ABSTRACT

The key problem faced in preparing for future disasters is a problem of imagination. It is a problem embedded in the stories we tell about what we imagine might happen. These stories tend to focus on a 'bell curve' distribution of disaster events, combining our own lived experience with the stories of others. This combination of personal experiences and the stories of others forms the basis of our perception of risk and vulnerability. This is a dynamic and ongoing process. The story is never finished, nor is it complete, as we selectively incorporate or reject information depending on its source, content and compatibility with the existing narrative.

The existing narrative for natural hazard management incorporates perceptions of probability; generally, 'disaster consequences will tend to hover close to the mean and every now and then we will be tested'. As the volume of hazards grows the narrative is more deeply imbued with concepts of coping and 'lessons learned'. If certain narratives are allowed to flourish uncontested within an organisation an ironic consequence can be a failure of imagination and coping. A failure to be future ready.

This paper is a discussion about the extent to which we're future ready using the Johari window as a heuristic and reflecting on a case study from Indonesia.

Peer-reviewed article

Are we future ready? It depends on who you ask

Stephen A Sutton[1,5], Douglas Paton[1,5], Petra Buergelt[2], Ella Meilianda[3] and Saut Sagala[4]

1. College of Health and Human Sciences, Charles Darwin University.
2. Faculty of Health, University of Canberra.
3. Tsunami and Disaster Mitigation Research Centre, Syiah Kuala University, Banda Aceh.
4. School of Architecture, Planning and Policy Development, Institute of Technology. Bandung, Bandung, Indonesia.
5. Bushfire and Natural Hazards CRC.

Introduction

In February 2002, in a long interview following the Al Qaeda attacks in the US of September 11, 2001, the US Secretary of Defence Donald Rumsfeld famously said:

Reports that say that something hasn't happened are always interesting to me, because as we know, there are known knowns; there are things we know we know. We also know there are known unknowns; that is to say we know there are some things we do not know. But there are also unknown unknowns—the ones we don't know we don't know. And if one looks throughout the history of our country and other free countries, it is the latter category that tend to be the difficult ones.

US Secretary of Defence Donald Rumsfeld (2002)

Among other things Rumsfeld's comments renewed interest in the 'Johari Window' (Luft & Ingham 1961). The Johari window was initially designed as an interpersonal awareness tool but is now used in a range of contexts including organizational redesign and the assessment of hazard risk (Kim 2017; Kim 2017b). In this paper we consider two of the four 'frames' of the Johari window to consider the question of 'future readiness'. The discussion will be illustrated with a case study from Indonesia that has relevance in Australian and international contexts. Donald Rumsfeld identified one of two key issues relating to knowledge and perception of risk which were first presented in the 1950's through the 'Johari window' (Luft & Ingham 1961).

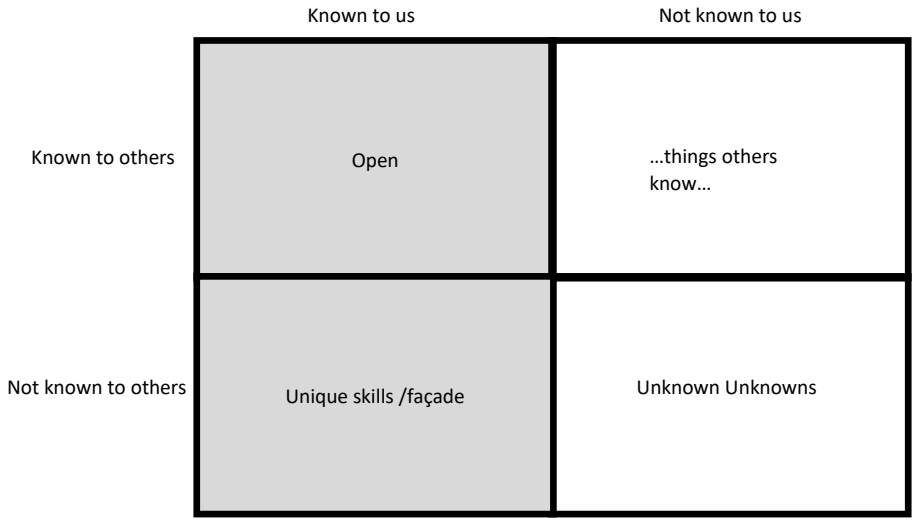

Figure 1: The Johari Window: (after Luft and Ingham 1961).

Rumsfeld draws attention to the problem of the unknown, and not merely to facts that we don't yet have, but events that we can't imagine. Indeed, those events were described by the president of the United States as "unimaginable" (Bush 2001). This inability to imagine the nature and scale of hazards and vulnerability is a major issue in any consideration of whether or not we are 'future ready' (Ballantyne et al. 2000; Paton, Smith & Johnston 2000). To be prepared for a future we cannot imagine seems to be a paradox.

Perhaps a first step is to be aware of the possibility of exercising our imagination. In Australia it is unthinkable that an agency or government might admit that it did not take measures to protect citizens from future hazards. One trend that appears to accommodate the failure of imagination is to label events as 'unprecedented'; never seen before. While not quite a proxy for 'unimaginable', it is applied to many large-scale, high-impact hazards, such as the Black Saturday bushfires (Paveglio, Boyd & Carroll 2012). The hint that it is a fig-leaf for failure of the imagination lies in the fact that it is used even when there is data to indicate that fires of that magnitude might be reasonably expected (McLennan & Handmer 2012). 'Unprecedented' explains the scale of impact of the hazard as well as why we have the sense of being overwhelmed without recourse to admission of our limited imagination. This feeling of being overwhelmed is captured in the video made by Channel Nine cameraman Richard Moran who patrolled with Officer Darrell Thornthwaite of the ACT Fire Brigade District, during the Canberra Bushfires in 2003 (Moran 2003). The footage is disturbing precisely because the viewer has a fly-on-the-wall observation of the personal consequences of a fire beyond Thornthwaite's imagination. The Canberra bushfires were of course unprecedented in the sense that the fire did burn into suburbs and 500 homes were destroyed (McLeod 2003) after 50 years without a single similar loss.

There are ways to investigate unknown unknowns (Kim 2017a; Kim 2017b), but our purpose here is to look through the Johari window category that is much easier to access. This is the frame of the Johari window; 'what others know'. This might also be characterised as 'things we could find out easily but often don't'. If other people know something, particularly something that may prove important to our own survival, how is it that we don't know it? How are these information asymmetries established and maintained? What is it about certain information, or the people who hold it, that has restricted us from accessing the knowledge? One distinct possibility is that we haven't asked. This failure to ask may in turn arise from a failure of imagination, but it is equally plausible that it arises from a culture or social setting that does not encourage the asking of questions and the testing of our knowledge.

What others know: an Indonesian case study

There is a story, possibly apocryphal, that three days after the 2004 tsunami, when Indonesian President Susilo Bangbang Yudhoyono was advised that the whole island of Simeulue had survived, he said one word – "Impossible." The proximity of the island to the epicentre of the earthquake and the scale of devastation elsewhere meant the government had already written off Simeulue as destroyed. But Simeulue locals tell the story of how the military pilots looking for survivors were shocked to see thousands of people standing on the hills waving; big smiles on their faces.

In fact, about 80,000 coastal people on the island of Simeulue had survived the tsunami. With no communication possible with the outside world in the early days, post-event, Simeulueans thought the tsunami had happened only to them. They didn't know the tragic story of loss on the mainland only 150km away. For many it was 10 days before they had any contact with their friends and relatives in Sumatra. They were shocked by the level of carnage in Aceh, because on Simeulue they knew about 'smong', their own word for tsunami and what to do when it threatens. Why didn't their compatriots survive when they did?

The answer to this question, and deeper questions about the operationalisation of cultural knowledge during rare hazard events forms the basis of the current research. Field research was conducted in Simeulue in 2016 and 2017 to examine the cultural context of the survival of the island's inhabitants. The work was conducted as part of a PhD research program in three field seasons from 2015 – 2017 (Sutton et al. 2018). Narrative interviews were recorded with the aid of a translator from 58 individuals across the island. Each interview participant had personal experience of the 2004 tsunami. These interviews reveal a remarkable consistency of understanding of the nature and warning signs of a near-field tsunami.

The people of Simeulue had maintained an emotional narrative tradition about smong. This tradition has been kept alive within families and villages across the island following an even more devastating smong in 1907. When the massive 9.2Mw earthquake occurred on Boxing Day 2004 everyone realised that a smong must come soon. They knew they had very little time to get to higher ground. So, they ran. Of 80,000 people, locals say only one died (and give his name and the peculiar circumstances of his death). Babies and grandmothers were carried, the blind were led by relatives, everyone running to the hills as the sea receded. By the time the smong arrived they were able to look down and thank their grandparents for passing on the cultural knowledge that saved their lives – while watching their homes destroyed.

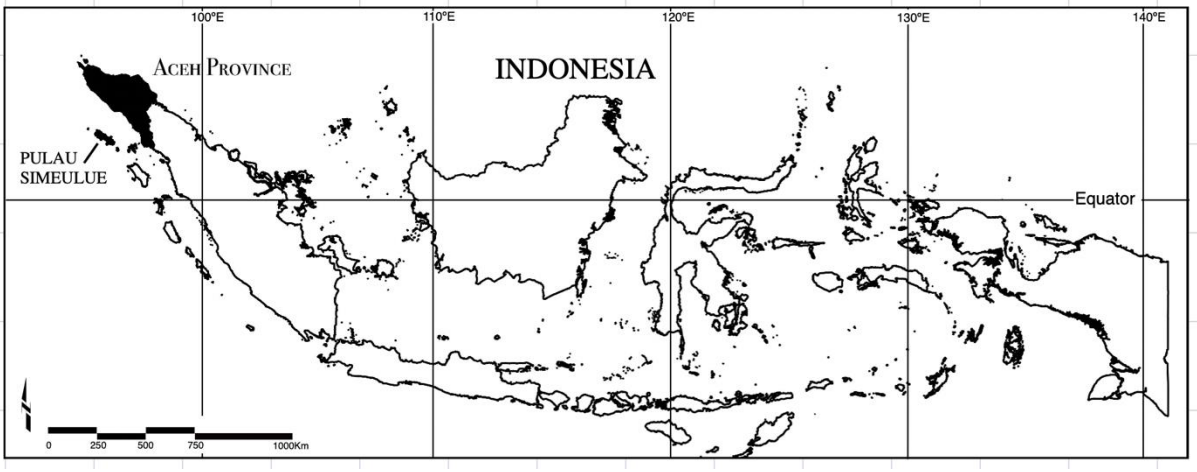

Figure 2: The location of Simeulue Island in Indonesia.

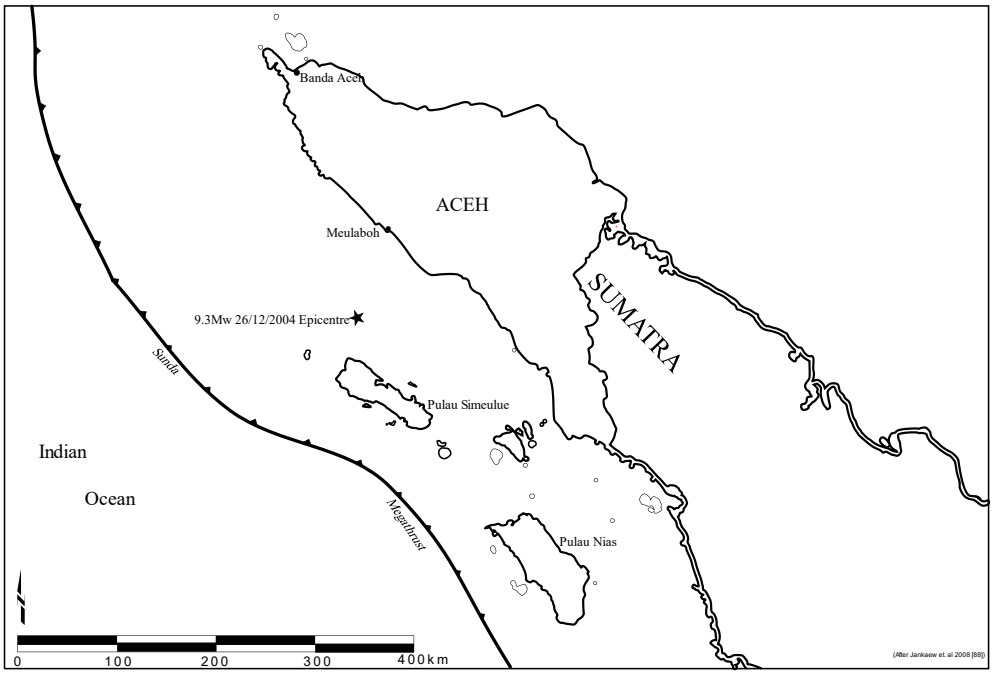

Figure 3: Location of Simeulue relative to the Epicentre of the 2004 tsunamigenic earthquake.

The story of smong is a story that the people of Simeulue knew, but which was not known by others. Amad[1] told of his experience of the tsunami in Banda Aceh. A Simeulue local he was at that time a university student in the provincial capital. He felt the earthquake while crossing a bridge. He looked to the coast and saw the wave and yelled "SMONG" and "RUN. RUN" repeatedly. Locals laughed at him and indicated they thought he was crazy. He ran to a nearby 5-storey building imploring locals to do the same. They did not respond other than to mock him. Less than an hour later Amad was watching bodies wash by in the flood. After graduating, Amad has worked as a journalist and has tried to share the "wisdom of smong" throughout Indonesia.

Accounts similar to Amad's were provided by Simeulue locals Nina[2] and Eni[3], who were in Banda Aceh and Meulaboh respectively when the smong struck. Nina was meeting with a religious organisation near the river when she felt the earthquake. She tried to persuade those near her to run to higher ground, but they rejected her advice. Instead they went down stream to see what the commotion was. They were all killed. Eni was studying nursing. Following the earthquake many people went on motorbikes to the coast to see what was happening. Shortly after Eni saw many bodies tumbling in the surge of water several kilometres inland.

These three stories show how, in close proximity, good information and sound choices can mean life or death. From the macro-scale to the individual, the consequences of the lack of knowledge about smong in Aceh were devastating. Nearly 300,000 people died and the tragic stories of those interviewed in Simeulue suggest that at least some of them had a chance at survival – if only they had "opened the Johari window" and sought to share Amad's knowledge of smong.

Why don't we know what others know?

What are some of the factors that cause information asymmetry and how do these contribute to us not knowing what others know? We indicated (above) that 'not asking' is a potential contributor, but there are likely to be other factors as well. In Simeulue, isolation is one of the factors that contributed to the information asymmetry with the rest of Aceh.

It was compounded by the very long intervals between major tsunami in the region (Rubin et al. 2017; Sieh et al. 2015). Although there is clear evidence that past tsunami were catastrophic (Daly et al. 2019) all memories fade and the emotions attached to tragedy diminish with time. But there are other factors as well and the reaction of Banda Aceh locals to Amad's frantic attempts to warn people is also indicative of a more common contemporary response to the unknown. The rejection of Amad's warning is linked to who we are and where we obtain our information (Westcott, Ronan, Bambrick & Taylor, 2017) and these traits are not confined to Indonesia. One can imagine someone yelling 'tsunami' and 'run' in St Kilda or Bondi receiving similar raised eyebrows to the victims of the Banda Aceh tsunami. Those outside our 'in-group' are likely to be ignored – or, like Amad, mocked!

The proximate cause of a reticence about the knowledge of others is trust (Paton 2007). The warnings of a person yelling 'tsunami' in St Kilda, Bondi or Banda Aceh are ignored because we don't trust them. We are unlikely to trust information from a stranger or a person we identify as outside our group (Mazar, Amir & Ariely 2008). We are also unlikely to trust someone whose behaviour is markedly wrong for the context (you won't be considered crazy yelling at the football, but do it in a public space, on a normal day, and you will).

A lack of trust in the value of information and more importantly in the value of the source of information can contribute to ongoing information asymmetry. This particular failure of imagination is a potential problem in organisations with highly specialised functions and skill sets. Hazard response organisations for example have traditionally been staffed by a highly skilled but homogeneous workforce (NSW Rural Fire Service 2001). In these situations, the recruitment of staff and the roll-out of training programs build capacity to deal with hazards within the normal statistical distribution. The agency program, taken as a whole tends to build organisations with self-reliant cultures which can in turn develop a lack of trust in external sources of information and the wider community.

The recent review of the US Federal Emergency Management Agency (FEMA 2019) found that over the last 20 years, the capacity of personnel within the agency had improved considerably. However, the "Building Cultures of Preparedness" report found that despite improvements in the agency's capacity, there had been no improvement in community resilience over the same period.

The self-reliance and capability of agencies is, ironically, potentially linked to a diminished trust in an outside organisation. Taleb (2007) describes the false security that resides in the 'bell curve' distribution of events. While most hazard events will be managed within the limits of existing resources, training and experience, a few will stretch the capacity of agencies and communities. But each time a hazard is 'managed' the sense of confidence in the capacity to cope will grow. The combination of this confidence in coping and a mistrust of outsiders when combined with universal optimism bias (McKenna 1993; Sharot 2011) can, if not managed, confound the imagining of extraordinary events which will rely on the engagement with networks right across society. Taleb (2007) calls events that are outside the statistical distribution, with a scale and consequence that exceed all capacity, "Black Swans". The problem is that Black Swan events do occur.

[1] Not his real name. Interview recorded 10 December 2016
[2] Not her real name. Interview recorded 8 March 2017
[3] Not her real name. Interview recorded 10 August 2017

The 2004 Boxing Day tsunami was a Black Swan event as was the Canberra bushfire of 2003 mentioned above. But these events were not necessarily 'unknown unknowns' as such, and as the Simeulue case study shows, a dispassionate review of 'what others know' may have extended life-saving timely evacuation to the rest of Aceh.

Technology

The FEMA (2019) report shows how the agency has improved its technical capacity through the adoption of technology. In Australia too EM agencies trust in technology and, as a general rule, emergency management agencies remain positive about their ability to effectively respond to future natural hazard events through the use of technology. Any observation of interactions between agency staff will note a degree of enthusiasm when discussing technologies that is not found in canvassing other program elements. The trade show is dominated by technological solutions to fire and natural hazard management products, with a much smaller emphasis on human or behavioural skills development. The integration of technological improvements to equipment ranging from telecommunications, satellite imaging, PPE and water-bombing aircraft into operations has seen significant improvements the effectiveness of hazard response. There is also encouraging science behind the incorporation of new technologies in both preparation and response to natural hazard events (Edwards, Maier, Hutley, Williams, & Russell-Smith 2013; Provitolo 2012; Jeremy Russell-Smith, Whitehead, & Cooke 2009; Shaw, Izumi, & Shi 2016). In the context of conversations about technology then, some will say that we are, or we will soon be, future ready.

However, there are many reasons for a more cautious assessment of the capacity of technology to accommodate the unknown events of the future. The first is that there does not appear to be a correlation between accelerating technology and decreasing disaster impact (see Figure 4). On the contrary, at a global level the scale of impacts from natural hazards is increasing. As technology increases the value of infrastructure, the economic risk and cost of disasters accelerates.

A second cautionary observation about technology is that it will always include an unreliability quotient. This can relate to design flaws or inappropriate application with sophisticated technology rarely developed by those who will actually use it. As Charles Perrow says, "Nothing is perfect, no matter how hard people try to make things work, and in the industrial arena there will always be failures of design, components, or procedures." (Perrow 2011b:44). In microcosm readers can reflect on their own experience of loss or failure of a smart phone and the devastating and ramifying consequences a failing in a single item of technology can have.

Steingart et al. (2005) demonstrate that even in moderately complex hazard events technological failures are a common occurrence. This is particularly the case with telecommunications and often results in individual agency personnel developing short-term 'work-arounds' to continue operating safely. In these instances, increasing reliance by individuals on electronic communications may contribute to catastrophic failures in some circumstances. For example, communication infrastructure, the use of mobile devices and integration of real-time remotely sensed data are likely to be unavailable to respond with the intense and distributed impacts of an intense solar storm (Riley 2012).

In some cases, technology has failed due to the very hazards they are meant to respond to. For example, the application of aerial fire suppression can be curtailed by new, unprecedented extreme fire weather as occurred in California in 2019 when aircraft were grounded after being unable to fly to the drop zone because of the conditions that made the fire so dangerous (Serna & Kim, 2019).

Other critical technology failures include the Indonesian tsunami warning system (InaTEWS) (Carvajal, Araya-Cornejo, Sepúlveda, Melnick, & Haase 2019; Lassa 2016) and the failure of the Fukushima nuclear power plant following an earthquake and tsunami in 2011 (Perrow 2011a)

Even a simple technology can fail in circumstances if a community does not have a genuine trust in its effectiveness. Such an example was observed during the 2012 earthquake in Banda Aceh (Rahayu 2018). In this instance, vertical evacuation shelters had been built across the city following the 2004 earthquake. However, community mistrust in their structural integrity and their effectiveness during the panic of the quake meant they were largely unused (Rahayu 2018). Instead people crowded into traffic jams trying to get a mobile phone signal. Had there been a tsunami like the one in 2004, the death toll would have been huge – despite the development of escape technology.

As technologies surrounding disaster response are inevitably connected to or operated by people, human factors will remain an ongoing source of concern. This is not so much about 'human error' as Stanton (1996) points out, but rather that social context is rarely taken into account in either the development or the operation of complex technologies. Operational social contexts may exacerbate fatigue, stress, inadequate training or cognitive load in ways that amplify technological inadequacies, often with catastrophic consequences (cf. Hetherington 2006; Flin et al. 2002).

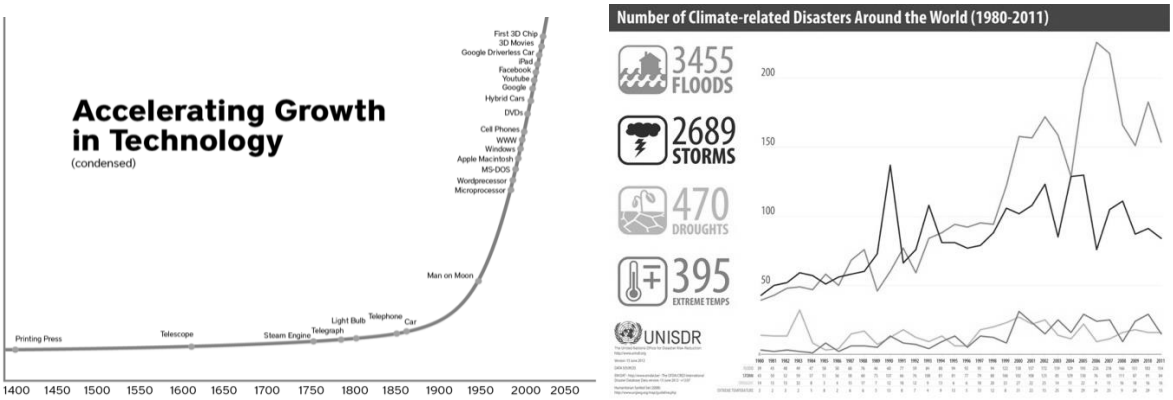

Figure 4: Accelerating growth in technology and rate of climate-related disasters.

A fourth issue with relying too heavily on technology is risk compensation (Adams 2001). In a climate of uncertainty, knowing that response resources exist can reduce the perceived need for vigilance and preparation (Paton & McClure 2013). In a world where rates of preparation for disaster are low (eg. FEMA 2019, Ballantyne 2001) efforts are need to ensure there is no attrition of community resilience. To this end Australian disaster management agencies will often issue overt messages to the effect that 'there is no guarantee of a fire truck' responding to a bushfire at your place (Country Fire Service SA n.d.)

While not 'risk compensation' per se, reliance on technology may also contribute to an enhanced blindness to other means of improving community preparedness for disaster events. This was perhaps seen in the 2019 Australian federal election, where the two major parties had something of a technology bidding war (Morrison 2018; Shorten 2019), which tends to perpetuate the focus on the technology and skills of response.

Technology is without doubt a part of any future readiness, but a) it does not of itself build community resilience and b) the propensity for technological failure in critical incidents means we should cast a wide net in our search for solutions The question of 'future readiness' for Banda Aceh is likely to have changed through time; for example, following the construction of the vertical evacuation shelters, city planners and emergency agencies may have said 'yes – we are ready', however following the debacle in 2012 the answer is probably 'no'.

What others?

In order to keep our imaginations active, we need to move out of our comfort zones and constantly seek new narratives. This is challenging for bureaucracies whose bounded responsibilities in turn place limits on research and researchers (Hewitt 1983:8). New narratives can be informed by science including in the area of bushfire management where we need to think more about the human contributions to the problem. However, Stephens (2019) makes the observation that of 6738 research papers about wildfire between 1990 and 2018, only 194 or 2.9% focussed on psychology or human behaviour. This is despite the fact that anthropogenic ignitions remain a major problem in wildfire management (Collins, Price, & Penman, 2015; Russell-Smith et al. 2007) and human behaviour is a major contributor to bushfire casualties (Victorian Bushfires Royal Commission 2010; 2009).

More intimate, and perhaps effective, narratives can be achieved through dialogue with a more diverse community. Australia is fortunate in having a different, but quintessentially Australian, narrative about fire resident within our indigenous people's traditional knowledge (Garde et al. 2009; Sithole et al. in Press; Whitehead et al. 2014). This world view does not mean merely learning to cope with destructive wildfires, minimising deaths during conflagrations, but to create a fire regime that obviates wildfires altogether (cf. Gammage 2011). The perspectives this world view offers, including a new way to 'learn to live with bushfire' is becoming more widely accepted (Ellis, Kanowski & Whelan 2004). For many Australians this perspective is contrary to a deep sense of concern about bushfire. Increasingly efforts are being made by the mainstream to gain a sense of what aboriginal people know about fire. There are now many formal and informal dialogues contributing to the sharing of the ancient fire narrative of Australia. Should this narrative emerge in a consistent re-telling across the country then perhaps we may say, in respect to fire at least, that we are future ready.

Diversity and inclusion are actively being pursued through research and within agencies (Mackintosh 2019; Martin & Mounsey 2019; Young 2019). In addition to engendering a workforce that is reflective of the demographics of the community they serve, agencies are developing community resilience and learning through dialogue. New narratives are emerging that shed light on what we don't know and offer the potential to fulfil the objective of the national strategy (COAG 2011) to have a 'shared responsibility'.

Conclusion

The issues touched on in this paper are not new. Nearly forty years ago Kenneth Hewitt explored the way in which the "dominant perspective" of natural hazard management was focussed on maintaining a status quo rather than exploring new solutions (Hewitt 1983). Among other things Hewitt argued that this dominant perspective held "as an article of

faith …that… the further removed people are from urban-industrialism and its technocratic forms, the more completely they are at the mercy of an elementary biophysical struggle with the habitat." (Hewitt 1983; 18). In this context "the technocrat may presume to speak for these people, but can find little value in dialogue with them or learning from them." (ibid).

The current spread of research interests (Stephens 2019) and the belief in 'relief by technology' diminishes our asking of questions, particularly of less technocratic elements of society. Before 2004 virtually no-one outside Simeulue was in any way interested in the stories, songs or lullabies grandmothers told their grandkids. Apparently poor, powerless people on a remote island held little interest for researchers, emergency management agencies or even government in general. But what those old people knew saved lives. The answer to the question "Are we future ready?" really depends on who you ask. Asking communities about their lives and their hazards is a first step to building community resilience.

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References

Adams, J & M Hillman 2001, 'The risk compensation theory and bicycle helmets', *Injury Prevention*, vol. 7, no. 2, pp. 89-91.

Ballantyne, MD, Paton, D. Johnston, D Kozuch & Daly, M 2000, 'Information on Volcanic and Earthquake Hazards: The Impact on Awareness and Preparation', *Institute of Geological and Nuclear Sciences.* Limited Science Report No 2000/2.

Bush, GW 2001, 'Remarks by the President in Meeting with Sikh Community Leaders in the Roosevelt Room'. Available from: https://georgewbush-whitehouse.archives.gov/news/releases/2001/09/text/20010926-6.html.

Carvajal, M, Araya-Cornejo, C, Sepúlveda, I, Melnick, D & Haase, JS 2019, 'Nearly instantaneous tsunamis following the Mw 7.5 2018 Palu earthquake', *Geophysical Research Letters*, vol. 46, no. 10, pp. 5117-5126.

COAG 2011, *National Strategy for Disaster Resilience.* Available from: https://www.ag.gov.au/EmergencyManagement/Documents/NationalStrategyforDisasterResilience.PDF.

Collins, KM, Price, OF & Penman, TD 2015, *'Spatial patterns of wildfire ignitions in south-eastern Australia*', International Journal of Wildland Fire, vol. 24, no. 8, pp. 1098-1108.

Daly, P, Sieh, K, Seng, TY, EE McKinnon, Parnell, AC, Feener, RM, Ismail, N & Majewski, J 2019, 'Archaeological Evidence That a Late 14th-Century Tsunami Devastated the Coast of Northern Sumatra and Redirected History', *Proceedings of the National Academy of Sciences,* vol.116, no. 24, pp. 11679–86.

Edwards, AC, Maier, SW, Hutley, LB, Williams, RJ & Russell-Smith, J 2013, 'Spectral analysis of fire severity in north Australian tropical savannas', *Remote Sensing of Environment*, vol. 136, pp. 56-65.

Ellis, S, Kanowski, P & Whelan, RJ 2004, *National Inquiry on Bushfire Mitigation and Management*. Canberra: Council of Australian Governments.

FEMA: US Federal Emergency Management Agency 2019, *Building Cultures of Preparedness: Report for the Emergency Management Higher Education Community.* Available from: https://training.fema.gov/hiedu/docs/latest/2019_cultures_of_preparedness_report_10.22.18%20final.pdf.

Flin, R et al. 2002, 'Crew resource management: improving team work in high reliability industries', *Team Performance Management: An International Journal,* vol. 8, no. 3/4, pp. 68-78.

Gammage, B 2011, *The biggest estate on earth: how Aborigines made Australia*. Crow's Nest: Allen & Unwin.

Garde, M, Bardayal Lofty Nadjamerrek, Mary Kolkkiwarra, Jimmy Kalarriya, Djandomerr, J, Birriyabirriya, B, Bill Birriyabirriya, Ruby Bilindja, Mick Kubarkku, Biless, P 2009, 'The language of fire: seasonality, resources and landscape burngin on the Arnhem Land Plateau' in J Russell-Smith, Peter Whitehead, & P Cooke, (eds), *Culture, Ecology and Economy of Fire Management in North Australian Savannas: Rekindling the Wurrk Tradition*, pp. 85-165. Collingwood Vic: CSIRO Publishing.

Hetherington, C, Flin, Rhona & Kathryn Mearns 2006, 'Safety in shipping: The human element', *Journal of safety research*, vol. 37, no. 4, pp. 401-411.

Kim, SD 2017a, 'Characterization of unknown unknowns using separation principles in case study on Deepwater Horizon oil spill', *Journal of Risk Research*, vol. 20, no. 1, pp. 151-168.

Kim, SD 2017b, 'Understanding hidden risks from disasters: Cases of Hurricane Katrina and Fukushima nuclear meltdown', *Journal of Management in Engineering,* vol. 33, no. 5.

Lassa, JA 2016, 'The west Sumatra earthquakes: not learning our lessons?', *RSIS Commentaries*, 066-16. Retrieved from: https://dr.ntu.edu.sg/handle/10220/40436.

Luft, J & Ingham, H 1961, 'The johari window', *Human relations training news*, vol. 5, no. 1, pp. 6-7.

Mackintosh, B 2019, 'You can't be what you can't see: girls fire and emergency services camp', *paper presented at the Australasian Fire and Emergency Services Authorities Council Conference*, Melbourne.

Martin, R & Mounsey, Z 2019, 'Building the evidence base to increase diversity in firefighter recruitment', *paper presented at the Australasian Fire and Emergency Services Authorities Council Conference*, Melbourne.

Mazar, N, Amir, O & Ariely, D 2008, 'The dishonesty of honest people: a theory of self-concept maintenance', *Journal of Marketing Research*, vol. 45, no. 6, pp. 633-644.

McLeod, R 2003, *Inquiry in the Operational Response to the January 2003 Bushfires in the ACT*. Canberra: ACT Government.

McKenna, FP 1993, 'It won't happen to me: Unrealistic optimism or illusion of control?', *British Journal of Psychology,* vol. 84, no. 1, pp. 39-50.

McLennan, BJ & Handmer, J 2012, 'Reframing responsibility-sharing for bushfire risk management in Australia after Black Saturday', *Environmental Hazards*, vol. 11, no. 1, pp. 1-15.

Moran, R 2003*, Canberra Australia Firestorm 2003*, YouTube video. Available from: https://www.youtube.com/watch?v=qPpOXH0ADSg.

Morrison, S 2018, *Boosting Firefighting Capabilities and Community Preparedness* [Press release]. Available from: https://www.pm.gov.au/media/boosting-firefighting-capabilities-and-community-preparedness.

NSW Rural Fire Service 2001, *Going SOFT on training? Firefighter Safety Digest*, vol. 2, pp. 35-37.

Paton, D 2007, 'Preparing for natural hazards: the role of community trust', *Disaster Prevention and Management: An International Journal*, vol. 16, no. 3, pp. 370-379.

Paton, D, Smith, L & Johnston, DM 2000, 'Volcanic hazards: Risk perception and preparedness', *New Zealand Journal of Psychology*, vol. 29, no. 2, pp. 86-91.

Paton, D & McClure, J (eds) 2013, *Preparing for Disasters: Building Household and Community Capacity,* Springfield, Illinois, Charles C Thomas.

Paveglio, TB, Boyd, AD & Carroll, MS 2012, 'Wildfire evacuation and its alternatives in a post-Black Saturday landscape: catchy slogans and cautionary tales', *Environmental Hazards*, vol. 11, no. 1, pp. 52-70.

Perrow, C 2011a, 'Fukushima and the inevitability of accidents', *Bulletin of the Atomic Scientists*, vol. 67, no. 6, pp. 44-52.

Perrow, C 2011b, 'Normal accidents: Living with high risk technologies', *Princeton university press*.

Provitolo, D 2012, 'The Contribution of Science and Technology to Meeting the Challenge of Risk and Disaster Reduction in Developing Countries: From Concrete Examples to the Proposal of a Conceptual Model of "Resiliency Vulnerability", in *Technologies and innovations for development,* pp. 131-153, Springer.

Rahayu, HP 2018, 'Building Coast Resilience Through Tsunami Evacuation Plan: Pre-Disaster v. Post Disaster - Learning from Indonesia', paper presented at the *APRU 14th Multi-hazard Symposium*, Canberra.

Riley, P 2012, 'On the probability of occurrence of extreme space weather events', *Space Weather*, vol. 10, no. 2.

Rubin, CM, Horton, BP, Sieh, K, Pilarczyk, JE, Daly, P, Ismail, N & Parnell, AC 2017, 'Highly variable recurrence of tsunamis in the 7,400 years before the 2004 Indian Ocean tsunami', *Nature Communications.*

Rumsfeld, D 2002, *DoD News Briefing - Secretary Rumsfeld and Gen. Myers.* Available from: https://archive.defense.gov/Transcripts/Transcript.aspx?TranscriptID=2636.

Russell-Smith, J, Whitehead, PJ & Cooke, P 2009, *Culture, ecology and economy of fire management in North Australian savannas rekindling the Wurrk tradition*. Collingwood, Vic.: Collingwood, Victoria: CSIRO Publishing.

Russell-Smith, J, Yates, CP, Whitehead, PJ, Smith, R, Craig, R, Allan, GE, Thackway, R,
Frakes, I, Cridland, S, Meyer, MCP, Gill, AM 2007, 'Bushfires 'down under': patterns and implications of contemporary Australian landscape burning', *International Journal of Wildland Fire*, vol. 16, no. 4, pp. 361-377.

Serna, J, & Kim, K 2019, 'Firefighting aircraft 'increasingly ineffective' amid worsening wildfires', *Los Angeles Times,* 7 April 2019. Available from: https://www.latimes.com/local/california/la-me-aircraft-increasingly-ineffective-against-california-wildfires-20190407-story.html?_amp=true.

Sharot, T 2011, 'The optimism bias', *Current Biology*, vol. 21, no. 2, R941-R945.

Shaw, R, Izumi, T, & Shi, P 2016, 'Perspectives of science and technology in disaster risk reduction of Asia', *International Journal of Disaster Risk Science*, vol. 7, no. 4, pp. 329-342.

Shorten, B 2019, *Labor's National Fire Fighting Fleet* [Press release]. Available from: https://www.billshorten.com.au/_labor_s_national_fire_fighting_fleet_sunday_17_march_2019.

Sieh, K, Daly, P, Edwards, ME, Pilarczyk, JE, Chiang, HW, Horton, B, Rubin, Charles M, Shen, Chuan-Chou, Ismail, N, Vane, CH, Feener, RM 2015, 'Penultimate predecessors of the 2004 Indian Ocean tsunami in Aceh, Sumatra: Stratigraphic, archeological, and historical evidence', *Journal of Geophysical Research: Solid Earth*, vol. 120, no. 1, pp. 308-325.

Sithole, B, Campbell, D, Sutton, S, Sutton, I, Campion, O, Campion, M, Brown, C, Daniels, C, Daniels, A, Brian, C, Campion, J, Yibarbuk, D, Phillips, E, Daniels, G, Daniels, D, Daniels, P, Daniels, K, Campion, M, Hedley, B, Radford, M, Campion, A, Campion, S, Hunter-Xenie, H, Pickering, S (In Press). 'Blackfella way, our way of managing fires and disasters bin ignored but 'im still here: Aboriginal governance structures for emergency management'' in H. James (Ed.), *Risk, Resilience and Reconstruction: Science and Governance for Effective Disaster Risk Reduction and Recovery in Australia, Asia and the Pacific,* Chicago: Palgrave MacMillan.

Stanton, NA 1996, *Human factors in nuclear safety*, London, Taylor and Francis.

Steingart, D, Wilson, J, Redfern, A, Wright, P, Romero, R, & Lim, L 2005, 'Augmented cognition for fire emergency response: An iterative user study', paper presented at the *1st International Conference on Augmented Cognition*.

Stephens, N 2019, 'Current and future challenges and opportunities for research', paper presented at the *Bushfire Mitigation Research Advisory Forum, Sydney*. Available from: http://www.bnhcrc.com.au/resources/presentation-slideshow/5553.

Sutton, SA, Paton, D, Buergelt, P & Sagala, S 2018, 'Cultural Drivers of Disaster Risk Reduction Behaviour: The Case of Pulau Simeulue' in *Disaster Risk Reduction in Indonesia: Environmental Social and Cultural Aspects*, edited by D. Paton and S. Sagala. Springfield Illinois: Charles C. Thomas.

Taleb, NN 2007, *The Black Swan: The impact of the Highly Improbable,* Random House, USA.

Victorian Bushfires Royal Commission 2010, *Victorian Bushfires Royal Commission Final Report: Summary*. Available from: http://royalcommission.vic.gov.au/Commission-Reports/Final-Report.html.

Westcott, R, Ronan, K, Bambrick, H & Taylor, M 2017, 'Expanding protection motivation theory: investigating an application to animal owners and emergency responders in bushfire emergencies', *BMC psychology*, vol. 5, no. 1, p. 13.

Whitehead, PJ, Russell-Smith, J & Yates, C 2014, 'Fire patterns in north Australian savannas: extending the reach of incentives for savanna fire emissions abatement', *The Rangeland Journal*, vol. 36, no. 4, p. 371.

Young, C 2019, 'Transforming through diversity and inclusion capability - the pathway to achieve diversity benefits', paper presented at the *Australasian Fire and Emergency Services Authorities Council Conference*, Melbourne.