stream, which contained a substantial analysis of official communication during the HMFI.

4.4   Data collection

4.4.1   Community focus group discussions

Focus group discussion is an important method when seeking a range of perspectives on a given issue. Its interactive approach whereby a moderator asks questions that stimulate discussion, is important in that it can generate rich data in a relatively short period of time (Henninck 2014). The format encourages participants to share their views, hear other views which may in turn lead to a refining of ideas, and thus can generate 'new collective understandings of one another's contributions' (Ross & Berkes 2014: 789; Minichiello *et al.* 1995). In addition, the process may lead to the disclosure of additional issues and perceptions, thus adding clarity, depth and detail to the discussion (Morgan 1996).

Based on Wood *et al.*'s (2015) study, a maximum of six focus group discussions were anticipated, with between 6-8 participants in each group. All participants would be aged over 18 years.

Discussion prompts for the focus groups were:

- From your perspective can you tell us the most significant aspect of the Hazelwood mine fire event?
- What impact did this have on community wellbeing?
- What has been the most significant change for community wellbeing since the fire?
- What would be the most effective way of communicating to and with the community during such an event?

Recruitment for the focus group discussion was through community notices and networks, e.g. CAC and information on the Hazelwood Health Study website. Participants in the previous Initial Impact Study (Wood *et al.* 2015) study were also contacted to enable them the opportunity to continue their previous engagement by contributing to the HHS through participation in a focus group discussion.

4.4.2   Focus group recruitment challenges

It is not possible to nominate a set sample size for qualitative work. Instead, the work continues until the point of data saturation is reached, i.e. the point at which no further new information is forthcoming. Initially three focus groups were scheduled, one each in Morwell, Traralgon and Moe. Although advertised through a variety of means, these did not attract the numbers we anticipated (see Table 4.1).

The poor recruitment for the focus group discussions was due to a number of things. The focus group for Traralgon was scheduled on a day that unfortunately had very bad weather

and included an electricity outage shortly before the meeting was to commence, which accounts for the lack of participants. In addition, many of those interviewed, or approached, expressed some fatigue in retelling their experiences and perceptions of the mine fire smoke event. From the analysis of the interview and focus group material that was collected, as well as the 19 stakeholder interviews conducted for the Initial Impact Study (Wood *et al.* 2015), we decided that we had reached saturation in obtaining community narratives about the initial experiences of the smoke event.

Table 4.1 Summary interviews and focus groups (2015-2017)

	Year 1 (2015)		Year 2 (2016)		Year 3 (2017)	
	Planned	**Actual**	**Planned**	**Actual**	**Planned**	**Actual**
Community focus group, discussion about initial perceptions of the impact of the mine fire on the community	Maximum of 6 focus group, with 6-9 participants in each focus group	• Moe (2 participants) •Traralgon (no participants) • Morwell (9 participants)	N/A	N/A	N/A	N/A
Interviews with key stakeholders about impact on the community	Up to 20 key informants	15 key informants	N/A	N/A	Up to 8 interviews	4 interviews with 5 participants
Interviews with news and social media practitioners about impact on the community and effectiveness of communication	N/A	N/A	8 - 10 interviews	4 local journalists / media professionals 4 social media practitioners	N/A	1 local journalist
Interviews with key stakeholders about community perception of recovery activities	N/A	N/A	Between 8 – 10 interviews	8 interviews with 11 community stakeholders (i.e. three interviews conducted with two people simultaneously)		
Participatory action research focus groups	N/A	N/A	10-12 different community groups, comprised of at least 10 individuals	2 community groups completed • Morwell Neighbourhood House: 3 focus group meetings with 10 participants • Morwell Rose Garden: 3 focus group meetings with 11 participants	6-8 planned for 2017	3 community groups completed: • Latrobe Women's Roller Derby (4 participants) • Morwell Junior Fire Brigade (6 participants) • Muslim Sisters of Latrobe Valley (3 participants)

4.4.3   Key stakeholder interviews

Semi-structured interviews were used to gather data from key stakeholders regarding the impact of the smoke event on the community, and the effectiveness of rebuilding efforts. This type of interview facilitates a systematic gathering of information about certain issues, but also allows exploration of new or related issues that may emerge over the course of the interview (Chauncey 2014). This approach was deemed most appropriate for obtaining information from individuals who were involved in the smoke event in a professional capacity, particularly in supporting the community during and following the event.

Interview questions included:

- From your perspective can you tell us about the community recovery activity you are or have been involved with?
- What prompted the activity or what need was this activity responding too?
- How was the activity implemented?
- What was your involvement in the activity?
- From your perspective how effective was the activity?
- What else needs to be done?
- What could or should be done in responding to possible future emergencies?

Fifteen stakeholder interviews were conducted in 2015. Many of those interviewed, or approached, expressed fatigue in retelling their experiences and perceptions of the mine fire. From an analysis of this material, as well as the 21 stakeholder interviews conducted in the Initial Impact Study (Wood *et al.* 2015), we decided that we had reached saturation in obtaining stakeholder narratives about the initial experiences of the smoke event.

In 2016 further interviews were conducted with key informants recruited from organisers, supporters and participants in community recovery activities, with a specific focus on the recovery and rebuilding efforts. Understanding and accepting that these interviews and were conducted prior to some significant recovery milestones, and given the rapidly changing social and political environment in which this Study was undertaken, supplementary interviews were conducted in 2017 that targeted particular recovery initiatives and the work of several community organisations and government bodies, including Morwell Neighbourhood House, Voices of the Valley, EPA and VicHealth. The analysis of these interviews is undertaken in Volume 2 (Sections 2.3, 2.4, 2.5).

4.4.4   Interviews with media professionals and social media practitioners

Semi-structured interviews of up to one hour were conducted with the 9 interviewees (5 media professionals and 4 administrators of the Facebook pages). Interviews focused on their experiences during the mine fire and on their experiences during the recovery period after the fire. Both categories of participants were asked:

- From your perspective can you tell us about the media coverage or social media commentary on the Hazelwood mine fire smoke event you are or have been involved with?
- How do you see your organisation's/ group's role in covering the smoke event?

- What do you see as the contribution of your organisation/group to community rebuilding after the event?
- From your perspective, what is the most significant change you have noticed because of this activity?
- What is your assessment of the effectiveness of communicating key information about the smoke event to the community during and after the crisis?
- What would be the most effective way/s of communicating to and with the community during and after the crisis?

In addition, media professionals were asked:
- What do you see as the role of local media during an event like the Hazelwood mine fire? After an event like this?

Additional questions for social media administrators were:
- Can you tell us how your social media page came to be set up?
- What do you see as the role of social media during an event like the Hazelwood mine fire? After an event like this?

4.4.5   Media and archival research

In addition to interviews and focus group discussions, we drew on news media, social media, and reports released by government and other agencies. This material assisted us in gaining a fuller overview of community perceptions of impact of the mine fire event and effectiveness of recovery activities.

News items and social media posts were collected in two distinct phases – during the crisis and post-crisis. Phase 1 of data collection was from 9 February 2014 until 25 March 2014 (during the crisis), and phase 2 was from 26 March 2014 until 30 September 2017 (covering the post-fire period up until Year 3 of the HHS).

To capture the media attention to the crisis across all media, a database was set up recording the number of media articles and social media posts across both periods.

Table 4.2: Combined media and social media

Collection phase	Media	Social media	Totals
Phase 1: During the smoke event (9/2/2014 to 25/03/2014)	360	802	**1162**
Phase 2: After the smoke event (26/03/2014-30/9/2017)	736	907	**1643**
Totals	*1094*	*1709*	***2805***

Full text news articles reporting on the Hazelwood mine fire were collected for:
- ABC (state TV news and current affairs),
- ABC Gippsland (regional radio and online news),
- Latrobe Valley Express,
- The Herald Sun,
- The Age,

- WIN TV/ Nine Gippsland,
- 9news (state).

News items were collected from online databases (Factiva, Informit), from the ABC's RSS service (web feed). Full data for the Latrobe Valley Express was not available through online databases so it was complemented by manual data collection from hard copies of the newspapers held in the Morwell library. There is currently no comprehensive database that collects regional television news stories. News stories were collected from the YouTube channel Touched by the Morwell fire[7] and cross-referenced with the DHHS's media file collection service.

Table 4.3 Media data collection by media outlet

Media by outlet **Collection phase**	Latrobe Valley Express	Herald Sun	The Age	ABC State	ABC Gippsland	WIN TV	9news	Totals
Phase 1: During the smoke event (9/2/2014 to 25/03/2014)	142	26	37	28	93	22	12	***360***
Phase 2: After the smoke event (26/03/2014-30/9/2017)	315	39	62	35	122	148	15	***736***

For the period when the mine fire was active (Phase 1), relevant posts and corresponding comments made on all three selected Facebook sites were collected for thematic analysis. Relevant comments were collected to give insight into the key concerns expressed by community members who shared information and participated in conversations in their responses to posts. All posts were captured as screen shots and saved in PDF format. Individual posts were saved by date and allocated a number, as full text records for qualitative analysis.

In the period after the mine fire (Phase 2), the social media data collection was more limited as some local social media groups lost interest or turned their attention to other issues. Data collection continued from VOTV Facebook until the end of the data collection (in September 2017), which maintained a strong presence, whereas the OL Facebook and TATWB Facebook groups reduced their activity over this period.

The numbers of posts collected during phases 1 and 2 were also recorded into an Excel database, along with news media items, for quantitative analysis.[8]

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[7] Community-initiated YouTube channel Touched by the Morwell Fire commenced uploading local and state television news videos on 28 February 2014 and includes videos dating back to the first day of the mine fire. Data collection begins April 2015.

[8] Comments made on posts were not collected for this analysis. One Facebook post can generate hundreds of comments, many of which may not relate to the original post, making filtering and counting relevant comments a time-consuming task. Also, given one person can comment on the same post multiple times,

Table 4.4 Social media by Facebook group

Facebook Group Collection phase	Voices of the Valley	Occupy Latrobe	The Air that we Breathe	Totals
Phase 1: During the smoke event (9/2/2014 to 25/03/2014)	385	34	383	*802*
Phase 2: After the smoke event (26/03/2014-30/9/2017)	871	0	36	*907*

4.5   Data analysis

Both qualitative and quantitative forms of analysis were used in this study. Quantitative analysis has the benefit of being able to provide an overview of broad trends, whereas qualitative research can address important questions in greater detail (Ruddock 2001).

- The main qualitative approach used was thematic analysis, which identifies prominent themes in texts (such as media texts, interview transcripts).
- Quantitative analysis was used to identify peaks of activity and to track the level of attention to the event in media and social media.

4.5.1 Analysis of focus group discussions and stakeholder interviews

All interview material was transcribed and then analysed thematically; that is, through an inductive process called open coding that identified significant patterns of narrative within the interview material (Strauss & Corbin 1990). All data were coded according to themes derived from the literature review. Following this, focussed coding was undertaken, which facilitates the creation of more specific categories for coding data (Charmaz 1995).

4.5.2 Analysis of media and social media

4.5.2.1 Thematic analysis

As Aim 2 of this study related to 'how' and 'how effectively' media and social media were used and official communication occurred, qualitative methods were most appropriate for drawing out the themes which addressed these research questions. Thematic analysis was applied in phase one (9/2/14 to 25/03/14) to the media articles and social media posts, and in the responses of the interviewees.

In-depth thematic analysis was used to draw out the key concerns of the community as expressed in Facebook posts on social media, and the key issues being reported in the local media, during the period the mine fire was active. Analysis of the media articles focused on identifying themes related to concerns (including health-related concerns). Analysis of social

entering comments into the database may have given the impression that coverage of mine fire related events on social media was far greater than was actually the case. This would have complicated our aim of comparing and contrasting the frequency of attention given to these events on social *and* news media.

media also identified categories relating to concerns (including health concerns), social connection and information sharing. Posts and comments were also analysed to identify instances where external sites were linked to, and what information sources were viewed as relevant or trustworthy.

Thematic analysis was also applied to the interviews conducted with media professionals and social media administrators, to analyse their experience of the fire and their views on the effectiveness of the communication and their insights into how communication could be improved.

Thematic analysis of the media and social media posts in the recovery phase was used to show which media (social/mainstream) were publicising and discussing the impacts of the event during the recovery; these constituted the media ecology of the Latrobe Valley (see Volume 2, Section 2.2).

4.5.2.2 Quantitative analysis

Descriptive analysis was used in both phases 1 (9/2/14 to 25/03/14) and 2 (26/03/14-30/9/17) with counts of the number of items used to identify peaks of media and social media activity, and to track the level of attention to the event in media and social media.

The frequency of stories about or related to the Hazelwood mine fire, in which media/social media sources they appeared, and on what date, was recorded on an Excel spreadsheet. A timeline of key events from the start of the mine fire until September 2017 was compiled, and the number of media articles and social media posts on each day was graphed against the timeline. This enabled mapping of peaks and troughs of media attention to the issue, as well as correlation with official communication releases, and with focus group and interview reports of community perceptions of media coverage and communication about the fire and its impacts.

4.5.3 Themes derived from analysis of focus group and stakeholder interviews

At this stage, important themes emerged which will be discussed in Section 5 *Findings*:
- what the community experienced;
- communication issues;
- trust and mistrust;
- community empowerment and activism.

Volume 2 presents a discussion on themes associated with recovery, including:
- pre-existing vulnerabilities;
- concerns regarding a lack of future emergency planning;
- perceptions of recovery and rebuilding efforts;
- social capital and hopes for the future.

4.6   Completeness of the community-based sample

Given that participants elected to participate in this study, we acknowledge that there will be some bias in the interview material collected and not all members of the broader Latrobe Valley community will be represented. In addition, the Latrobe Valley, and Morwell itself, has undergone demographic change, including recent arrivals of refugees from Sudan (from

both the north and the south although mostly from the south) and Burma (the Karen people) (Australian Government Department of Immigration and Citizenship 2009).

4.7   Human Ethics

Approval to conduct this research was provided by the Federation University's Human Research Ethics Committee in May 2015 (project number B15-067). This Human Research Ethics Committee reviews all research involving humans at Federation University to ensure it is compliant with the *2007 National Statement on Ethical Conduct in Human Research* (National Health and Medical Research Council, 2015).

5   Findings

5.1   Overview

This section presents findings regarding the impact of the smoke event on community wellbeing, and the elements that are important for effective communication. It discusses the data drawn from stakeholder interviews, focus groups, media and social media interviews, media reports and social media commentary, and archival research.

First, we provide a brief account of the initial impact of the event, drawing on data and analysis from a pilot study by Wood *et al.* (2015). Second, we analyse the communication issues arising during the crisis, how communication was perceived by the community, and what steps might be taken to improve communication in the event of a future disaster of this kind.

Drawing on data from interview and focus group data as well as media and social media, we then address the two major themes arising from the combined data:

- Trust and mistrust
- Community empowerment and activism.

The complex factors underpinning the community's loss of trust in organisations are documented, before detailing the various ways in which community members have found a voice, articulated their concerns and needs, and organised for the purposes of activism.

5.2   What the community experienced

Community perceptions of the impact of the smoke event on the community's health and wellbeing were documented by the HMFI (Teague *et al.* 2014), and by Wood *et al.* (2015) in their initial impact study of the mine fire. These impacts included a variety of physical symptoms:

> headaches, nausea and vomiting, sore and stinging eyes, blood noses, shortness of breath, raised blood pressure, tight chest, sneezing, coughing, tiredness, raspy voice, sore throat, mouth ulcers, rash, diarrhoea, chest pain, sinusitis, ear infection, gastric upset, fatigue/lethargy, confusion, decrease in concentration, unusual/metallic taste in mouth, loss of appetite, and bleeding gums (Teague *et al.* 2014: 309).

Wood *et al.* also note that:

It was not only the health impacts of the mine fire that affected people but the dust and ash that constantly seeped into homes and offices, which required cleaning daily and sometimes multiple times during the day – and this went on for 45 days. People were also advised to stay indoors as much as possible on high risk days, of which there were many, and to not exercise outside. This posed great difficulties for many people, but perhaps in particular for schools where students might need to remain inside for the whole of the school day (Wood *et al.* 2015: 10).

In addition, there was also 'a psychological impact on the community as a consequence of the mine fire. The lack of information about the potential short and long-term effects of the exposure to smoke and ash has caused significant distress to the community' (Teague *et al.* 2014: 318). The psychological impacts of the mine fire are the focus of a separate HHS Stream, the Psychological Impacts Stream; however, this report will discuss in detail the impact on community wellbeing.

5.3   Communication issues

5.3.1   Overview

Communication issues impacted significantly on the way the community experienced the crisis. The following sections detail the deficits in official communication, how these were perceived by the community, and outlines the steps which could be taken to improve communication in a future similar disaster event.

5.3.2   Official communication during the crisis

A range of government agencies were involved in communicating with the community during the mine fire, including the CFA, the EPA, Latrobe City Council and the Department of Health (now DHHS). Their performance has been analysed in Chapter 5 of the first HMFI Report (Teague *et al.* 2014). The discussion below focuses on the main characteristics which were seen as not meeting the principles of best practice (as outlined in the Literature Review, section 3.3.2).

The following analysis of the communications during the event is drawn primarily from the media data collection and archival data (summarised in more detail in Appendix 1). Where relevant, the findings from our analysis have been supplemented with external references. Appendix 1 summarises key daily events and actions from days 1-45 of the mine fire, noting the official communication to the community each day, by which channels, and from which organisations. Based on this data, it is evident that the range of communication channels chosen was initially quite narrow. In the first week of the crisis, the Department of Health relied on media releases, online updates, supplemented by radio and TV interviews. In Week 2 the Department began using Twitter for health messages, and on Day 11 the Chief Health Officer (CHO) held the first media conference. In subsequent weeks, increasing use was made of a more varied and locally accessible range of mediums, such as hard copy newsletters distributed to the community, information updates published in the Latrobe Valley Express, and local radio updates.

Media conferences became more regular from Week 3 onwards, and featured the CHO (Rosemary Lester), Craig Lapsley (EMV) and John Merritt (EPA). However, the framing of the

communication at these conferences at times lacked empathy (Teague *et al.* 2014: 394) and the communication in general according to Macnamara 'failed to recognise and address the psychological, social and cultural dimensions of the crisis' (2015:15). For example, Morwell residents were upset by the CHO's referring to 'South Morwell' (media conference, 6/3/14 & 7/3/14), since this drew an apparently arbitrary line through Morwell whereas the reality was the smoke was being experienced across the town. In addition, the community experienced statements such as 'fortunately we are not seeing serious impacts on health' (media conference, 28/2/14) as denying what people were going through. When the CHO subsequently announced there would be a long term health study, saying 'we don't believe there will be long term health impacts but [it's] always good to extend knowledge and learn more' (media conference, 11/3/14) this was perceived as contradicting earlier reassurances. By Week 4 the CHO acknowledged 'we need to take some lessons about communication, it's clear we haven't communicated as well as we could have' and was attempting to address criticisms of a perceived lack of empathy, through expressions such as 'we do sympathise with the community' and 'I understand it has been a difficult and frustrating time' (Appendix 1). However, this was felt by some community members to be too little, too late.

The EPA was also criticised for the overly technical nature of its information alerts, which those without a strong scientific background would have had trouble interpreting:

> Much of the information provided by authorities was technical or semi-technical in nature, such as reporting 'particulate monitoring' of PM_{10} and $PM_{2.5}$, and presenting tables of data on chemicals such as Chloromethane, Carbon Disulphide, Butadiene, Ethylbenzene, and Dichlorodifluoromethane (Macnamara 2015: 13).

This type of information led to alarm for a community lacking a context for interpreting this data, such as plain language information about the health implications of exposure to these chemicals (Teague *et al.* 2014: 396). The uncertainty created by the lack of clear information on health impacts further exacerbated the community's concerns and anxieties as the crisis went on.

Communication to the community by authorities and the mine owners GDF Suez[9] was heavily criticised by the first HMFI (2014). Jim Macnamara argues that there were 'a number of substantial failures in public communication when analysed in the context of crisis communication and emergency communication theories and principles' (2015: 10). The first was the lack of preparation, in particular the lack of a crisis communication strategy specific to this potential risk scenario (a brown coal mine fire in close proximity to this community). Macnamara further notes:

> It should have been clear from the information available that any fire in the mine would present a risk to human health and welfare as well as be a cause of concern and anxiety for people living in close proximity (2015: 11).

Further criticisms were that public communication was not timely (Teague *et al.* 2014; Macnamara 2015) and used inappropriate channels (Teague *et al.* 2014; Macnamara 2015). The EPA began releasing smoke alerts ('advisories') from Day 3 of the fire, and the first

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[9] GDF Suez were criticised by the first Hazelwood Mine Fire Inquiry for their absence from public meetings and lack of communication to the community (Hazelwood Mine Fire Inquiry, 2014).

health advice was not released until Day 5. The first public meeting in Morwell was not convened until Day 5. Smoke advisories and health alerts were released online on the organisation's official websites and as media releases. Communication experts testified to the first HMFI (2015) that for this community, with a high proportion of elderly people and lower than average internet connectivity, this was an ineffective means of communicating with them. Face-to-face communication was crucial to giving the community a sense of being heard, however, according to Macnamara (2015), there was no official representative from the Department of Health at the first public meeting in Morwell and a subsequent public meeting on 18 February (Day 10) was not well managed, as noted by the communication analysis carried out by the HHS Older Persons stream (Walker *et al.* 2017).

5.3.3   Intersections between news media, social media & official communication

This section analyses how the information presented by government agencies matched with the topics under discussion by the community (in social media) and being reported in local and state media. Mapping of the numbers of local, state and social media items (stories/posts) during the 45 days the fire was active, indicates the amount of media attention and community debate taking place as the crisis progressed (see Figure 5.1).
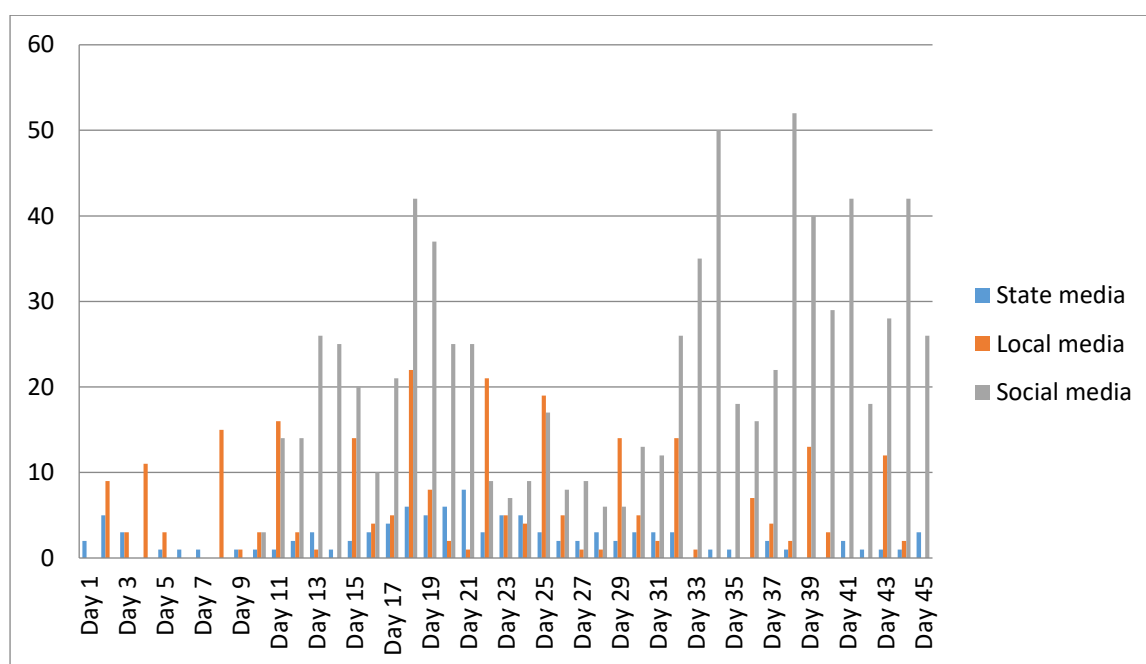
Figure 5.1 Number of news items & social media posts during the 45 days of the mine fire

Social media posts outnumber media items on most days once the Facebook groups formed (from Day 11 onward) due to the nature of the short individual messages they contain. Local newspaper the Latrobe Valley Express gave the most extensive coverage of any single news source, accounting for almost 40% (142/360) of all media stories.[10] As is often the case during coverage of an event affecting a regional community, the number of local news items

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[10] The twice-weekly publication of the Latrobe Valley Express accounts for the regular occurrence of peaks on Mondays and Thursdays during the six weeks of the mine fire.

about the mine fire and ongoing smoke crisis outweighed reporting at state level, with 257 local news items locally and 103 from state outlets. It is also evident from Figure 5.1 that media attention (as measured by the number of items) tended to decline from Day 18 onwards, whereas social media, while fluctuating, remained at a high level, with a peak at Day 38. This indicates that the community continued to experience a need to discuss their issues and concerns, even when the mainstream media had to some degree 'moved on'.

Thematic analysis of the content of news stories and social media posts is summarised in Table 5.1.[11] This shows that there was considerable alignment between the news media reporting of the crisis, and the ways community members were framing the event on social media.

Table 5.1 Summary of thematic analysis of topics in news media and social media, weeks 1-6

Week	News media	Social media
1	Fire emergency Safety of firefighters Carbon monoxide threat Threat to state's power supply	-
2	Health risks & concerns Air quality Community outrage	Health impacts Lack of media attention Lack of relevant & accessible information
3	Health crisis (not) under control (authorities versus the community) Assistance available Relocation advice Social media 'storm'	Amount of media attention Assistance available Accountability for the fire
4	Community protest Health impacts Community anger Blame & culpability	Relief and relocation package (inadequate) Appreciation for firefighters Political and corporate responsibility for the fire
5	Fire declared safe Start of the recovery effort	Health risks (not being adequately addressed by authorities) Anger and feeling of betrayal
6	Clean-up and residents' assistance package Community anger HMFI inquiry announced Effect on firefighters	Air quality Long-term health risks Anger at clean-up package (residents responsible for clean-up not authorities) Lack of trust in authorities

While it is not possible to definitively argue either that the media were setting the agenda and that was in turn influencing social media, or vice versa, the concordance between the media and social media themes does suggest that the media were accurately reporting the concerns and experiences of the community, and that social media groups were likewise expressing concerns and issues that were being debated more generally across the community and the media. However, as Table 5.1 also indicates, the topics of discussion on

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[11] Detailed thematic analysis has not been included in this report but the data is available upon request.

social media indicate that lack of relevant and accessible information, concerns that health risks were not being adequately addressed by the authorities, and the assistance package and clean-up arrangements led to increasing expression of feelings of anger, betrayal and loss of trust in authorities.

There was a clear lack of alignment between the information provided by emergency authorities (particularly the Health Department and the EPA), and the needs of the community as expressed in the three social media groups studied. Based on the data, we can identify several points where the communication flows were problematic:

- Days 10-12: Official communication was not 'cutting through'; there was a failure to identify that this was a public health event until too late. Media were reporting concerning levels of air quality and community outrage. Social media groups began to be active in this space, and posts indicate that the community was not getting the answers that they needed, resulting in an 'information vacuum'.

- Days 17-19: Official advice advising the community of the minimal health risks of the smoke was being reported by the media, however this did not align with what the community was experiencing (as discussed by numerous Facebook posts reporting a range of distressing health symptoms). The result was a communicative 'mismatch'. Public credibility of the official communication was weakened.

- Days 22-25: A media conference held by the authorities gained little media attention. On the other hand, a community protest regarding the handling of the crisis was widely reported. Social media played a key role in organising the protest and amplifying the concerns expressed by the community. Loss of trust in official communication and a turn away from official communication sources and towards social media is evident.

- Day 44: Official advice was provided – and reported in mainstream media – that it was potentially unsafe to use high pressure hoses to clean homes that may contain asbestos. This was a retraction of earlier official clean-up advice, following on from social media posts on Day 38 alerting people to the asbestos concern. Here social media functioned as an agenda-setter, and also as a safety 'watchdog'. This incident further weakened trust in the advice from authorities.

These examples demonstrate that official communication was struggling to be effective during this period, and that local media and social media were more prominent and plentiful sources of information for the community.

5.3.4   How communication was perceived

The following section draws on the interviews with nine community members, five of whom were working as journalists during and/or after the fire and smoke event, and four of whom were administrators of the Facebook groups included in this study (Occupy Latrobe, The Air that we Breathe, and Voices of the Valley). Their responses are analysed thematically to draw out their insights on how media communication functioned during and after the fire, and on the effectiveness of the communication from authorities.

5.3.4.1 Official communication was flawed

Those we interviewed described communication about the emergency as 'inconsistent', 'contradictory', 'inadequate' and 'poorly delivered'. One focus group participant's description of the initial period following the mine fire captures the confusion for those affected:

> there was a complete silence for something like the first ten days or two weeks from any form of Health Authority, but that was never commented on, it was never commented on that there was at least ten days which were very much the worst of it, certainly in Moe they were the worst of it, where there was no response at all. So that, that just struck me as a, a disconnect between what the authorities thought they were talking about when they started talking and what had been the actual experience of the community for the previous two weeks. It was as though that didn't exist for the Health Authorities because they didn't come on, on board until after the worst of it (focus group August 2015).

Media professionals and social media practitioners interviewed for this study agreed with the HMFI's finding that official communication during the fire had been flawed.

> Okay, well look, I think the inquiry has established that there was not adequate communication from government agencies and departments to the public. It's pretty clear that that was the case. We attempted with any information that we were given that needed to be told, we attempted to tell it in the best way we could. We also attempted, like I said, to ask the questions about health, about air quality that were, as a reflection of what the community was asking (media professional 1).

5.3.4.2 Local media's role in informing the community

Traditional news media have a key role in keeping the community informed on a daily basis during a crisis (Dominick 1996; Perez-Lugo 2004). The importance of providing information in the initial phase was confirmed by local media professionals.

> There's that role of being the conduit to provide information from the emergency agency/agencies to the community. So that basic information that they want to know at the initial period, who, what, why, where, when and then the how and what now follows (media professional 2).

> The role of media and the role of journalists in that initial phase is just to help people make informed decisions about their health and about where they live and what they should be doing (media professional 4).

Interviewees also commented on the particular status the ABC has during and after a crisis such as a bushfire:

> A lot of Australians turn to the ABC for emergency broadcasting and so in that initial stage I think there would have been a lot of people switching on their radios to hear about just what they needed to know for that day (media professional 4).

> And I, like if I'm in a, I know in the Black Saturday fires I tuned into the ABC … Because that was the most up to date, most current information you could get at the time … I would do the same if anything happened again (social media administrator 3).

Interviewees agreed that during the Hazelwood mine fire the ABC was a trusted source of information. This accords with Cohen *et al.*'s research which found that ABC radio has a strong reputation among regional and rural communities as an emergency broadcaster and is the default information source which the community turns to for accurate and up-to-date information regarding risks and support available during a crisis (Cohen e*t al.* 2007). ABC Gippsland prided itself on its credibility with its audience: 'I thought we had built up a really good reputation as … a bit of a flagship' (media professional 3).

According to one media professional the extent to which the local ABC was able to fulfil this role and meet the local community's needs for information was compromised, due to changed institutional arrangements.

> Situation was though the ABC had just gone through some changes to how that emergency broadcasting was going to be done, for the first time in - well for the first time they had effectively cut back their local content or their local broadcasting around emergencies. So it was a shared protocol across the State so inevitably basically what they did was put all the presenters into a pool and when there was an emergency situation that came up in your designated shift, you were the person that was going to let that community know what was going on. … So there was a little bit of that going on, that had created … a little bit of community concern, broadly across the Gippsland region who are very, very used to getting specific localised information from their local ABC (media professional 2).

However another interviewee argued that the emergency broadcasting from the ABC was not compromised; rather, it was a matter of community expectations that the broadcasts come exclusively from local presenters.

> There is also a view I think from the community is that if the emergency broadcasting is coming out of Melbourne it's inevitably of a lesser quality. I dispute that. I probably believe that's not the case and I remember hearing the broadcasting on the day the fire started and that all came out of Melbourne and it was very much a tag team effort throughout the day but I actually thought it was pretty top notch emergency broadcasting. They were covering the whole state. I think where the community got frustrated at that was that they didn't feel that their own patch got enough time (media professional 3).

5.3.4.3 Role of online and social media

The internet, Facebook and Twitter became important channels for local media to reach their audience in a frequent and timely fashion with the latest updates:

> So, our Facebook following in the 24 hours of that period, or 48 hours – 48 hours of that period – grew by two thousand people. So, people, I think had become aware that we were doing these live updates, essentially of the situation and had gone to our Facebook page (media professional 1).

During a crisis, local media are very reliant on the information coming from the authorities in order to provide what the community needs to know, as 'the information we could give was only as good as what came to us' (media professional 5). Some journalists expressed frustration at the quality of information they were receiving:

But I just got to the point of frustration I guess as a resident and as a journalist of come on someone, just get your shit together and ensure that we're giving people the right information … I'm the banana that has to sit there and deliver this (media professional 2).

Even simple things like for example some days you would have the incident controller on and then you would have the weather on and you would be saying well there's the relief centre open at Moe but the weather bureau would be saying well the wind is going to blow all the smoke towards Moe, and you sort of just think well I feel like a bit of a fool saying here's where the relief centre is but meteorologists from the Bureau is saying it's actually going to be sending all the smoke to Moe so you sort of think oh – it's hard because you want to provide that information but at the same time it just seems – it almost seems silly in some respects to provide it because it just seems so counter intuitive (media professional 3).

5.3.4.4 Advocacy role of the media

The contemporary notion of journalism is that the role of news media is to witness and report objectively on events, rather than intervening in them (Schudson 2001). However, local media professionals noted that in the case of this crisis where the emergency response was perceived by the community as flawed, local media at times took on an advocacy role.

It's not really a journalist's role to be an advocate … but in this case you find that you are sometimes because the agencies or authorities are busy looking at a specific thing but not quite understanding what the personal impact might be on a certain group of people in the community or why … this community's different to dealing with other communities … So I guess you have a role to play in being able to tap into what the sentiment is of the community, trying to get the information that they need or to get them the support that they need (media professional 2).

Taking on this advocacy role also required careful consideration of the balance of positive and negative stories, as another media professional noted:

I think we probably saw ourselves as a bit of an advocate, but at the same time we tried to, we just tried to get some of those questions answered. … We hoped that we were asking the right questions and reflecting the community sentiment - that was what we aimed to do… At the same time you do want to have some positivity in there… And this is the ongoing balance, whether it's this situation or any other coverage is people don't like to see too much negativity, but at the same time it's our job to hold government to account, and unless the government is doing a perfect job, which they never do, we have to show that something is broken, in order to call for it to be fixed (media professional 1).

Local media professionals also emphasised that because they are also local residents, they have a connection to the community which helps them do their job and which is reflected in their work:

The metros come in and come out and the other thing I think with the metros is that they don't necessarily feel as journalists a connectivity to the community. I think … something that we're all quite acutely aware of is … quite a number of us were members of this community and we're also locally born and bred … and I guess that

we felt that we had a duty to the community at a higher level than maybe some of the metros did because we're members of the community (media professional 3).

5.3.4.5 Local versus metropolitan media

There was a strong perception from the Morwell community that their plight was ignored by the rest of the State, but specifically Melbourne.[12] As noted in Table 5.1, the metropolitan media addressed the fire initially as a risk to the state power supply then as an ongoing health crisis with potentially wider ramifications for governments in relation to emergency management and responsibility for the crisis. Metropolitan media's attention to the ongoing impact of the smoke on the community dwindled and this aspect of the crisis became less newsworthy over time, while it was still receiving prominent attention in local media (see Figure 5.2).
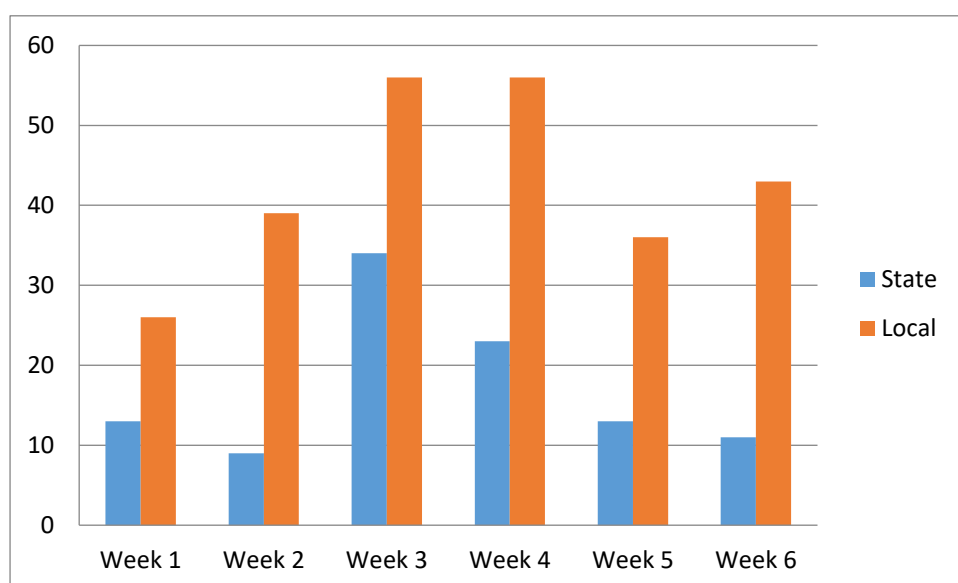
Figure 5.2: Local and state media coverage of mine fire weeks 1-6

As local media professionals observed:

A lot of the metro media … will pay a lot of attention to an incident or an emergency or a disaster like this in the initial stage and then the spotlight goes away and who is asking the questions for the people who can't get through to the DHS… (media professional 4).

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[12] At this time Melbourne was holding its second White Night festival, an all-night event celebrating contemporary arts (ABC Online 2014), and a number of those interviewed talked about the apparent lack of concern for the community associated with the State's electricity production. As one participant stated, 'They have that light festival down in Melbourne, and they were so happy to have their festival while we were the ones that were paying for that with our lives, and that went through the community, that was just complete shock that these people could go off and have a party at our expense' (focus group September 2015).

> When you went to that recovery phase … your metro media drop off. I think it's the responsibility of local media to … continue that dialogue and cover those stories (media professional 3).

Nevertheless, the metropolitan media brought the crisis to the attention of a wider audience. This was important to the local community, as the analysis of social media shows, since it contributed to putting pressure on the state government and shone a spotlight on how they were handling the crisis. It gave the community some sense that their concerns were being heard (and therefore might be addressed).

5.3.4.6 Media's role during the recovery phase

Interviewees noted that the media continue to play an important role in the recovery phase, by continuing to support people with information about services, and by keeping the issue on the public agenda:

> So it's moving from that emergency then into recovery and then assisting people with trying to access services (media professional 2).

> Then after that [the initial phase] it's more analysis and discussion and providing a platform and a forum for community discussion and rebuilding (media professional 4).

During the recovery phase, the Department of Health community consultations (May 2014), the HMFI hearings (May 2014), the release of the first report (September 2014) and the re-opened mine fire inquiry (May 2015) meant that media continued to report on the issue.

> I think the job at the organisation [that] would have played in my mind would have been to bring information from the inquiry to the audience. When the inquiry report comes out it's to hold the report's authors to account for the recommendations that they have made; to question the government in terms of its position on the recommendations; would it support them; wouldn't it support them; why wouldn't it support them and I guess then trying to establish a bit of a community barometer (media professional 3).

One media professional felt that local media also played a role in rebuilding community pride and morale:

> We are still … committed to helping re-inject pride back into this community and to highlight a lot of the good things that are happening. But at the same time we won't waver with trying to hold government to account. And like I said, in doing that, sometimes it means you have to highlight the bad because you need to show that, hey this needs to be fixed (media professional 1).

However, similar to Cohen *et al.*'s (2007) study, the need to also raise negative issues in holding authorities to account was of concern because of the potential of a negative image of the area to adversely affect its recovery.

One interviewee also made the significant point that it was at times difficult to work out how to assist with the recovery, as unlike a bushfire the losses were not tangible.

> [After Black Saturday] wherever there was a fire community that needed something regardless of time of day or whatever we would always do our best to provide some support to whatever event they were having or whatnot. But there wasn't too much of that around here, different, different thing and hard to pinpoint what you're rebuilding when you can't actually see what's been lost. It's like the difference between a broken leg and a mental illness (media professional 2).

Further discussion of the communication during the recovery phase will be addressed in Volume 2.

5.3.5 How can communication be improved in a future similar event?

When asked what would be the most effective ways of communicating to and with the community during and after the crisis, the media professionals and social media practitioners interviewed made a number of suggestions and recommendations. In thinking about the question they brought their lived experience as residents (in some cases lifelong) of the region, and for some also as media professionals who have carried out their roles during prior emergency events (such as the 2009 bushfires). Given the professional background of several of the interviewees as trained journalists and professional communicators, it is perhaps not surprising that their observations aligned quite closely with the best practices summarised in the Literature Review.

5.3.5.1 Media and social media are a sounding board and a strategic resource

Firstly, interviewees indicated that the media can provide a sounding board that helps inform how authorities design future communication protocols:

> And being I guess a, a sounding board too for praise, criticism, concern, confusion from the community which can then be passed onto the various agencies to address or to have a look at next time they put their protocols together (media professional 2).

This comment supports Seeger's principle that crisis communicators should listen to the community and treat them as a 'legitimate and equal partner' (Seeger 2006: 238). The same interviewee also argued that the flow of communication should not be one-way, and that the media can assist in encouraging a dialogue between the community and the authorities:

> So there's … varying roles, they're [the media] like the middle man for … both sides getting that information, getting the questions up from the community to the agencies and getting the information back down and trying to put it in a way in which people can best understand (media professional 2).

This aligns with best practice which is that the media should be used as a strategic resource and a conduit to the public (Seeger 2006), and that emergency communication should involve the community and be dialogic (Skuse *et al.* 2004). Similarly, the HMFI (Teague *et al.* 2014: 400) noted social media can be a 'very effective tool' for hearing what the community are saying and adjusting how communication with the community is occurring on the basis of that knowledge.

5.3.5.2 Fast, accurate and honest communication

Interviewees also stressed the importance of fast, accurate and honest communication:

> But it needs to be fast and accurate and [do] not make it up and not sugar-coat it, not try and cover things or pretend it's not - at the end of the day if they honestly don't know, people are going to go, 'Okay well people actually, we don't know but we're looking into it' (social media administrator 2).

> And the other thing I think and we always say it in the media and it's a risky move to make I think from a comms perspective but be honest … if you don't know say you don't know (media professional 3).

Skuse *et al.* (2014) agree that the principles of accuracy and consistency are fundamental to best practice, along with prompt correction of errors and misinformation. Honesty and candour are key (Seeger 2006) and admitting mistakes is the basis for building and maintaining the trust of the community (Grannat 2004; Littlefield & Quenette 2007).

5.3.5.3 Use a broad range of channels

Communication should also use as broad a range of channels as possible, including face-to-face communication. This is also emphasised in the best practice literature (Skuse *et al.* 2014, Australian Red Cross 2010). All interviewees agreed a mix of channels was best:

> I think it has to be multifaceted … So, things like social media and online publications, I think play an important role, but conversely I think going back to some basics, also is important; doorknocks, community meetings, really on a local level, on a neighbourhood level (media professional 1).

> I would say a mix of social media and the traditional media so radio, TV, and newspapers – and print – is a good way to do it instead of just putting all your eggs into one basket (media professional 4)

> They need the information to be fast and accurate and through different means, social media is one of them and email, letter drop, newspapers, TV stations (social media administrator 1).

Radio was still felt to be an important medium for those who don't use the internet.

> I would think that the calibre of people that aren't listening on the internet would be listening on the radio. If they don't have a computer they'd have a radio I reckon (social media administrator 3).

> We have an ageing population in Australia and I think that's especially apparent in Gippsland and apparent in the Latrobe Valley so I'm not sure if social media is the best way to get information out, a lot of people listen to the radio so I think that – you know and I work in the radio so I'm pretty biased to radio but I think that's a good way to let the community know what is happening (media professional 4).

There were differing opinions regarding the use of social media; one interviewee felt that some parts of the Latrobe Valley community lacked the necessary internet connectivity, a concern also raised by one of the expert witnesses at the first HMFI (Macnamara 2015). One of the media professionals agreed:

> I know a lot of people are social media savvy in the Latrobe Valley but there's still people in pockets of Morwell and Moe who don't have internet connections and so I would say a mix of social media and the traditional media so radio, TV, and newspapers – and print – is a good way to do it (media professional 4).

On the other hand, a social media administrator argued that most people would have a smartphone and would find this an accessible, cheap and convenient way to access information on the internet and through social media:

> I would say so, the majority of people have smartphones … because you can get them cheaply and you can get prepaid plans … a lot of people put $10 credit on it and they've got the phone for 6 months but they could still access social media for free (social media administrator 3).

Because social media are ubiquitous it is important for the authorities to be in that space; however, social media needs to be used in conjunction with traditional media (Bourk & Holland 2014; Palen *et al.* 2002; Australian Red Cross 2010; Taylor 2012). As one of the interviewees said:

> Social media is critical particularly from government agencies there's an aversion to go on social media because of how quickly things can escalate and the need for 24 hour maintenance and monitoring and all that sort of thing. I think that's where the conversations inevitably take place and that's where people inevitably go to for information so I think you have to be in that space. Like I said doing it well and doing it right is a real challenge but I think you've got to work across all media channels but I think social is probably where there is the biggest gap in terms of what's currently being offered and what the expectations of communities are as to what should or will be offered (media professional 3).

5.3.5.4 Face-to-face communication is important

In terms of channels of communication, our interviewees confirmed that face-to-face communication needed to be part of the mix, and was particularly important in terms of key government spokespeople coming to the community to speak to them, rather than delivering a message from a 'safe' distance. As one of the social media administrators put it:

> Because at the end of the day if you're not prepared to come here or do what … what we've been asked to do then they need to question, well then if they don't feel safe doing it, then why should we? (social media administrator 3).

5.3.5.5 Use a trusted (preferably local) spokesperson; communicate with empathy

The principles of trust (Grannat 2004; Littlefield & Quenette 2017) and empathy (Seeger 2006) were also strongly supported by our interviewees. These principles particularly applied to the communication to the community by those managing the disaster response. This might be achieved, some suggested, by appointing a trusted local spokesperson.

> Now this is what happened in Queensland at the floods, in terms of speaking to all the communities affected by the floods, the Mayor of … those communities was the key spokesperson for everything. We were all, we were able to speak to Health if we wanted to, there were options to speak to the other agencies, but those Mayors knew everything, they knew what could be accessed, who was around, they had all the

> information there and they lived, some of them had been affected their houses were underwater and whatever, but they were on the radio, maybe, made 2 or 3 times every single day… And I would have thought that something like that might work here where there is a single voice and a single local voice (media professional 2).

> I think with the right level of messaging behind it buys you a lot more credibility and I think if you put someone that's a local resident to front that message and says hey I feel your pain; I know what you're going through; I'm living here as well; I know what it's like (media professional 3).

As Walker *at al.* (2017) also found in the earlier HHS report relating to older people, there was an expectation within the community that local council would play a significant communication role. However, the emergency was considered a state event, and this meant 'local government officers were restricted by the information they could provide as it was seen as a responsibility at the state level' (Walker *et al.* 2017: 48).

Regardless of whether or not the spokesperson was a local, the communication needed to come from a respected figure who was capable of demonstrating empathy and compassion.

> But the, the bottom line is, is that it, it doesn't mean that it's the Mayor but it needs to be someone who is clearly a, who can deliver a message compassionately and who people trust again, it is that, that thing who people trust to get them that information (media professional 2).

> Empathy but with professionalism (media professional 2).

> And as media we're all jumping all over Craig Lapsley, he was available, he spoke our language, he spoke our community's language, he would take things on notice and say, 'Look I'll find that out for you'. He would quite happily take talkback from people asking questions and he would come back … the next day or in an hour with the answers to those questions. So build that trust (media professional 2).

> I think that's really important to channel your messaging through someone that is trusted, respected and has credibility within your community (media professional 3).

5.3.5.6 Ensure continuity of spokespeople

Having a communication plan and being prepared for emergencies (Seeger 2006; Skuse *et al.* 2014), making sure there are spokespeople available to speak to the media (Seeger 2006), and also ensuring where possible the continuity of spokespeople (Seeger 2006) were also principles articulated by our interviewees.

> I'd probably suggest changing their media strategy so allowing or authorising more people to talk to the media and I know people in management divisions don't like that because they like to have one consistent message and they don't want any wrong information getting out there and I can see that side of it but I think they need more people who are available to speak to the media and they need to be more organised for emergencies like this and plan for them … yeah just better preparation and allowing, and authorising more people to speak to the media I think would be better (media professional 4).

> So we found too that our, our contact was changing on a regular basis. So one, one minute you're dealing with such and such and then 3 days later there's another girl and there's another bloke. So whereas during a fire situation generally be people here on the ground that you're ringing that you deal with all the time anyway through DELWP or the CFA. So that was a difference as well, so then you were having to explain to a new Comms person what we need, why we need it, we needed it at this time (media professional 2).

5.3.5.7 Form a local communications team

Finally, a key insight came from one of the media professionals who argued that there was sufficient expertise in the Latrobe Valley to form a local communications team which could spring into action in the event of an emergency to coordinate the communication. This suggestion is consistent with the asset-based community development (ABCD) approach which the Australian Red Cross recommend (2010).

> I know for a fact as a journalist then and now as a Comms person now, there is a network of extremely experienced communications people on the ground here who have worked as journalists in the area, who live in the area, who can apply the basic communications, protocols and rules to whatever job that they're put in ... You only have to put all those people into a big group, give them some basic training about what would be required under emergency incidents and say we have our own State Comms team here. So whatever happens in that local area, one or all or whatever would be drawn in and being able to disseminate the messages … Everybody with all the expertise in all those areas, are right here to coordinate local messaging (media professional 2).

5.4 Factors leading to a loss of trust

5.4.1 Overview

One of the major themes that emerged from interviews and focus group discussions conducted in 2015 as well as in the analysis of social media posts during the initial emergency period was a loss of trust in government and other authorities and agencies. Multiple reasons were given for a loss of trust, including:

- the lack of information provided to the community, and what was provided was conveyed in overly technical language and only available online;
- the dissonance between the information people received and their experience on the ground and that this experience was not validated;
- a lack of dialogue between community and authorities that addressed the concerns of the community;
- the perception that the emergency plan and response was inadequate; and
- government, authorities and the power company GDF Suez (later Engie) did not accept responsibility for what happened and were not being held accountable.

The theme of information and trust emerges strongly. Significant to future planning for disaster response strategies is the analysis of the community-based social media groups that shows social media can

- meet needs not met by other sources;
- flag concerns which authorities need to hear and address; and
- provide opportunities for empowerment during and after a crisis.

The following section provides a more detailed thematic analysis of the prominent concerns expressed by those interviewed and posts to community-based social media groups.

5.4.2 Lack of information provided to the community

People's loss of trust was a result of inadequate, and at times non-existent, communication between authorities and the community. This was entangled with feelings of abandonment, as raised in one focus group discussion:

> Speaker 1: The fact that we were left to our own devices and forgotten, nobody cared. It didn't matter if we lived or died, we were expendable…

> Speaker 2: Especially when they were evacuating government departments, and we were all left here…

> Speaker 1: The community felt let down… we were just treated like we were whingeing, complaining about nothing. I'm sorry, but when your eyes are burning, you're coughing, you're sleeping all the time because you can't breathe…

> Speaker 3: We just keep being lied to, over and over and over. Because there was no information, it was just, everything's fine, just keep your windows closed (MNH focus group September 2015).

Compounding confusion and feelings of abandonment within the community, advice provided to the community by different agencies responding to the smoke event was inconsistent and often conflicting. Walker *et al.* (2017: 66) discuss this in terms of 'policy development on the run', although noting that the conflicting advice and response from authorities to the emergency was part of 'the challenges of trying to develop policy under emergency conditions' (see also Teague *et al.* 2014). Nonetheless, this confusion, as well as what was interpreted as silence from authorities on important matters, fuelled suspicion and lack of trust due to questioning of the accuracy of information provided through official channels.

In times of crisis, the affected community needs readily accessible and trustworthy information. When this is not available, community members can become anxious and may look to social media to fill the communication gap (Macnamara 2014). Rather than relying predominantly on the mainstream local and national media, or on government authorities involved directly in emergency management for relevant information, social media users turned to a wide range of online sources. Yet some of these information sources are not subject to the forms of gatekeeping which exist in professional mainstream media and can sometimes be inaccurate. This can tend to further complicate an already confusing information space.

A study by Bird *et al.* (2012) on Facebook use during the Queensland floods found that most of their respondents trusted the locally sourced information posted on Facebook, and a key benefit was that it provided local knowledge inherent in the community. However, the social media administrators from the Facebook groups in our study also highlighted the risks in providing information from local sources, because of the difficulty in verifying its accuracy. As explained by two members of one Facebook group:

> Social media administrator 1: We were getting lots of messages, getting messages that people were … sharing, … information on things that were happening, … the conditions inside the mine.

> Interviewer: So inside stories and eye witnesses and-?

> Social media administrator 1: It's hard, it becomes hard to know what to … share, because then … how do you verify it's true?

> Social media administrator 2: And also protecting the people that were giving this information as well, the last thing you want to do is … put them at risk.

Local knowledge may have been less trusted in the case of the Hazelwood mine fire because, in contrast to a flood where local eyewitnesses can report roads cut and river heights from their own observation, information about the amount of smoke pollution and its effects was more contested, and dependent on expert scientific reports rather than open to direct observation by non-experts.

5.4.3 Community expectations of the role of government and other authorities

One of the overwhelming messages that came through via social media, and interviews with social media practitioners and community stakeholders, was that those expected by the community to provide correct and timely information about the health impacts of the smoke event did not do so. Information from key organisations such as the Department of Health, the CFA and the EPA was questioned and contested on social media;

> At the time when we were told by that woman [CHO] … that we were okay, … that the smoke won't harm us, she admitted that she didn't know that at the time. … For me personally at that particular time when she was telling us information, she'd lied to us in, in effect (social media administrator 1).

These concerns about the appropriateness of disseminated information by authorities is exemplified by one community member's post on VOTV who shared a link to the Department of Health website with information on long-term health effects – but added a comment that this was inadequate in answering her questions and addressing her concerns (VOTV 14 March 2014, post 37 and comments). Likewise, links to the EPA website with results of ash testing were provided but contextualised with the comments expressing confusion around safe levels in the air pollution monitoring and a lack of faith in the reliability of this monitoring (VOTV 18 March 2014 post 11 and comments).

In addition, members of the community questioned the appropriateness of recommendations made by authorities during the initial stages of the crisis, as these often suggested a lack of local knowledge. For example, the CHO recommended that vulnerable

members of the community relocate but this did not take into account the capacities of residents to do so, as one council representative explained,

> I think for a lot of them when the call came that they recommend that they leave the area, not a lot of them could have because of mobility issues and where do they go to, and they didn't know where to go to. And a lot of them if they did go, they were a day away, for half a day, a day or two and back again. Whereas the people that were more mobile they would go for longer (Council representative 1, 2015).

The anxieties and concerns community members had about health and safety were acknowledged by various local government departments and agencies, as were the possible consequences of poor communication;

> Council representative 1: people are concerned about that, concerned about the long term health effects. Yeah the kind of – the short term health effects some of them a like yeah, well I had a cough but it went away, but it's the unknowns, the what ifs, that they're quite concerned about, which makes sense…which feeds back into their being upset with the government, the EPA for example, because they're saying well they won't tell us what was in that acrid smoke that we were breathing, they won't tell us what chemicals they were using on the fire and they won't tell us all that sort of stuff. So it's sort of one thing feeds into another, feeds into another it's all going to be a jumble of feelings and mistrust and things, so.

> Council representative 2: It's yeah, you see the smoke coming out of the chimneys but the EPA says it's acceptable, no need to worry and for a lot of people that doesn't quite make sense (Council representatives 1 and 2, 2015).

The perception of the community was that authorities were not acting in the community's best interests or even listening to the concerns of the community. Many people were unsure what was in the smoke and ash that emanated from the fire and the implications for their ongoing health.

5.4.4 Community expectations of healthcare professionals

One of the most important perceptions held by those interviewed was the sense that agencies and all levels of government had abandoned them, and that these organisations failed to provide adequate information about the potential health effects of the smoke event (Mcnamara 2015; *Hazelwood Mine Fire Inquiry* 2014).

The then Department of Health repeatedly advised that 'prolonged exposure to smoke is not likely to cause long-term health issues for residents (Nelson 2014b: 3; see also Department of Health 2014). They simultaneously advised at public meetings, via the media, and through health alerts on the DHS website that acute exposure was very serious for pregnant women, children and older people but was not currently posing a threat to the community (Charalambous 2014). Contrary to these initial assurances, those living and working in the area experienced numerous physical symptoms of smoke inhalation, including itchy eyes, sore throat, bleeding or runny noses, coughing, wheezing, chest tightness, and difficulty breathing (Darroch 2014; Dunstan 2014; Nelson 2014a; Voices of the Valley 11/03/2014, post 9). Asthmatics and those with heart conditions were warned to avoid breathing the smoke. Paper masks, primarily used to filter particulate matter rather than gases, were

made available to residents to wear outside on days of poor air quality (Nelson 2014c). People were worried about immediate and future health impacts, particularly for their children.

Some participants acknowledged that health practitioners were uninformed at the time of the mine fire, and yet were disappointed that these practitioners were not more proactive in considering the impact of the smoke when people presented with symptoms. Participants noted that if they themselves suggested the symptoms they presented with were caused by the smoke, they were not taken seriously, or their concerns were not adequately addressed, as one participant explained;

> when I went to the doctors that was a complete blank, they know nothing about that, they had nothing to say about it, it was me having to try to convince them that I was really having a significant symptomatic response (focus group August 2015).

This has led, for some, to a significant loss of trust in health practitioners:

> You know, the [Latrobe Regional] hospital has no trust. Why? because people went there and there are no records of them being there. How is a hospital going to earn trust back? You've got the person there that goes there because they've had a possible heart attack, told you've got to make a specialist appointment in seven weeks' time, you know, like – and then the family actually taking her to Melbourne and her being in intensive care for a couple of weeks. And that's not the first. So, the hospital doesn't have the trust that it deserves. It's a great hospital, it has great staff there, but they're in the same boat, they've got to earn the trust back of people (VOTV 2015).

In what follows is a clear expression of emotional impact this perceived disregard has had on community members:

> I still believe that post-traumatic stress is going to come from this, but I've been told I'm making it up, it's all in my head. I've got this rash, I've covered it fairly well with makeup, since the fires, on my face, I look like a traffic light, and it comes up, it gets really bad, it gets really red, my face feels like it's on fire… never had it beforehand … and that's from medical profession, we're just getting treated like, oh you're just listening too much to propaganda, it's all garbage. Well, I'm sorry, this thing on my face … I'm not inventing it, it's there! And there's so many other people that have got similar, that are being told it's got nothing to do with the fire, and these are people who never had these issues prior. So how are you supposed to go, well, it's got nothing to do with that but you're not getting help with the current condition either. Well then if it's not, then what is it, how come, why is so many people that even just we know or personally have got all of a sudden had issues since the fires, has started during the fires and since how could that be such a big coincidence? I think one of the other things is, with our medical staff, including the hospital, instead of telling people you're just being paranoid, brushing it under the carpet, maybe listen, they need to take our concerns a little bit more seriously. Okay this rash may not be caused from the fire, I can accept that, but don't just tell me it's in my head and don't do anything about it... That's the first thing you get told, oh, it's got nothing to do with that. Well don't tell me that, find out what the issue is and show me that it has nothing to do with it (MNH focus group September 2015).

Some participants linked a lack of knowledge to the town's regional location, and the associated work load health practitioners faced when working in a vulnerable or marginalised community;

> I think that, there's something about the way that medical practice works here, you have a few medical practices which are widely oversubscribed … So, the doctors are seeing, I remember one of them who's a family friend saying that he'd seen 70 people a day one day. So, the way in which they're dealing with patients is incredibly quick, high pressure and don't do much investigational … take much time to, to check people out (focus group August 2015).

In addition to the perception that the health concerns of individuals were not taken seriously or were ignored, a number of participants in this study were worried that the records and data of people who presented at the Latrobe Regional Hospital were not accurately kept.[13] One participant explained,

> Now, they did use a clipboard, because I watched them do it, I was there when they were writing all his stuff on a clipboard, it was never put into a computer, and he has been … he's got the evidence of applying to the freedom of information, he's got stat decs from us because it was at least five of us who were at the hospital with him (focus group September 2015).

While those interviewed in this study suggested that they do not hold health professionals entirely to blame, what they expected and what was needed was for health authorities to take action and ensure information about possible health effects was disseminated rapidly. The importance of such engagement with local general practitioners during a health emergency was highlighted in the first Hazelwood Mine Fire Inquiry by an independent expert who explained, 'people look to doctors to advocate on their behalf and expected them to understand health issues and to provide consistent advice' (Teague *et al.* 2014: 331).

5.4.5 Early community expectations of the Hazelwood Health Study

Members of the Morwell community advocated for a health study, yet, participants stated that the resultant Hazelwood Health Study did not address all their health concerns. Participants characterised its findings as future-directed and not answering current questions and concerns; for example, they wanted to know, 'is this cough that I have had since the fire a result of the fire' or 'are my worsening asthma problems caused by the fire?'. Concern over what was in the smoke and its impact on their health at the time continues to be an issue. The high levels of mistrust of government and authorities, by at least some people in the community, may have some impact on community responses to HHS findings;

> I just feel like we're being lied to and it's being covered up because god forbid if somebody might sue somebody, like I don't care who sues what, this is serious and stop treating us like we're nobodies…I feel it's a death study, it's got nothing to do with improving our health, it's about who's going to die, what of and how quick (MNH focus group September 2015).

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[13] This concern and loss of trust is also evident in the subsequent work and lobbying done by VOTV for an inquiry into whether the mine fire contributed to an increase in the number of deaths in Latrobe Valley (see *Hazelwood Mine Fire Inquiry Report 2015-16 – Volume II: Investigation into Deaths*).

5.4.6 Community perceptions that actual experiences of the smoke event were ignored

In addition to perceptions that there was a lack of adequate information from government agencies, participants in this study felt that information they did receive did not correspond to their lived experiences. For example, Morwell residents were told it was safe to stay in Morwell, yet many suffered breathlessness, sore eyes and throats and a general lethargy and 'fuzziness' (Wood *et al.* 2015). Community members expressed anger that authorities did not listen or respond to people's concerns and questions about what they were experiencing:

> to have [the CHO] stand out the front there and say it's perfectly fine here, and all you need to do is look out there and go, no it's not. … if that had been fog okay, but that was the equivalent of a pea soup fog some days, but it was actually smoke. Like open the car door at the end of the night, and black ash would fall out …we had one lady down… she took photos of bad smoke days and good smoke days the same direction, she lives right next door to the Morwell Bowls Club … and then there's Keegan Street, and she lives on the corner here and at one stage she couldn't see – there was a photograph, she couldn't see the bowls club, so probably fifty metres. Fifty metres she couldn't see. There was a man said to us he was – we were standing at his letter box and goes 'See my front door there, couldn't see that on the bad days', like that was how thick it was for the people living down there (Council representative 2, 2015).

Exacerbating these concerns was conflicting communication from government and agencies (discussed above in Section 5.3). As Walker *et al.* (2017) also noted, local authorities were themselves frustrated with the inconsistent advice they were receiving from state authorities:

> It was the same old information we were getting day after day after day, "There's nothing wrong, nothing to worry about, nothing wrong, nothing to worry about, nothing wrong, nothing to worry about" and that's from people either in Traralgon or in Melbourne. They weren't in Morwell, trying to breathe this rubbish (local government representative quoted in Walker *at al.* 2017: 56).

This dissonance between what was communicated in official advice and alerts and people's experiences of the smoke event contributed to distrust of, and for some a sense of being abandoned by, the authorities and agencies whose role was to support the community (Wood *et al.* 2015).

Research literature on individual and community recovery from disasters recommends that people need an opportunity to tell their story of the event, to have it heard and validated (Norris *et al.* 2008; Chamlee-Wright & Storr 2011). Despite the recommendations of the first *Hazelwood Mine Fire Inquiry*, people interviewed in 2015 still felt they had not been able to fully discuss what had happened. Participants talked about the importance of talking over the event as part of a return to a better sense of wellbeing:

> perhaps the best thing about the door knock is for those that were home, that did get a chance to tell a story, because we know that one of the really important elements that aids and assists recovery is letting people talk and just tell the story and tell how it is and was for them. That's where the neighbourhood opportunities for barbeques and get togethers and things to me is really important, because if you've got someone,

something in common with someone, it's likely to be your neighbour with this type of event or emergency event. And to be able to tell a story and have someone else that understands how they felt and acknowledges how they felt, it can be very, very powerful in helping people move on (Council representative 3, 2015).

The factors and processes of recovery will be taken up in more detail in Volume 2 of the Community Wellbeing Report.

5.4.7 Lack of dialogue between community and authorities

What people wanted was clear and direct communication from authorities who listened to concerns and responded to questions (McNamara 2016). As the first *Hazelwood Mine Inquiry* (2014: 400) stated:

> Much of the frustration the community was experiencing was a result of one-way communication, with government authorities and agencies doing much of the telling and talking and not enough listening and local engagement. The information being delivered was often not being received because it was not addressing the specific needs and concerns of the audience – the Latrobe Valley community. While distributing considerable amounts of information to the community, government departments and agencies did not engage to any significant extent in listening to, or partnering with, local residents and community groups.

This lack of dialogue created a loss of trust in government agencies and authorities, and led to people believing either there was a cover-up or they had been lied to. As one of our interviewees noted:

> No one knew … where to go … what help was available. … What we were getting from the media and other services seemed to contradict each other (social media administrator 2).

Another commented:

> Other than the pages that were created and the use of social media and word of mouth, the communication from anyone of 'authority' was dismal and poor. The health Minister [sic] was not even confident in her convictions (social media administrator 4).

And finally, one participant at a focus group explained,

> Where would your trust come from? And so generally I would say you learn a lesson about where your community is placed both physically and [in] a socio-economic sense from that mine fire but there's no good news out of that (focus group August 2015).

5.4.8 Problems in coordination between government agencies

Representatives from local government and agencies that were interviewed expressed frustration with the handling of the emergency management response associated with the initial fire event. For example, one Council representative acknowledged the sense of confusion and frustration experienced by members of the community;

> I saw a lot of unwell people during the fire…especially that month when the centre was open and it was a really intense time. And a lot of people were very frustrated, very unwell and not sure what was happening, and when it was ever going to end, and their coping skills … and resilience, [were] being really tested … it just went on and on and on, and that wore people down, no matter what their background capacities were (Council representative 3, 2015).

Part of this confusion has to do with the differing responsibilities and responses of government and agencies. As explained in the Latrobe City Council's submission to the first HMFI, Council is not an emergency response agent nor is it 'structured or funded to deal with large scale emergency events' (*Local Government Emergency Management Handbook* 2012, cited in Latrobe City Council's submission to the Hazelwood Mine Fire Inquiry, p. 10). Instead, Council is a support agency, and its role is associated with fire prevention and emergency management planning and recovery (Latrobe City Council's submission to the Hazelwood Mine Fire Inquiry, p. 11). Thus, the role of Council is to link 'experienced members of the community with fire response agencies to provide local knowledge and experience' (Latrobe City Council's submission to the Hazelwood Mine Fire Inquiry, p. 15). Council's initial response, therefore, was focused on those directly impacted by the bush fire that had started on February 7 in the Hernes Oak region. Nonetheless, Council was aware that the location of the fire would have a significant impact on its services and the community, and sought to relocate services as quickly as possible. In addition,

> throughout the event Council undertook a door knock of almost every property within the town of Morwell to gather information from residents and distribute up to date information to households (Latrobe City Council's submission to the HMFI, Teague *et al.* 2014: 14).

Even so, at least one participant questioned how well Council responded;

> I'm getting a little bit cynical about the door knock, because at the end it was all done during the day so if someone wasn't home during the day and early on, and it was just in the end I felt, would say that we've done all … I'm not criticizing the people who did it or anything and I wasn't involved toward the end … there was no follow up (Council representative 3, 2015).

While this initial activity provided an important opportunity for gathering information about the impact of the smoke event on community wellbeing, gathering this data rapidly exceeded Council's capacity;

> It was a very good way of getting a lot of information early on, we had surveys of the information about their impacts and the issues for them. Every day I did a report between 6, 7, 8 o'clock at night that went, filled it in to DHHS or DHS then and other people, government and council around the key issues that were coming up. So, there was a mechanism for feeding those in and we were doing that from the survey as well. But the survey became so large and then in the end if people weren't home anyway, we didn't kind of follow up (Council representative 3, 2015).

Thus, while the door knock offered a possible means of ensuring members of the community were safe, there was a clear lack of protocol for collecting and disseminating information in meaningful ways. This included such things as considering the timing of data

collection, providing avenues for community members to contact Council staff particularly after hours, and ensuring follow-up procedures to ensure people remained safe.

5.4.9 Community perception of the lack of an emergency management plan

In 2014, there was a perception in the community that the response to the disaster was inadequate, it seemed like there was no emergency plan, and people felt abandoned by government and authorities (Duffy *et al.* 2017). There were particular concerns regarding evacuation – who should evacuate and when and what provisions were in place to enable the evacuation of low mobility and other vulnerable people. People were particularly distressed about when and whether to evacuate, the difficulties of being able to evacuate, and the lack of provisions in place for supporting the evacuation of people;

> The thing is it was actually quite traumatic the whole time and not being in the position to leave, and then being told well you're a bad parent because you're leaving your kids here, making you feel bad, your children telling you their house hurts them and they don't want to come home from school, because they were evacuated to another town. … does a lot to a parent. And people saying "Well you could have left if you want to leave"…And this was also coming from people in official positions, saying well if you want to leave no one's stopping you. Well I'm sorry but circumstances are stopping me. Plus I had nowhere to go…Where are you supposed to go, how are you supposed to afford, 6 weeks of…? I contacted my bank to get our home loan deferred, they said unless the government declare it as an emergency area, not going to happen (Focus group September 2015).

During and after the 2014 mine fire there was a perception in the community that agencies and authorities were not prepared for such an event and did not have an emergency management plan in place, yet the circumstances were foreseeable and should have been planned for. As the first Hazelwood Mine Fire Inquiry report stated:

> Contrary to suggestions that the Hazelwood mine fire was the 'perfect storm of events', all of the factors contributing to the ignition and spread of the fire were foreseeable. Yet it appears they were not foreseen (2014:20).

As discussed above, communication to the community by authorities and the mine owners GDF Suez[14] was heavily criticised by the first HMFI.

Mcnamara argues that there were 'a number of substantial failures in public communication when analysed in the context of crisis communication and emergency communication theories and principles' (2015: 10), but that the primary failure was the lack of preparation.

> It should have been clear from the information available that any fire in the mine would present a risk to human health and welfare as well as be a cause of concern and anxiety for people living in close proximity (Mcnamara 2015: 11).

For some of those interviewed in 2017 these concerns persisted, as well as the need for capacity-building in the community in the event of future emergencies.

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[14] GDF Suez were criticised by the first Hazelwood Mine Fire Inquiry for their absence from public meetings and lack of communication to the community (Hazelwood Mine Fire Inquiry, 2014).

5.4.10 Perception that the authorities and GDF Suez did not accept responsibility and should be held accountable

A strong theme that emerged from this study's interviews was that many people want an acknowledgement of the failings of the emergency response and reassurance that there will be a plan for any future events. People blamed GDF Suez, the State government, and particularly the Department of Health, and were unhappy with what they saw as an inadequate response from local government. Participants expressed a need for organisations and individuals to be held accountable and to accept responsibility, and perhaps even to apologise.

Those interviewed in 2015 wanted GDF Suez (now Engie) to accept responsibility for their lack of response in preventing the bushfire from entering the coal mine, and for their inadequate response when it did. Many suggested that GDF Suez had run down its firefighting capacity and maintenance of equipment, which was confirmed in the *First Mine Fire Inquiry* (2014). Participants wanted GDF Suez to be held accountable for this disaster and for regulations to be enforced to ensure the mine is as safe as possible from another fire event.[15] As a number of participants pointed out, the danger associated with fires at the mine were well-known;

> They knew the fire was coming, the fire got into their mine. They had the people there, you know. Hazelwood knew the fire was coming and they went away. They didn't call 000. You know, like we all knew the fire was around. It is really odd. If you've got a fire on your back door or your front porch you don't leave your house (VOTV 2015).

Another participant explained that there was an apparent lack of knowledge by senior company personnel yet they disregarded the knowledge held by the miners, and this is of concern;

> the duty of care, responsibility stuff is all – to have really listened to people who knew, somebody listening to my cousin in the mine on the day, 'Get some hoses onto that thing'. They, if that's, if that's dismissed at that point what are you really going to care about? What that company says about communicating, we're going to be working closely with the community, we're going to be working closely with the community, now that this event has happened? (focus group August 2015).

The concerns expressed by the community with regards to the lack of maintenance of firefighting capacity by the company was validated in the HMFI which stated,

> The inability of GDF Suez to effectively supress the Hazelwood mine fire during the initial stages was due in large part to the mine operator being inadequately prepared to manage the fire. Firefighting was significantly impeded by the fact that the reticulated fire services water system … did not extend to large sections of the worked out areas of the Hazelwood mine where fires took hold (2014:16,14).

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[15] These interviews were conducted before Worksafe and EPA issued fines to GDF Suez for not making adequate provisions to ensure the safety of the mine.

As with the power company, people also wanted government – at local and state level – to accept responsibility for the inadequacy of the response to the event and to assure the community that measures will be put in place to protect the town from future events. Some people also want the state government to acknowledge the role that Morwell and Latrobe Valley play in generating coal-fired electricity and that as such the government has a special responsibility towards Morwell and the Latrobe Valley.

> we need to have some sort of please explain from levels of government about what will be done in the future and I'm not talking about some two hundred page document no, let's not do that; let's do a two page double sided info graphic about how things have changed, how communities are going to be consulted particularly low socio-economic communities. Very basic thing as to what's been changed, how are we going to prevent this … because I think the community's more well, what happens if this happens to somewhere else, is the response going to be exactly the same? (Headspace representative, 2015).

Many in the community believe that the Council response was inadequate at the time of the event and that they continue to be largely absent from the recovery effort. This is a complex issue as in many ways the Council was officially restricted in what it could do until very late in the event. However, it may be significant to repairing the Council's relationship with the community;

> it would be good if I think our organisation come out and said, look we didn't do some things really well then, but this is what we want to do now…things were different then, they're different now let's make the most of the opportunity. I think just us delivering some positive messages would be really good (Council representative 3, 2015).

5.4.11 The legacy of a loss of trust

Loss of trust in government existed in Morwell prior to the mine fire as a result of privatisation of the power stations and the perceived cover-up regarding asbestos-related diseases and the lack of ongoing support for sufferers (Duffy & Whyte 2017; Fletcher 2002; Gibson 2001; Rainnie & Paulet 2003). This pre-existing mistrust shaped people's perceptions of the mine fire, the mining company and the government's responses to the disaster. The community already had mistrust in the messages and actions of government, and the inadequate information and communication that occurred during the mine fire event exacerbated and amplified that mistrust. The strong emotional response is clearly expressed in the following:

> They've [GDF Suez] rung me – how can we earn your trust back? Well, talk to the community! But they don't… They've had someone at all the forums but I'm sure its just to monitor and see what people are saying…Mark Wilkins at one of the forums for the rehabilitation said – but the – because we were saying it'd be great when the areas are rehabilitated and they can be handed back for community use. Well! [what they are really saying is] we're not going to hand it back to the community. It's not theirs. We own it. The mines own it. Why are we going to hand it back to the community its not theirs… so where's the social responsibility? As far as I'm concerned they can piss off…because there is no social responsibility, they really don't give a damn. They could have prevented that fire getting into their mine (VOTV 2015).

The legacy of this continued to reverberate through the narratives and perceptions of many who were interviewed in 2017 and demonstrates that regaining trust must be one of the main priorities of the recovery effort:

> the government of the day sacrificed the community for the resource and I don't think you can look at it any other way. I've tried to come up with more gentler ways, but really that's what happened. So, I don't think they trust the messages, they don't trust the messenger…I think there will always be that reference to what they did, they did that to us last time why wouldn't they do it again?... just in general, relationships, if you destroy your trust with somebody it's very hard to gain it back, they don't just go, 'oh buddy, that's okay, I'll believe everything you say from now on just because you said it' (MNH member, 2017).

In response to the loss of trust and community anger, some agencies have actively tried to rebuild relationships and earn a renewed trust within the community. A fuller discussion of this will be taken up in Volume 2.

5.5 Community empowerment and activism

5.5.1 Overview

One of the most important perceptions held by those who participated in interviews and focus groups was the sense that agencies and all levels of government had abandoned them, and that these organisations failed to provide adequate information about the potential health effects of the smoke event (Mcnamara 2015; *Hazelwood Mine Fire Inquiry* 2014). In response to this failure and a growing sense of abandonment, community members organised public rallies, created a social media presence and network and began to demand answers to their questions and concerns. Yet, there was also disquiet within some sections of the broader community. Questions were raised about those who spoke out and the validity of a few community members who apparently spoke for the range of people in Morwell, while others were cautious about the role of activism and potential repercussions.

The following section provides a more detailed thematic analysis of examples of how different members of the Morwell community responded to the perceived failure by authorities to adequately respond to the emergency; through a focus on themes of:

- Determining who can speak for the Morwell community;
- Grassroots activism: finding a voice; and
- Empowerment and activism.

5.5.2 Who can speak for the Morwell community?

While the response to the mine fire, in particular the inadequate communication with the community, reignited community activism, there was some disquiet within some sections of the broader community as to who could speak on behalf of the Morwell community. Some questioned whether those voices heard more readily in various public forums may not be representative of the diversity within this community. As one representative from MNH explained,

> we're still very, very selective about voices that we bring to the table…the difficulty for Morwell is it's a town of what, 14,000, there are many and varied voices. There are lots of factions just in this town, let alone the broader Latrobe Valley. And to me it's about how we identify those voices, but also give them power to speak and be acknowledged …we haven't actually validated the actual space and the event that happened. So how do you communicate, how do others in the community then move forward from an event that everyone pretends didn't happen? (MNH member, 2015).

The concern about representation is not simply about new voices; rather a number of those interviewed expressed concern that those invited to participate and make decisions continue to be the same 'established' groups, which led many to question whether representation is actually inclusive of all community members;

> we haven't diversified the views coming from Morwell and I see that on table after table that I go to. It's quite often the same faces … bringing the same things to the table (MNH member, 2015).

Yet other agency representatives pointed out that for some community members, speaking out was difficult;

> The other thing was that we're talking about a group, a community who, a lot of the population struggles to advocate for themselves. If this was to happen in an area that was more affluent – I'm making gross generalisations – but more educated, people would be speaking, the local politicians would've been hammered, there would've been information – the community would've been demanding action. But to a large extent the community here feels very disempowered with the system, the system as in Centrelink, DHS, any sort of large corporations. They feel very disempowered dealing with those things (Headspace representative 2015).

> People will pick up the phone and call, and ask for help, and then expect you to be like a spokesperson for them, and help with their problems, but they actually haven't got that belief in themselves. I guess that they can actually be the one that goes out in there and speaks. You know, how do you engage them? I don't know (VOTV 2015).

While others were dubious as to the motivation behind some who purported to speak for the community;

> I think some people are very frustrated … They're feeling that perhaps the people that are getting heard aren't really representing them, and there's a number of people that are making a political world and political life out of this, as happens with a lot of emergency events … and then there's the really stoic people that just get on with it … try and be really positive, do their daily, you know they're business people or do their daily things here and are trying to make a positive impact on Morwell, who get worn down by those that are, that often in this political realm and speaking as if they know what their issues are and they don't (Council representative 3, 2015).

Often criticism was directed specifically at VOTV. As one participant explained, the lack of leadership from government meant others needed to step in, and this 'just gave more oxygen to the Voices of the Valley – that they didn't create a legitimate group of people that were concerned and loved this place' (Council representative 4, 2015);

VOTV representatives were aware of such criticism. The group stated that they had never claimed to be speaking for everyone but believed it was important the issue of the impact of the smoke from the mine fire on people's health continued to be raised;

> Person 1: We kept saying about health and how important it was to address the issues and everything we were also getting, "Well shut up the people don't want to come to Latrobe Valley if you say we've got a health problem…You're really, you're really running down the Valley because of it".

> Person 2: We've got a few things going against us, a lot of people didn't like that we stood up, a lot of people don't like, a lot of people shoot the messenger…You hear a lot of people say, "Voices of the Valley don't represent us." Well that's okay, we never purported to, we represent those people that, that come to us with problems, we represent those people that, that fill out the surveys and that stuff, that's what we're on about. We don't have to represent everybody (VOTV 2016).

The lack of clear leadership from authorities, therefore, did not only have immediate health impacts on members of the community during the fire and smoke event, but also inadvertently contributed to divisions already present within the community. These issues were also exacerbated, often inadvertently, by social media.

5.5.3 The role and impact of social media

Social media groups had an important role in bringing the crisis to the attention of the mainstream media. From the perspective of a local community affected by a disaster, the knowledge that state and national media are covering their story and its impact enables them to feel that there is wider public recognition of their plight. It also confirms that what they are experiencing is significant and worthy of attention and action from the authorities. This is particularly important for an event such as the Hazelwood mine fire, in which there was no (immediate) loss of life or loss of property, but which involved a lengthy period of adverse health symptoms being experienced by the community.

However, disagreements did occur over who could speak for the community, and whose experiences were 'real', 'true' and representative. Despite their success in gaining media attention, the organisers of the three Facebook groups in this study were not necessarily seen as representing the community's views. During and after the mine fire, some community members questioned whether those voices emerging strongly via social media could speak for the community. For some the concern arose out of an apparent lack of ongoing connection – and by implication commitment – to the Morwell community, which was the case for one 'media talent' who was active on social media but had moved away from the area. However, it was also acknowledged that news media did play a part as to who was given air space to talk about the event. As one journalist explained:

> I think that groups like Voices of the Valley have gained a real credibility with government and have almost become some sort of de facto spokesperson for the Latrobe Valley community. I think the media certainly has a responsibility to take there. I think and it comes back to that point I made before about in the absence of being able to have other people to speak to you're constantly going to the same people – their profile inevitably gets lifted (media professional 3).

It is not simply that there was an apparent few who seemed to have greater exposure on social media, but that this highlighted the divisions within the local community. Our interviewees felt that social media made these divisions more obvious but didn't create them.

> And on social media I've noticed a big divide of just local community, between people, there's a huge divide…it also caused in a lot of ways - oh not the page didn't cause it but … it became apparent in the community there were people who thought we should have just sat back, shut up and dealt with it. We got … blamed for the downfall of Morwell … that people don't want to come here anymore, it was all our fault (social media administrator 1).

A consequence of using social media (and mainstream media) as platforms to highlight inadequacies in the emergency response and recovery, is that those speaking out may be seen as exacerbating the difficulties the community is experiencing, despite the fact that their efforts may indeed lead to necessary actions to address shortcomings.

Conflict and disagreements arose over who was genuinely affected by the event, and whether or not it was legitimate to complain and to criticise the emergency response by authorities. Some in the community and on these sites saw this as 'whingeing':

> And the criteria to get funding, so then anybody that got funding to leave town, oh yep meh, meh, meh they got bagged out and anyone who couldn't get it was whingeing and complaining and bagging. It was just, … it was like them and us and none of us could be in it together, they [the authorities] created these divisions. It was social and geographical (social media administrator 3).

As with any set of social processes, the formation of an online community is not without its challenges. On the other hand, social media had positive functions. They were also used to call for unity, and to bring people together to organise and advocate for changes. Social media can fulfil a 'watchdog' function, holding government, private companies, and other organisations to account, for example on matters of public safety. As one interviewee observed:

> Unfortunately the people, the watchdogs that are supposed to do it have failed, so the communities had to … take it back and do it themselves (social media administrator 2).

Yet, this is also viewed as beneficial for community cohesion:

> I think the social media's good for keeping the community, holding the community together (social media administrator 2).

Community groups can form and organise themselves using social media, and take on an advocacy role on behalf of the community. They can also assist with rebuilding efforts by promoting positive initiatives and providing a space for considering 'the way forward. In doing so they can promote a community's disaster resilience, defined as the ability to 'bounce forward' after a disaster (Dufty 2012).

The relative intimacy of social media, where community members know others in the group, means they may feel more comfortable speaking in that forum, when some wouldn't go to the mainstream media with a problem or issue. As a result, community members affected

by the Hazelwood mine fire have become better at speaking out more, and have discovered they have a voice that is listened to. This was particularly apparent with the role played by the Voices of the Valley, where, as one journalist explained, this became a strong avenue through which calls for government and industry responsibility and culpability were made:

> Is this community happy with the recommendations [of the Hazelwood Mine Fire Inquiry]; are they satisfied that they address the terms of reference; that they go far enough and I think we probably saw that not necessarily from I think the media trying to do that but from a very well organised – I don't want to call them activist group but the Voices of the Valley in their pushing for some sort of avenue to address what they didn't see – what they say as I guess failings of the first inquiry and that it didn't address the alleged deaths and the increase in deaths (media professional 3).

5.5.4 Grassroots activism: Finding a voice

> We've never had political power down here…we've never had political power that we have right at this stage. So we've got to use it. Let's not – you know, the enquiry said the same thing the other night, we've got to use it while we've got it… This is a chance for the community to have their say…This is a chance for the community to have their say… I think they'd like to see going back to those grassroots, I think, making connections – you know, making connections, making people feel better by making those connections, and then people will move on (VOTV 2015).

The push from the community was instrumental in securing a long-term study to investigate the health impacts on the community of the mine fire. As one participant commented in a focus group discussion,

> I think the community strengthens its own networks and it's become, it's come together in lots of different forms to actually push back against authorities, against the departments and demand community justice, we want to know what's going on, we want the answers (focus group September 2015).

The response to the mine fire and more specifically, the inadequate communication with the community, reignited community activism. Groups such as the Disaster in the Valley, which later became Voices of the Valley, were especially active early in the emergency in trying to establish assistance and clearer communication during the Hazelwood smoke event. This group later joined forces with other members of the Morwell community to establish the Latrobe Valley Support Network (LVSN). This grassroots organisation sought to 'raise community spirit in the Latrobe Valley, to help where there is no help' (www.latrobevalleysupportnetwork.com 2015). Its initiatives included seeking to establish a community garden, the donation of a warehouse for use as a 'free store' to distribute donated goods, as well as a base for the group to continue to support other projects in the Latrobe Valley (Symons 2014). Such community activism is a marker of community resilience (Kirmayer *et al.* 2011; Morello-Frosch *et al.* 2011), and will be discussed in more detail in Volume 2 of the Community Wellbeing Stream's report. What we see is that the need to 'find answers' generated the community's 'shared meaning and purpose' (Norris *et al.* 2008: 140), that in turn reactivated social relationships, acknowledged in the disaster literature as significant in the processes of recovery and resilience (Aldrich & Myer 2015).

In addition, participants talked of a sense that communities in Morwell have become more resilient because they have had to make their concerns about the impact of the fire known. This active participation is significant to the process of recovery;

> From a year on, look I think we've seen the community revitalise in a couple of ways and when I say that it's got nothing to do with, I don't believe it has anything to do with governments of any level of support, but underneath at a real grass roots level I think we've seen community led recovery start to happen in the absence of anything significant coming from Governments or any direction (Morwell Neighbourhood House representative 2015).

As this comment suggests, the collective action that emerged following the mine fire did so because members of the community were frustrated and disappointed with the apparent lack of response from political leaders. In this case, grass-roots activities, such as the Disaster in the Valley rally, were important and effective responses because they helped build consensus within many of Morwell's communities and mobilised political action that led to the Inquiry into the mine fire event and its impact on Morwell.

> Person 1: The way that people did rally together with this, not just because of the fire itself, but also … people said we've had enough of being considered a second class town.

> Person 2: I think the community strengthens its own networks and it's become, it's come together in lots of different forms to actually push back against authorities, against the departments and demand community justice, we want to know what's going on, we want the answers.

> Person 2: I think we're much more outspoken than ever we were… I think we're a better community because of it.

> Person 3: It's a shame it had to come to that (MNH focus group 2015).

5.5.5 Case studies in activism and empowerment

Two groups emerged that have had significant impacts for empowering the community and gaining responses from authorities: the Voices of the Valley (VOTV), and the Morwell Neighbourhood House (MNH).

5.5.5.1 The Voices of the Valley

Integral to recovery from the Hazelwood mine fire is the emergence of grass roots activism, which provided a platform for the community to voice concerns and demand action. Soon after the mine fire event, several groups formed to help support Morwell's communities. One of the earliest groups was Disaster in the Valley. Initially a Facebook page that sought to disseminate information about the mine fire (Ellis 2014), this group coordinated a major community rally:

> A: I think the Disaster in the Valley rally was also a big show of what the community actually were feeling and thought. I mean we had – we got 1500 people there within a week. That was actually done – Naomi Farmer actually wrote a paper initially, 'Disaster in the Valley, her dad's actually a coal miner at Hazelwood and that's where it started, and it was like…we can't breathe, yeah disaster in the valley,

> we can't breathe and it just, we just got together, we didn't even go – none of us knew each other, there was like…
>
> B: It was called 'Disaster in the Valley' because we were calling for the government to declare it a disaster zone…
>
> A: We had two meetings and we had this massive rally. We got 1500 people, now people in Latrobe Valley don't protest, it's … they don't.
>
> C: That was actually, that was a first, that would be the first since … the 60's when they went on strikes.
>
> A: I mean that's got to show exactly what the community are thinking and these people, we had people come in, because I collected a lot of data … what they were feeling at the time, how it was affecting their businesses, like we went through and we drew up a lot. And we had a lot of similar stuff coming through obviously with how people were feeling, how sick they were, how it was affecting business, and this was going from Yinnar, Boolarra, Traralgon, we had people come from everywhere, we had 1500 people, and they were local, only locals, they weren't outsiders as such coming in (MNH focus group September 2015).

This group became the Voices of the Valley (VOTV), its activities recognised by the first Hazelwood Mine Fire Inquiry as 'in direct response to the information vacuum and lack of advocacy the community was experiencing' (Teague *et al.* 2014: 398). VOTV became an important voice for the community, through the use of social media (developing a dedicated Facebook page), as well as organising public protests, facilitating public meetings, distributing information and coordinating and conducting a health survey completed by 650 community members, which was then submitted to the first Hazelwood Mine Fire Inquiry (2014).[16]

As well as providing a voice for the community, the formation of VOTV demonstrates the importance of self-help and agency, as well as capacities for resilience inherent in communities under stress (Bach *et al.* 2015). As Wattchow (2016: 22) pointed out, the work of groups like VOTV

> wasn't just about the fire anymore. This was about what the local economy needed to thrive after an industrial disaster, after privatisation, after coal. This was, as President of Voices of the Valley, Wendy Farmer says, about jobs and hope. Two things the Valley had been in want of for a long time.

The activities undertaken by VOTV also demonstrate the important role a community group like this can play not only in advocating on behalf of others but also in the potential to partner with government authorities to support effective crisis communication with the community. The work of VOTV has shifted to a focus on broader community issues, most notably with transition plans to diversify the Latrobe Valley's economy beyond brown coal mining and power generation (Wattchow 2016).

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[16] In its report the Hazelwood Board of Inquiry commended the organisers of VOTV, stating, 'the Board commends those responsible for the establishment of Voices of the Valley and the actions of this group in disseminating important information to the local community and advocating on their behalf during the emergency' (*Hazelwood Mine Fire Inquiry Report* 2014: 403).

5.5.5.2 Morwell Neighbourhood House

VOTV was not the only grassroots or community organisation to respond during this emergency; Morwell Neighbourhood House (MNH) was another group commended by the Hazelwood Mine Fire Inquiry for its response and assistance to members of the Morwell community. During the mine fire, MNH played a crucial role in disseminating information to the community, advocating for the community and in seeking answers to community concerns;

> [the] Neighbourhood House definitely transformed then because it became a beacon of hope during a very dark period for the Valley. We had never had a fire so close to us as a town before. And even people that usually take fires in a certain stride were starting to get a bit concerned about what was going on. And even in the ensuing weeks then, when there were other things that we then thought about, rather than just the immediacy of are the flames going to reach my house, am I being poisoned? What actually is really going on, what are people doing about anything? It was a place to – because there wasn't a lot - there wasn't things done properly for Morwell on so many levels with that fire…[Morwell Neighbourhood House was a] beacon of hope by being a place that you could go to, to get answers about the current situation. Beacon of hope because it could reassure you and give you information (MNH member 2016).

The staff and volunteers of MNH responded from the first day of the emergency, providing information to its immediate neighbourhood community and the wider Morwell and Latrobe Valley communities. MNH also became a platform for community voices to be heard. The interview extract above captures the emotional significance of this agency for those who felt abandoned by the apparent lack of government support during this crisis. The staff and volunteers at MNH acknowledged people's confusion and uncertainty and acted to support and advocate for them. MNH continues to act in this role, even as there has been pressure to return to the more usual activities accorded a Neighbourhood House (Whyte 2017). As one participant explained,

> I do think community's got a lot of its own answers but we don't, we muffle these voices quite a lot and we don't allow them to rise up and actually speak … and even when they do we're not providing, I use the word vehicle, but we're providing the support so that it can be acted upon. We're still very much in that mindset of imposing on and talking down. That's the way I view it and I think that's evident across Morwell after, or and during the fire, but I think it still continues (MNH member, 2015).

MNH remains active in ongoing advocacy for the Morwell community; for example, facilitating an online petition to demand an inquiry into the health impacts of the mine fire, and in organising and running recovery initiatives for the community. These activities included the *Journey through the smoke workshops* where participants could share their experiences of the mine fire event as part of being 'on the road 2 recovery', as suggested by the workshop's promotional material.[17] One result of these workshops was the development

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[17] Tracie Lund and Ann Pulbrook from MNH were interviewed about the initiative by WIN News, which can be viewed at www.morwellnh.org.au/journey-through-the-smoke-workshops-on-win-news/

of the play, *45 Days*, devised by Tara Dean from the documentation of the stories shared at the workshop, which was in turn workshopped as a play in Gippsland and Melbourne.[18]

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[18] See: https://www.pressreader.com/australia/warragul-drouin-gazette/20160614/281883002618975.

6 Summary of key findings and their implications for the future

6.1 Overview

This report explored the community's perceptions of the impact of the smoke event on community wellbeing, and the elements that are important for communication during and after that event. By combining the results of the qualitative and quantitative analyses (Section 5) with our review of the published literature (Section 3) and the chronology of the event detailing official communication (Appendix 1), we have been able to gain an understanding of both the positive and negative aspects on the community's experience, an understanding which can shed light on how to avoid some of the problems and build on what was done well, should an event such as this occur in the future. These findings therefore have important implications which can inform policy and planning, and best practice in community-engaged disaster communication for similar future events.

Based on the interviews, media and social media analysis and archival research discussed in Section 5, there are a number of key findings regarding how the Hazelwood mine fire and smoke event impacted on communities in Morwell and the Latrobe Valley. This final section builds on these important findings and outlines their implications for future planning. In this section we present a summary of these findings, in relation to our aims of documenting community's perceptions of:

- the impact of the smoke event on community wellbeing, and
- the elements that are important for communication during and after that event.

It is clear from our analysis that the impact on community wellbeing is strongly linked both to factors leading to a loss of trust, and to the (in)effectiveness of official communication during the crisis (linking our first and second aims). Our analysis also shows that while community wellbeing was adversely affected by these two factors, some in the community responded by finding a voice, empowering themselves to speak and take action to address these negative impacts, in ways that were viewed as positive by some in the community and not others. Therefore the impacts on the community were dynamic, and community perceptions and judgements regarding these impacts were complex, varied and at times ambivalent.

6.2 The impact on community wellbeing

The Hazelwood mine fire had significant impacts on the communities in Morwell and the Latrobe Valley more broadly. People suffered from a range of distressing physical health symptoms, and this combined with the emotional toll due to the length of the event and the lack of clear information about the disaster and its impacts, as well as the inconvenience of attempting to remove ash and dust. In addition to these impacts on community members' personal wellbeing, there were considerable impacts on community wellbeing, most notably a loss of trust in authorities when dealing with a crisis. Nonetheless, this led some members of the community and community groups to find ways to support one another, meet the needs of those impacted by the fire, and lobby for government to address the concerns of the community. Problems with official communication during the smoke event played a prominent part in the community's distress, and local media and social media have been important in filling communication gaps. From these challenges emerged the possibility for

growth following the event, with these groups now advocating for a positive future for Morwell and the wider community (see Section 6.2.3).

6.2.1 Community perceptions of the effectiveness of communication

Problems with the communication from various government agencies and from the owners of the mine, GDF Suez, impacted negatively on community wellbeing. Official communication from the various agencies and the mine owners has been extensively analysed (Teague *et al.* 2014, Mcnamara 2015, Walker *et al.* 2017). Our study found that communication from authorities responding to the emergency was perceived by the community to be flawed, at times contradictory, not reflecting their experiences and as not meeting all of their needs.

A relatively narrow range of channels was used in the initial communication to the public by authorities. The community experienced an information vacuum in relation to some aspects of the smoke event, particularly in relation to its health impacts, how to minimise these impacts, and the types of support available. The community's perception was that their needs for timely, accurate and empathetic communication were not met. The lack of an appropriate communication plan tailored to the needs of the community and implemented at the beginning of the crisis, eroded the community's trust in authorities.

There was closer alignment between the topics covered in news media and social media during the mine fire and smoke event, than between the official messaging and news and social media. This indicated that while media (especially local media) were reflecting community concerns, official communication was not hearing and responding effectively to those concerns.

Because of a perceived 'information vacuum', local media and social media took on a particularly important role during this crisis. Local media and social media provided more plentiful sources of information for the community than official sources and were better able to meet the community's information and communication needs.

6.2.1.1 The media

The media functioned in a range of ways. On the one hand, local media during the mine fire provided updates from the authorities on the status of the fight against the fire, and advice on day-to-day living with the smoke event. There were trusted media outlets; in particular the ABC is a trusted source during an emergency, although changed emergency broadcasting arrangements within the organisation, and the closure of the Morwell office, were perceived to have impacted on its regard by the community. It must be recognised that local media are very reliant on receiving accurate information from the authorities in order to inform the community. On the other hand, the local media gave a voice to a community's concerns during the crisis and told their stories, advocating on their behalf, and ensuring the crisis remained on the public agenda.

Local media reported community dissatisfaction with the disaster response and in particular with the communication around health advice and whether or not evacuation of the most affected area ought to have occurred. In representing the community's concerns there was a clear tendency to blame authorities for shortcomings in the emergency response, a

common pattern of narrative framing after disasters (Pantti *et al.* 2012, Miles & Morse 2007).

The metropolitan media brought the crisis to the attention of a wider audience. This is important for the community in giving them a sense their voices are being heard. Reporting by metropolitan media after the initial weeks of the crisis was more focused on the adequacy or otherwise of the response effort and questions of responsibility and blame. Media reporting of the mine fire increased public awareness of the risks of smoke from coalmine fires, and shared the assessment of how well the crisis had been handled with a wider audience beyond the Latrobe Valley.

6.2.1.2 Social media

Our findings show that social media was particularly important in addressing the information vacuum the community was experiencing as a result of flaws in the official communication. Social media were used actively by community members during and following the mine fire. The use of social media during this crisis served a number of functions and had a range of impacts on the community, both positive and negative.

Social media filled an information gap left because the official communication sources were not regarded as trustworthy and didn't meet the community's needs. Even so, community members acknowledged that the information shared on social media might not always be accurate and consequently social media administrators faced dilemmas in deciding what to share.

Studies show that psychosocial support is a vital element in disaster response (Eyre 2006, 2008; Australian Red Cross 2010) and our analysis confirms this. Social media users provided psychosocial support to one another, as well as organising protests and lobbying for action on issues of concern. Nonetheless, these spaces were not uniformly supportive. Users and administrators of these social media groups experienced conflict and division in this online space, and acknowledged the importance of offline communication for community building and community recovery. During and after the mine fire, social media took on an important function in empowering the community to self-organise in response to the crisis, in order to 'push back' as activists in demanding answers, practical assistance, and policy change (see Section 6.2.3 below).

6.2.2 Factors leading to a loss of trust

There were three main factors leading to the community's loss of trust in authorities:
- problems with communication and the way information was presented;
- the perceived lack of an emergency plan;
- the perceived lack of accountability.

First, the problems with communication discussed above were fundamental to the community's lack of trust in government and other authorities. People's loss of trust was a result of inadequate, and at times non-existent, communication between authorities and the community. In addition to the anger and frustration felt by the community in relation to the poor communication from authorities discussed above, this flawed communication also

led to a perception that authorities were attempting to conceal the nature of the event and its impact on the community.

Further, participants in this study noted that information provided was often presented in deeply technical language that few understood. Some pointed out that this information was made available via websites that not everyone could access, either because they lacked access to the internet or did not know which sites were trustworthy. The combination of these issues led to the community feeling abandoned with little support provided in the immediate aftermath of the fire.

Second, the lack of an emergency plan was raised by participants as a serious concern. The community looks to government and authorities for leadership in disaster situations, and failure to provide effective leadership reinforces mistrust. Local government and agencies expressed frustration with the handling of the state-level emergency management response and lack of coordination between different authorities associated with the initial fire event.

Third, at the time of being interviewed, two years after the event, some in the community felt that the government, authorities and GDF Suez (later Engie) had not accepted responsibility for what happened and were not held accountable. This caused anger.

The overall perception of the community was that authorities were not acting in the community's best interests or even listening to the concerns of the community.

6.2.3   Community empowerment and activism

One of the most important perceptions held by those interviewed was the sense that agencies and all levels of government had abandoned them, and that these organisations failed to provide adequate information about the potential health effects of the smoke event. In response to this, community members organised public rallies, created a social media presence and network and began to demand answers to their questions and concerns. These initiatives were important to addressing the concerns of the community and determining ways forward. However, many also questioned the motives of those who took on this work, while others were concerned about the repercussions on the community by taking part in activism.

As noted in 6.2.1.2 above, social media took on an important function in empowering the community to self-organise in response to the crisis. However, some questioned the validity of the few community members who apparently spoke for the range and diversity of people in Morwell. Thus, social media inadvertently contributed to divisions already present within the community. Social media was an important avenue for members of the community to question and challenge the poor response from government and other authorities, but also did assist in creating a stronger sense of community for some. This intimate and rapid form of communication helped reactivate social relationships and constitute a base to support a range of community projects.

Two groups important to grassroots activism in the space were The Voices of the Valley (VOTV) and the Morwell Neighbourhood House (MNH):

- VOTV provided a platform for the community to voice concerns and demand action, organising public protests, facilitating public meetings, distributing information, and coordinating and conducting a health survey completed by 650 community members

that was presented to the first Hazelwood Mine Fire Inquiry in 2014. The work of VOTV has shifted to a focus on broader community issues, most notably with transition plans to diversify the Latrobe Valley's economy;

- MNH staff and volunteers responded from the first day of the emergency, providing information to its immediate neighbourhood community and the wider Morwell and Latrobe Valley communities. As with VOTV, MNH remains active in ongoing advocacy for the Morwell community.

Both these organisations were commended by the first HMFI for their work in assisting the community.

6.3   Implications for future planning

This report provides not only a narrative evidence base of the community's experiences and perceptions of the Hazelwood mine fire and the emergency response, but provides an evidence base to better inform future planning. The events of 2014 and beyond need to be considered within the wider context of the Latrobe Valley, with the health of the community inextricably linked to the power industry, with the privatisation of the industry in 1996 resulting in a major socioeconomic decline (Department of Education and Early Childhood Development, 2012; Cameron & Gibson 2005). By 2017, a number of major employers of the region closed, including the Hazelwood Mine, the Morwell Mill, and the Heyfield Timber Mill, and local retailers such as Target (Duffy & Whyte 2017). Morwell remains challenged with high unemployment and social disadvantage, reflected in its position in the lowest decile on the Socio-Economic Indexes for Areas (SEIFA) Australian index of relative socio-economic disadvantage (Latrobe City Council Submission 2016).

Nonetheless, planning needs to take into account that this is a very active space. Strategies to improve the region's health and wellbeing has led to the establishment of the Latrobe Health Innovation Zone, a key recommendation from the second Hazelwood Mine Fire Inquiry. Other initiatives include the Latrobe Health Assembly, Latrobe Health Advocate, and the Latrobe Valley Authority. In addition, Regional Development Victoria (2015) has proposed a long-term strategic planning for improving economic, social and environmental outcomes for the Gippsland region and its communities through a focus on building economic prosperity, education and community wellbeing, natural environment stewardship; and increasing connectivity.

The findings of this program of work can be used to inform the community, local government, and various community and health agencies about the way the community's resilience was affected and how the community perceives its capacity to respond effectively to any similar event in the future. It identifies the factors that led to an erosion of trust which was a major impact on the community and which hampered the effectiveness of the disaster response and recovery efforts by authorities. This work also informs stakeholders of the factors which are most critical for communication during a crisis, and how to ensure communication includes the community, speaks to them through the appropriate channels, and listens and responds to their concerns.

6.3.1 Communication

Given these findings, what needs to be considered are the factors which are most critical for communication during a crisis, and, in complex emergencies like this, how to ensure

communication includes the community, speaks to them through the appropriate channels, and listens and responds to their concerns. As we discuss, and as has also been emphasised in Walker *et al.* (2017) in the HHS report focusing on older people, communication during a disaster should draw on the evidence now available around the criticality of:

- who is communicating to, and on behalf of, the community;
- how communication occurs and through which channels; and
- listening and responding to communities' expressed concerns in order to build and maintain confidence and trust.

6.3.1.1 Who is communicating to and on behalf of the community

- The lack of clear leadership from authorities inadvertently contributed to divisions already present within the community.
- Authorities should have a communication plan, make sure there are spokespeople available to speak to the media, and aim for continuity of those spokespeople.
- Official communication with the community should be through a trusted spokesperson. Preference would be for a trusted local figure, however, if this is an external person, s/he would then need to be seen as staying in/with the community.
- Ensure continuity of spokespeople who are readily available to speak to the media.
- Care needs to be taken in regard to the selection of those who will speak on behalf of the community, and to ensure there is adequate representation of diversity within a community.
- In the event of an emergency there is sufficient expertise in the Latrobe Valley to form a local communications team that could spring into action to coordinate the communication.

6.3.1.2 How communication occurs and through which channels

- Communication needs to come from a respected figure who is capable of demonstrating empathy and compassion.
- Face-to-face communication must be an integral component of communication strategies. Reliance on online media was an ineffective strategy for communicating with this diverse community, given its lower than average internet connectivity.
- It is particularly important that key government spokespeople meet face-to-face with the community, rather than delivering a message from a 'safe' distance.
- Any future crisis/disaster communication should adopt protocols for communicating with the community based on best practice, including:
  - communication that is fast, accurate and honest;
  - communication that uses a broad mix of channels, including local media, social media and face-to-face communication.

6.3.1.3 Listen and respond to communities' expressed concerns in order to build and maintain confidence and trust

- What people wanted was clear and direct communication from authorities who listened to concerns and responded to questions.

- The community expects that government and agencies will provide correct and timely information about any emergency and its potential impacts. The community also expects such information to be appropriate for local conditions. Without this, the perception is that authorities are not acting in the community's best interests or acknowledging the concerns of the community.
- Use local media and social media networks as a conduit for listening to and communicating with the community.
- Actively include members of the community in appropriate response activities and plans.
- The community looks to organisations to acknowledge their mistakes and in some cases to apologise. Rebuilding community trust requires that organisations be held publicly accountable for actions that have had adverse consequences for the community.

6.3.2 Recommendation for the development of a disaster management plan including a communications and community engagement strategy

A detailed inter-agency disaster plan including a communications and engagement strategy is beyond the scope of this research. However, a number of considerations emerged (following on from Walker *et al*. 2017) that may provide a useful guide:

- Consult with community organisations and stakeholders to develop a disaster preparedness and response plan which recognises the specific needs and risks for this community.
- Continue to develop regionally-based, inter-agency disaster event planning, particularly regionally based activity and regional/central interactivity.
- Develop shared knowledge and understanding of roles and responsibilities of the agencies and service organisations involved.
- Enable local government to take responsibility for communications in events given their advantages in their region's community affairs.
- Form a local communications team to coordinate communication during a disaster.

The authors of this report hope that it can provide valuable insights that can inform future policy and practice in ways that minimise harmful impacts on community wellbeing by adopting well-informed evidence-based practices in responding to and managing a complex crisis of this kind in the future. We would be pleased to facilitate and/or participate in further discussion and verification of these implications for the future with the community and stakeholders.

7   Appendices

Appendix 1: Chronology of events and official messaging

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KEY:

CFA - Country Fire Authority
CHO - Chief Health Officer
CO - Carbon Monoxide
DEECD - Dept. of Education and Early Childhood Development
DH - Dept. of Health
DHS - Dept. of Human Services
EPA - Environment Protection Authority
FSC - Fire Services Commissioner
HHS - Hazelwood Health Study
HMF - Hazelwood Mine Fire
HMFI - Hazelwood Mine Fire Inquiry
HPC - Hazelwood Power Corporation

IC - Incident Controller
IM - Implementation Monitor
LLC - Latrobe City Council
LV - Latrobe Valley
MCH - Maternal and Child Health
MNH - Morwell Neighbourhood House
PIO – Public Information Officer
SA – Scientific Advisor
SCC – State Control Centre
VOTV - Voices of the Valley
WOVG – Whole of Victorian Government
VWA - Vic. WorkCover Authority

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Media release/online (EPA smoke advisory OR CHO Health alert)

Radio/TV interview

Hard copy newsletter

Media conference

Twitter

Community newsletter (hard copy)

Community update (published in LVE)

Radio update

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Date		Events	Official communication	Comments
Week 1				
09-Feb-14	Day 1	Bushfires burning around Morwell, including a fire burning in the open cut mine of GDF Suez owned Hazelwood Power Station; LCC closed preschools and MCHC services; spokesperson GDF Suez interviewed on radio	Radio/TV interview (GDF Suez)	
10-Feb-14	Day 2			
11-Feb-14	Day 3	EPA established extensive air monitoring program at request of SCC; all preschools and MCHC services reopened except Maryvale Crescent Preschool	Media release/online	Data from air monitoring program was provided to DH, allowing CHO to make health

		due to proximity to mine fire; EPA issued low level smoke advisory; IC suspended firefighting in mine after reports of firefighters being hospitalised.	(EPA smoke advisory/alert); Video DH website; Radio/TV interview (CHO)	assessments and advise SCC and community members Health risks from coal mine fire as opposed to bushfire were not referred to in EPA smoke advisory	
12-Feb-14	Day 4	Air Monitoring station in Hourigan Road was recommissioned to capture data; FSC advised State Emergency Management team meeting that mine fire could burn for a month (CHO made aware of this); DEECD raised issue of air quality impact on schools and children's services close to the mine; Dr Paul Torre (EPA scientist) attended mine to determine requirements for monitoring; CFA advised Paul Torre of CO readings; EPA staff instructed to hire hand-held CO monitors and identify portable CO monitoring equipment; CFA and EPA conducted initial monitoring of COs; EPA decided additional air quality monitoring in community was required; EPA hired portable particulate matter monitors (give indicative readings of $PM_{2.5}$.); EPA's first Twitter post	Media release/online (EPA smoke advisory/alert); Twitter		
13-Feb-14	Day 5	Morwell Bowling Club identified as location for additional fixed monitoring; CHO issued first health alert - 'at risk' groups should avoid prolonged or heavy physical activity outdoors; FSC determined HazMat overlay needed to be applied; CM monitoring commenced at schools, aged care facilities and childcare centres (no significantly elevated readings)	Website/health professionals (CHO smoke warning); Radio interview (CHO)	CHO later informed HMFI communication was initially focused on risks of bushfire smoke	
14-Feb-14	Day 6	IC released Health Management and Decontamination Plan to protect firefighters from CO; community meeting at Kernot Hall; DH distributed fact sheet on health effects of mine fire (advised 'sensitive-individuals' to relocate outside smoke-affected areas); EPA Low Level Smoke Advisory	Community newsletter (hard copy); Media release/online (EPA smoke advisory/alert)		
15-Feb-14	Day 7	CFA HazMat technicians recorded elevated readings of CO in Morwell, south of Commercial Road; meeting held between IC, SA and IO, resulting in decision to issue 'shelter in place' warning to residents, which was communicated to CHO; alert issued – 'Watch and Act – Morwell residents indoors immediately, close windows/doors/vents. Seek further info via radio.'; alert downgraded; EPA and DH commenced work on CO protocol	Media release/online (EPA smoke advisory)	Became apparent new decision-making tools were needed in place of the Bushfire Smoke protocol Decision to issue alert was not made by DH – CHO later	

					informed HMFI she believed it sent a concerning and unnecessary message to the community CHO was to have DH provide risk assessment to IC after notification of intention to issue 'shelter in place' warning but this was not provided until after the alert was issued
Week 2					
16-Feb-14	Day 8	High CO readings continued to be observed; DH decided no action was required; Informal community meeting at MNH		Media release/online (EPA smoke advisory/alert); Health Twitter	
17-Feb-14	Day 9	Health alert updated to include pregnant woman; EPA issued high level smoke advisory – advice to avoid heavy outdoor physical activity; information on smoke and health		Media release/online (EPA smoke advisory and CHO Health alert); Radio/TV interview (CHO)	Pregnant women included in 'at risk' group on evidence of lower birth weight babies due to exposure of mother to fine particles for extended period
18-Feb-14	Day 10	Community meeting at Kernot Hall; community meetings at MNH commenced; DEECD commenced planning to relocate schools and children services; air monitoring undertaken by DEECD using hand-held devices measured CO and PM10.55; CO and sulphur dioxide monitors installed by EPA at Hourigan Road; ash samples taken and sent for analysis; VWA issued media release with advice for workplaces		Community newsletter (hard copy); Media release/online (EPA smoke alert and VWA); Radio/TV interview (Minister for Health)	HMFI heard community meeting at Kernot Hall was not well managed, lacked senior government representation and highlighted depth of community concern
19-Feb-14	Day 11	DH began to obtain validated data from EPA on CO levels from station east of Morwell; first regular data summary of $PM_{2.5}$ to DH and CHO provided; DH contacted local GPs to discuss service increase demand; community respite		Media conference (CHO)	Respite Centre offered access to representatives from Red Cross; CFA; Police; Ambulance Victoria; and EPA

		centre established in Moe; free bus travel and taxi vouchers made available to some residents		HMFI later heard from expert witness on inadequacy of very limited communication by GDF Suez
20-Feb-14	Day 12	Commercial Road and Sacred Heart primary schools relocated; EPA issued low level bushfire smoke and smoke advisories for LV and Gippsland; announcement via media of establishment of community respite centre in Moe; GDF Suez posted statement with questions and answers, acknowledging 'inconvenience and concern' caused to the community by smoke	Media release/online (EPA smoke alert; Health Minister; GDF Suez); Community newsletter; Radio update (scripted); Community update (WOVG published in LVE); Health Twitter	
21-Feb-14	Day 13	DHS respite payments made available; DH established health assessment centre staffed by nurses and paramedics; EPA's dedicated microsite webpage for LV and Hazelwood mine fire launched; $PM_{2.5}$ levels recorded Morwell Bowling Club monitoring station exceeded the high (extreme) level; EPA issue high level smoke alert Morwell South and East; CHO health advisory issued to health professionals	Media release/online (EPA smoke alert and CHO); Radio update (scripted); Community newsletter; Radio/TV interview (CHO); Health Twitter	
22-Feb-14	Day 14	$PM_{2.5}$ levels recorded at the Morwell Bowling Club monitoring station exceeded the high (extreme) level; EPA issued immediate smoke impact alert Morwell South and East and advisory high level smoke	Media release/online (EPA Smoke Alert); Health Twitter	
Week 3				
23-Feb-14	Day 15	$PM_{2.5}$ levels recorded at the Morwell Bowling Club monitoring station exceeded the high (extreme) level; CO levels recorded at the Morwell Bowling Club monitoring station were classified as poor or very poor; Disaster in the Valley article published on Red Flag (goes viral); Facebook invites to protest posted; EPA issued high level smoke advisories and immediate smoke impact alert (Morwell, Moe and Traralgon)	Media release/online (EPA smoke advisories and alert); Health Twitter	
24-Feb-14	Day 16	Maryvale Crescent Preschool relocated to Moe; $PM_{2.5}$ levels recorded at the Morwell Bowling Club monitoring station exceeded the high; CO levels recorded at the Morwell Bowling Club monitoring station were classified as	Media conference (CHO); EPA smoke alert/advisory); Community update (published	

		poor or very poor; DH alerts issued re use of rainwater, cleaning and face masks; 25,000 face mask made available by LCC	in LVE) (Government Information Billboard); Hard copy community newsletter; CHO Q&A online/hardcopy/vodcast; info on cleaning, rainwater tanks, masks and health online/hardcopy (CHO); Health Twitter	
25-Feb-14	Day 17	CHO advised 'at risk' groups to consider temporary relocation, community at large to consider breaks away from smoke and to avoid outdoor physical activity; DH established dedicated mine fire website; Informal community meeting at MNH; EPA issued low and high level advisories; community information on ash-fall out issued	Media release/online (CHO and EPA smoke alert/advisory); Radio updates (scripted); Radio interview (CHO)	
26-Feb-14	Day 18	LCC decided to close all preschools in Morwell; significant decrease in air quality; EPA issued immediate smoke impact alert and high level smoke advisory; social media command centre established	Media conference (CHO, IC and LCC rep); Radio interview (CHO); Media release/online (EPA alert/advisory); Health Twitter	HMFI heard social media command centre was established too late
27-Feb-14	Day 19	All government run children's services closed or intention to close announced; significant decrease in air quality; PM$_{2.5}$ levels recorded at the Morwell Bowling Club monitoring station exceeded the high (extreme) level; CO levels classified as very poor; VOTV member finds media release by Prof. Adrian Barnett on dangers of coal smoke in Morwell; EPA issued high level smoke advisory	Media conference (CHO); Media release/online (EPA alert/advisory); Community update (published in LVE)(Government Information Billboard); Hardcopy community newsletter; Media release/online (Minister for Health); Health Twitter	
28-Feb-14	Day 20	CHO advised residents over 65, pre-schoolers, pregnant women and anyone with pre-existing respiratory or cardiovascular conditions located in Morwell south of Commercial Road to temporarily relocate; DHS announced relocation payment; DH commissioned Monash University School of Public Health and Preventative Medicine to undertake Rapid Health Risk Assessment on short-	Media release/online (EPA smoke alert/advisory); Media conference (CHO); Radio update (scripted); Health Twitter	

		term health effects on community; EPA issued high level smoke advisory Latrobe Valley and low level West Gippsland		
01-Mar-14	Day 21	EPA issued high level smoke advisories	Media release/online (EPA smoke alert/advisory); Media conference (CHO, DHS Morwell Director and FSC); Radio updates (scripted); Health Twitter	
Week 4				
02-Mar-14	Day 22	Community rally; VOTV hand out questionnaire asking for information on impact of smoke on health; EPA issued high and low smoke advisories	Media release/online (EPA smoke alert/advisory); Media conference (CHO); Hardcopy community newsletters; Health Twitter	
03-Mar-14	Day 23	Victorian Government announced $2 million Victorian Employers' Chamber of Commerce and Industry Morwell Business Relief Fund – made owner-managers of businesses employing less than 20 people and could demonstrate a loss as result of the HMF eligible for grants of between $1,000-10,000; EPA issued low level smoke advisories	Media release/online (EPA smoke alert/advisory); Radio/TV interview (CHO); Media conference (CHO); Community update (published in LVE); Health Twitter	
04-Mar-14	Day 24	Informal community meeting at MNH; EPA issued low level smoke advisory; temporary relocation advice for 'at risk' residents	Media release/online (EPA smoke alert/advisory CHO advisory); Radio updates (scripted); Community newsletter (hardcopy); Health Twitter	CHO advisory available hardcopy and made available to health professionals
05-Mar-14	Day 25	VOTV opened online wellness survey on symptoms by location across LV; EPA issued high level smoke advisory	Media release/online (EPA smoke alert/advisory); Health Twitter	

06-Mar-14	Day 26	EPA issued low level smoke advisories	Radio updates (scripted); Media release/online (EPA smoke alert/advisory); Media conference (CHO); Community update (published in LVE); Health Twitter	
07-Mar-14	Day 27	Second DHS respite payment made available; EPA issued low level smoke advisory LV	Media release/online (EPA smoke alert/advisory and CHO health update); Community update (hardcopy); Media conference (CHO); Community newsletter (hardcopy); Health Twitter	
08-Mar-14	Day 28		Radio/TV interview (CHO, FSC and EPA CEO)	
Week 5				
09-Mar-14	Day 29		Health Twitter	
10-Mar-14	Day 30	Fire declared controlled; EPA issued low level smoke advisory	Media release/online (EPA smoke alert/advisory); Media conference (CHO, FSC and EPA CEO); Media conference (CHO); Health Twitter	
11-Mar-14	Day 31	Premier of Vic announced HMFI; Rally on Spring Street; Wendy Farmer interviewed on *Today Show* (9 Network); VOTV approached GDF Suez offices and are escorted off premises; Informal community meeting at MNH; EPA issued low level smoke advisory and immediate smoke impacts alert	Media release/online (EPA smoke alert/advisory); Media conference (CHO); Media release/online (CHO); Health Twitter	
12-Mar-14	Day 32	Monash Rapid Health Risk Assessment study submitted to DH - CHO advised the study concluded that level of smoke and ash exposure would not be	Media release/online (EPA smoke alert/advisory and CHO	

		expected to cause additional deaths; EPA issued high and low level smoke advisories; CHO provided advice on health, ash-fall-out, rainwater tanks, face masks and CO	community information); Community newsletter (hardcopy); Radio update (scripted); Health Twitter	
13-Mar-14	Day 33	Two clinical psychologists engaged by DHS ran community sessions to assist LCC staff and government to improve community engagement, and to assist health professionals to provide ongoing mental health support to the community	Community update (published in LVE); Media release/online (CHO community information); Health Twitter)	
14-Mar-14	Day 34	Third DHS respite payment made available; HMFI board appointed; EPA issued low level smoke advisory	Media release/online (EPA smoke alert/advisory); Media conference (CHO); Radio updates (scripted); Health Twitter	
15-Mar-14	Day 35	EPA issued low level smoke advisory	Media release/online (EPA smoke alert/advisory)	
Week 6				
16-Mar-14	Day 36		Health Twitter	Twitter post (relocation advice lift)
17-Mar-14	Day 37	Relocation advice lifted by CHO	Community update (published in LVE); Media release/online (CHO advisories); Radio updates (scripted); Health Twitter; Media conference (CHO and FSC)	Lift of relocation and health advice
18-Mar-14	Day 38	Victorian Government announced $2 million community assistance package, offering professional cleaning of homes of Home and Community Care residents, people with 'high needs' due to age, disability or health condition, and recipients of DHS relocation grant; all residents were entitled to 'clean-up kits' consisting of a bucket, gloves, hose nozzle, dust mask, information on	Media release/online (EPA smoke alert/advisory); Community update (published in LVE); Health Twitter	

		cleaning effectively, and a laundry and car wash voucher; Informal community meeting at MNH; EPA issued low level smoke advisory		
19-Mar-14	Day 39		Radio update (scripted); Health Twitter	
20-Mar-14	Day 40		Media conference (CHO); Media release/online (CHO advisory); Radio update (scripted); Community Information (CHO) hard copy/provided to health professionals	
21-Mar-14	Day 41	Vic Government one-stop-shop for fire clean-up opened; advice given to use high-pressure hoses as part of clean-up; full HMFI board and Terms of Reference officially announced		
22-Mar-14	Day 42	MNH pots petition drafted with GetUp on Facebook, petition also mailed to GetUp's email list (25,000 people go on to sign it, over 1,500 email CHO asking for action)		
23-Mar-14	Day 43	Health data collated by VOTV		
24-Mar-14	Day 44	Children's services and MCH resumed normal operations; references to use of high-pressure hoses removed from clean-up package media releases on Vic Government websites among concerns regarding use of these on asbestos	Community update (published in LVE)	
25-Mar-14	Day 45	HMF officially declared safe by Fire Services Commissioner; firefighters from Morwell and Traralgon join protests on steps of Parliament calling for improvements to working conditions and resources; Informal community meeting at MNH		

Sources: Walker, J., Carroll, M. & Chisholm, M. (2017) Policy review of the impact of the Hazelwood mine fire on older people, Older Persons Stream, Hazelwood Health Study; Department of Health (2014) Chronology of public health messaging: Hazelwood Mine Fire Inquiry Report (2014); Community Wellbeing stream media data collection.

Appendix 2 – Sample news media headlines Weeks 1-6

Week	Events	Sample headlines
1 (9/2-15/2)	Day 1 (9/2) mine fire began Days 5 (13/2) & 6 (14/2) health alerts issued	ABC Gippsland - Firefighters treated for carbon monoxide exposure (12/2) - CFA weighs up carbon monoxide threat (13/2) - CFA volunteer claims firefighters were not safe at Hazelwood mine fire (14/2) ABC - Gippsland: Fire emergency: In Gippsland, firefighters are concentrating their efforts on a fire in the open cut coal mine near Morwell (10/2) - Smoke haze: Health warning: Victorian authorities have issued an air quality warning, as smoke from the State's bush fires continues to blanket much of the State (14/2) - Residents in the Latrobe Valley have been advised to monitor levels of carbon dioxide being generated by the Hazelwood mine fire (15/2) LVE - Hazelwood under fire (10/2) - Choking conditions (13/2) - Valley told to breathe easy (13/2) - Frontline firefighters the 'first priority'(13/2) Herald Sun - Power station under threat (10/2) - State's power under threat (10/2) The Age - Blaze near mine poses threat to the state's power supply (11/3) - Bushfire brings power price rise fear (11/2) - Firefighters fear toxic gas exposure (13/2)
Week 2 (16/2-22/2)	Day 9 (17/2) health alert	ABC Gippsland - Air quality drops as 'frustrating' mine fire continues to burn (17/2) - Morwell is a health emergency the government is ignoring: Greens leader (17/2)

		- Experts to examine Hazelwood coal mine blaze (18/2) - Air quality at Morwell, Traralgon continues to deteriorate (18/2) - Coal mine fires emit strong tar-like smell (20/2) - Evacuation of Morwell considered over smoke from mine fire (20/2) - Coal mine fires prompt health centre for Morwell residents (21/2) ABC - Health concerns: Coal fire: It's emerged authorities considered evacuating Morwell in recent days because of the choking smoke from the coal fire in the Hazelwood open cut (19/2) - Mine fire: Health hazard: Air quality in Morwell has reached the worst levels yet since a fire first broke out in open cut coal mines two weeks ago (21/2) LVE - Dangerous gas could spike again (17/2) - New protocols 'not fool proof'(17/2) - Heat on Hazelwood (20/2) - Valley's smoke crisis (20/2) - Caring for pets in smoky conditions(20/2) - No long-term health worries (20/2) - This is a crisis: community outrage at public meeting (20/2) - Fears continue to linger (20/2) - Mine regulators await public scrutiny (20/2) - Morwell smoke fears prompt student relocation to Moe schools (20/2) - New air monitors on their way (20/2) Herald Sun - Smoke forces schools to shut (21/2) - Welcome to the big smoke (22/2) The Age - Firefighters falling ill at coal mine fire (17/2) - Health fears as ash cakes Morwell (18/2) - Smoke from Hazelwood fire causes schools to close (20/3) - Health fear rises over Morwell mine fire (21/2)

Week 3 (23/2-1/3)	Day 17 (25/2) health alert (consider temporary relocation) Day 20 (28/2) relocation advice	**ABC Gippsland** - Call for independent inquiry into Morwell coal mine fire (24/2) - Infra-red imagining shows progress in mine fire (24/2) - State Government managing health risk of 'deeply unpleasant' Morwell fire (24/2) - Police hunt for arsonist as they continue to battle mine fire (25/2) - Smoke in the Latrobe Valley creates a social media storm (25/2) - Evacuation plan ready if Morwell mine situation worsens (26/2) - Morwell residents consider class action as mine fire burns (26/2) - Mine fire will lead to costly clean-up (27/2) - Mine operator may be asked to pay for Morwell fire fight (27/2) - Victoria health chief defends decision on Morwell South warning (28/2) - Morwell fire inquiry promised as residents flee smoke (1/3) **ABC** - The State Government has rejected a call from the Greens for it to declare a state of emergency in the Latrobe Valley where a coal mine fire has been burning for two weeks (23/2) - Air quality: Coal fire: Fire fighters are chipping away at the coal fire in the Hazelwood open cut but say it's likely to burn for some time yet (24/2) - Mine blaze: Who pays?: The State Government may ask the operator of the Hazelwood power station to help pay for the ongoing firefight at its open-cut mine (27/3) - Morwell crisis: The fire crisis... (28/2) - Morwell fire: Relocation advice: Many Morwell residents remain angry about the Government's response to the mine fire, saying the today's advice comes too late (28/2) **LVE** - 'Below the limits of concern' (24/2) - Keep records: respiratory lawyer (24/2) - Health centre opens (24/2) - Fire is a wake-up call (24/2) - Gains hard fought on Hazelwood frontline (24/2) - Community needs answers: Northe (24/2) - Help available for fire-affected students (24/2) - Council have to provide support: Mayor (24/2) - Shoppers smoked out (27/2) - Record readings (27/2)

		- Davis has faith in health information (27/2) - Just plain torture (27/2) - The day we moved Sacred Heart (27/2) - Smoking out the fire facts (27/2) - DHS assistance available (27/2) - Haze hurts small business (27/2) - Animals suffer in silence (27/2) Herald Sun - Fire cracks mine wall (23/2) - Frenzy on fire won't help (24/2) - Paying for fire legacy (25/2) - Betrayed (26/2) - Firebug plague a police nightmare (27/2) - Mine landslide fears (28/2) - Hundreds told to leave Morwell (1/3) The Age - Minister rejects fire health risk (24/2) - Increasing anger over smoke haze (25/2) - Authorities to help vulnerable residents (26/2) - Police suspect arson in Hazelwood blaze (26/2) - Paramedic hit by carbon monoxide at Hazelwood (27/2) - Residents in agony want help to leave (27/2) - Beijing pollution levels a risk to vulnerable: experts (27/2) - Tough move for residents (1/3) - Mine management queried in Hazelwood fire (1/3) - Fleeing has its own risks for family caught in health dilemma (1/3) - Vulnerable residents urged to leave (1/3) - A hazy response as Morwell suffers (1/3)
Week 4 (2/3-8/3)	Day 22 (2/3) Community rally	ABC Gippsland - Morwell residents vent anger over mine fire (2/3) - GDF Suez responds to questions about the Hazelwood mine fire (3/3) - Government defends actions on Morwell health warnings (3/3)

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- Morwell residents protest at community meeting (3/3)
- Health questions mount as coal fire burns (4/3)
- Size of Hazelwood fire 'dramatically' reduced (4/3)
- Hazelwood fire 'causing cigarette smoker symptoms' in locals (5/3)
- Morwell mine fire could be out by Monday (5/3)
- Morwell residents offered special vacuum cleaners for coal ash (5/3)
- The smoke haze lingers in Morwell but footy training lives on (6/3)
- Firefighters tackling the Morwell mine fire concerned about fatigue (6/3)
- Coal mine fire fighters face water contamination threat (7/3)
- Tests reveal toxic water used to fight mine fire (7/3)

ABC

- Air quality: Hazelwood: The operator of the Hazelwood power station has broken its silence on the long-running fire at its open-cut mine in Morwell (3/3)
- Fuming: For three weeks now, the people of Morwell in Victoria's La Trobe Valley have been breathing in the acrid smoke of a huge fire burning in the coal mine next to the town (3/3)
- Coal fire: Hazelwood: Firefighters at the Hazelwood open cut say they hope to have the long running coal fire there under control by the weekend (4/3)
- Firefighters are now confident they will have the Morwell mine fire under control by early next week (5/3)
- Morwell fire: Health concerns: Firefighters battling the blaze in the Hazelwood open cut coal mine fear they have been exposed to dangerous bacteria in the water (7/3)
- : It's a month tomorrow since fire entered the Hazelwood coalmine in Victoria's east, with fire authorities saying it could be under control by Monday, the focus small businesses in neighbouring Morwell is now returning to recovery (8/3)

LVE

- Morwell united in anger (3/3)
- Government steps up health advice: 'show compassion for workers' (3/3)
- Inquiry announced (3/3)
- Time to relocate (3/3)
- Ready to leave (3/3)
- Morwell schools seek respite (3/3)
- Relief fund to extend its support (3/3)
- Tourism weathers smoky storm (3/3)
- Sick and tired (3/3)

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		- Energy Minister: where have you been? (3/3) - Choking the pursuit of justice (3/3) - Overwhelmed by smoke (3/3) - Fire to fast track Valley funding (6/3) - Full health impact still unknown (6/3) - Generous residents offer homes (6/3) - Fire onus on state (6/3) - Psychological pain felt (6/3) - Protest at mine headquarters (6/3) - Free asthma relief on offer(6/3) Herald Sun - Inquiry probes the big smoke (2/3) - Marchers fume over smoke risks (3/3) - Hazelwood facing law suits over fire (3/3) - Compo threat hangs over mine (4/3) - Morwell firefighters claim battle almost won (5/3) - Fire victims' loan offers (8/3) The Age - Firefighters call on Coroner to probe Hazelwood mine safety (2/3) - Morwell residents demand action on mine fire at heated rally (3/2) - Sorry Hazelwood mine owner has 'nothing to hide' (4/3) - 'Not guilty', says GDF Suez (5/3) - Tired firefighters see glimmer of hope in Morwell (6/3)
Week 5 (9/3-15/3)	Day 30 (10/3) fire declared controlled Day 31 (11/3) HMFI announced	ABC Gippsland - Firefighters hope to control Hazelwood mine fire by Monday (9/3) - Mine fire under control after burning for a month (10/3) - Details of Hazelwood mine fire inquiry to be revealed (11/3) - Hazelwood fire inquiry to have coercive powers (11/3) - Morwell residents collect evidence of smoke health impacts (12/3) - Hot, windy conditions loom for Hazelwood coal mine fire (13/3) - Morwell family faces long wait before returning home (13/3)

		ABC - The Morwell mine fire is finally under control 29 days after it began (10/3) - The State Government has set up a judicial inquiry with far reaching powers to investigate the month-long fire at the Hazelwood open cut (11/3) LVE - On the home stretch at Hazelwood (10/3) - Clouded in ash (10/3) - Infection palmed off (10/3) - Insurance payouts will depend (10/3) - Calls for transparency (10/3) - Firies working hard (10/3) - Out-of-date masks okay (10/3) - On the road to recovery (10/3) - Water safety disputed (10/3) - Northe in the line of fire (13/3) - Voice your concerns (13/3) - Minister Northe? (13/3) - Health study under consideration (13/3) - Now the hard work begins(13/3) - Free travel (13/3) Herald Sun - Official mine blaze probe (11/3) - Morwell marches on city (12/3) The Age - Voters turn on Coalition over mine fire: poll - Mine fire reignites brown-coal debate - Morwell coalmine fire under control - Teague to lead probe into Hazelwood fire - Morwell resident joins exodus in search of clean air
Week 6 16/3-25/3)	Day 37 (17/3) relocation advice lifted	ABC Gippsland - Morwell locals offer their tips on dealing with the ash (17/3) - Morwell South residents told they can go home (17/3)

	Day 38 (18/3) Assistance package announced Day 45 (25/3) HMF declared safe	- Clean-up assistance for Morwell (18/3) - Morwell residents angry at State Government clean-up assistance package (19/3) - Napthine praises Hazelwood coal mine fire response (19/3) - Morwell mine fire inquiry findings expected in August (21/3) - Firefighters' health put at risk, union says, citing 'secret report' (24/3) - Hazelwood mine inquiry calls for the terms of reference to be widened (24/3) - Premier says mine inquiry will call for public submissions (24/3) - Hazelwood mine fire declared officially safe (25/3) ABC - Victoria's chief health officer has told Morwell residents it's now safe to return home after the Hazelwood mine fire (17/3) - The State Government has finalised the details of a judicial inquiry into the Hazelwood coal mine fire (21/3) - Morwell residents have begun officially documenting the impact of the Hazelwood mine fire that it's had on them in the hope of conducting their own citizens inquiry into the blaze (23/3) LVE - Time to clean up toxic mess (20/3) - 'Selective' process angers residents (20/3) - Time to extinguish 'old faithful' (20/3) - Citizens launch mine fire inquiry(20/3) - The cost of relocating (20/3) - Fire could be safe by mid week (24/3) - Inquiry terms announced (24/3) - Voices of concern (24/3) - EPA to stay (24/3) - High power hoses on hold (24/3) - Road to recovery (24/3) - Free travel offer ends (24/3) - Pampering to relieve stress (24/3) Herald Sun - Firey's fury over mine gases (25/3) The Age

		- Morwell's residents given all-clear (18/3) - Scope of Hazelwood inquiry announced (22/3) - Morwell will run its own inquiry (24/3)

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