Submission to the Royal Commission into National Natural Disaster Arrangements
From Melbourne Sustainable Society Institute and Melbourne School of Design, University of Melbourne

Submission from Melbourne Sustainable Society Institute (MSSI), Melbourne School of Design, University of Melbourne. The information is drawn from research undertaken by staff at MSSI and broader, in and associated with, the Melbourne School of Design. The projects include: the ARC Linkage project, *Building an Integrated System for Australian Bushfire Prevention*, the *Integrated Urban Planning for Natural Hazard Mitigation*, funded by the Bushfire and Natural Hazards Cooperative Research Centre, and the projects, *Wildfire Disaster Prevention, Preparedness, Response and Recovery in Coastal Tourist Destinations: the Case of Wye River, Australia*, and *Tourism Development and Local Resilience to Disasters: Self-organisation and Community Empowerment Perspectives*, funded by the Faculty of Architecture, Building and Planning and the University of Melbourne.

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Please note that we would be pleased to provide further information or directly address the Commission about the issues raised in this submission.

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The researchers would like to comment on the following sections of the Commission of Inquiry as set out in the Letters Patent 20 February 2020, commencing page 2:
  (a) The responsibilities of, and coordination between, the Commonwealth and State, Territory and local Governments relating to preparedness for, response to, resilience to, and recovery from, natural disasters, and what should be done to improve these arrangements…
  (b) Australia's arrangements for improving resilience and adapting to changing climatic conditions, what actions should be taken to mitigate the impacts of natural disasters…
  (c)
  (d) Any relevant matter reasonably incidental to a matter referred in paragraphs (a) to (c)

(e) the findings and recommendations (including any assessment of the adequacy and extent of their implementation) of other reports and inquiries that you consider relevant…

(f) Ways in which Australia could achieve greater national coordination and accountability – through common national standards, rule-making and data-sharing, including for the following:

    (i)   Land management and species conservation, including biodiversity, habitat protection and restoration;

    (ii)   Wildlife management and species conservation, including biodiversity, habitat protection and restoration;

    (iii)   Land-use planning, zoning and development approval (including building standards). Urban safety, construction of public infrastructure, and the incorporation of natural disaster considerations;

(g) Any ways in which the traditional land and fire management practices of Indigenous Australians could improve Australia's resilience to natural disasters.

Overview of submission and key recommendations

This submission particularly addresses the need for coordination between multiple stakeholders, in order to adequately prevent and respond to bushfires. This includes issues around climate change; the integration of emergency management and urban and regional planning; the need to integrate policy on bushfire and environmental management in the light of Australia's rapid loss of species; and the need to integrate policy between bushfires and regional economies, such as around tourism. Such coordination will facilitate mitigation, preparedness, resilience and recovery. This submission strongly argues for a platform of policies around the prevention of wildfire ignition. Such an approach is likely to reduce the occurrence and the severe impact of bushfire on the Australian community. Material relating to point (g) in the Terms of Reference, is more fully covered in a separate submission on Cultural Burning, from The University of Melbourne.

Thus, **this submission makes the following recommendations**:

1. Up-scaling and coordination of Australia's approach to bushfires is urgently required. This coordination should extend way beyond government, involving a wider range of participants than have been traditionally involved in managing fire. Such participants include urban and land use planning and the built environment, wildlife protection and conservation, and greater involvement of the community in local decision-making. Local decision-making should be integrated with local advice on Cultural Burning.

2. An important part of coordination relates to information and data sharing to provide the fundamental knowledge to lead effective action. The current data collections around bushfire are siloed, inconsistent between organisations, limited and inaccurate at times.

3. Prevention of ignition of bushfires is an important way to achieve resilience in the community, a first step that is commonly overlooked. It is argued that action on prevention of ignition will reduce the number of bushfires in Australia.

4. Critical to prevention is action on climate change. Climate change increases the risk that fires, once ignited, will turn into a bushfire and potentially a catastrophic bushfire that risks generating new fires.

5. As well as reducing greenhouse gas emissions, prevention also addresses the many actions around the human built environment and human behaviour that could be taken to minimise the risk of fire. This relates to building design, land use planning, and malicious and accidental fire lighting, as well as reducing the link between social inequality/disadvantage and the risk of fire lighting.

6. We urge the Royal Commission to give attention to the current approach to fuel reduction that is widely in use around Australia. This approach is rarely evaluated for effectiveness and unintended consequences, such as biodiversity loss, air pollution, increasing fire risk through vegetation change and risk of fire escape from a prescribed burn.

7. Australia's biodiversity extinction rate is said to be the highest of all countries, and many of Australia's iconic animals are under serious threat. Thus, the Royal Commission is urged to give greater attention to the environmental impact of environmental modification to mitigate fire risk, and to the prevention of bushfire itself. Resources are needed to assess environmental values in fire risk locations and to systematically understand the various impacts of fire on threatened species and ecosystem services.

8. There is a need to listen to, and learn from, the tradition of Cultural Burning practiced by Indigenous Australians. This learning must be accompanied by a large injection of resources to enable Cultural Burning to be widely adopted, led by local elders, or Indigenous people in close association with elders.

The next section outlines our views in greater detail.

Coordination

We recommend that considerable attention needs to be given to coordinating the response to bushfires. There is increasing recognition of the convergence of many serious challenges associated with bushfires. This requires new thinking and new solutions that will arise not from adjustments to business as usual, but from a new approach. Such major change is often described in the context of a transformative approach, rather than an ameliorative approach (Prilleltensky & Prilleltensky, 2006). However, coordination is not easy. It needs time, effort, emotional energy and dedicated commitment and resourcing; can be unpredictable; requires a capacity to tolerate a lack of certainty;

external legitimacy with stakeholders; and sustained confidence and goodwill to cope with on-going change.

A coordinated model around an approach to bushfire is shown in Figure 1. The current approach to bushfires leaves out two aspects of this model – the central coordination and the first step, which is the prevention of bushfire (discussed later).

Coordination requires vertical integration that seeks to link decision-making through the hierarchical management levels, and horizontal integration that links strategies and programs across departments, organisations and groups. The vertical decision-making direction encompasses strategic, tactical, and operational processes. The decisions about strategic directions, including policy, cover the overall vision (such as, where do we want to be in five years' time?), and outcomes and values being sought in the line of work.

The breadth of those implicated (but rarely formally integrated in a governance structure) in bushfire issues can be seen in the following partial list of stakeholders: rural and metropolitan fire services, police services, law courts, correctional services, parole and rehabilitation services, forensic mental health services, schools, federal, state and local functional government departments, insurance companies, academic researchers and community members. A properly integrated vertical and horizontal decision-making approach should result in the coordination of goals, leading to improvements in outcomes and efficiencies in the use of resources, as well as handling multiple objectives, trade-offs and uncertainty (Misni & Lee, 2017).

Figure 1: An integrated model for bushfire management

Source: Stanley, J.R., March, A. Ogloff, J., & Thompson, J. (2020) *Feeling the Heat: International Perspectives on the Prevention of Wildfire,* Vernon Press, Delaware, USA.

Coordination of urban/spatial planning and emergency services

There is a need for better coordination in the initial stages of strategic settlement planning. Our research on *integrating urban planning and natural hazard mitigation for disaster risk reduction* point to integration being multidimensional and requiring high-level principles to guide its implementation. These high-level principles can be oriented around three risk variables (hazard, exposure and vulnerability) and four types of emergency management arrangements (prevention, preparedness, response and recovery) resulting in five broad categories of urban planning treatments of risk (March, Nogueira de Moraes, Riddell, Stanley, et al., 2018a), namely:

- Avoidance of exposure to hazards;
- Reduction of hazard, or exposure to it;
- Reduction of vulnerability to hazard or exposure to it, in situ;
- Improvement of response;
- Improvement of recovery or build back better.

It is often the case that growth decisions are made prior to the bushfire hazard/risk assessment. The coordination between spatial planning and emergency services for strategic planning purposes is not regulated (Victoria at least), so the roles and timeframes are not defined, constraining collaborative decision-making. There is a lack of training and resourcing in both services that limits their capacity to collaborate. Additionally, there is a need to consider climate change trends and identification and land use planning in relation to areas particularly vulnerable to bushfire. This should also relate policies that prevent urban sprawl into forested and grassland areas, where people may be exposed to bushfire and may be not aware of the risk nor have the capacity to adequately respond. The diminished infrastructure in new suburbs that promulgates disadvantage, particularly a lack of education and employment options for youth, issues associated with the propensity to light bushfires.

Data coordination

It is hard to adequately respond to, and prevent, bushfires when there is inadequate, incomplete and unco-ordinated data on bushfires, an issue present in Australia and internationally. There is an opportunity for Australia to take the lead in improving data handling and management, and establishment of recording standards. Such data should encompass the causes of bushfire and the broader perspectives in relation to issues such as human behaviour, planning, economics, ecology and climate science. It should encompass a greater understanding between values and ideology, 'science' and lived experience.

Other reports and findings

Our assessment of *urban-planning-related recommendations of past inquiries on natural hazard events in Australia* (March, Nogueira de Moraes, Riddell, Dovers, et al., 2018b) point to a concentration of past recommendations targeting the role of urban planning in relation to the first three types of treatments listed in the dot points above, with less attention to those targeting improvement of response and recovery. However,

improvement of recovery can be a powerful instrument to deal with legacy risks that should not be re-created during processes of recovery and can lead to greater resilience to future threats.

In terms of the multidimensionality of integration, our assessment of past recommendations points to a lack of consideration of a comprehensive coverage of all hazards in integration. This is concerning, considering the cascading effects observed in the last bushfire season, especially those between droughts, bushfires and the effects of subsequent rain in terms of erosion and landslides, as well as bushfire-induced air pollution in densely populated areas laying far from major bushfire incident areas.

While we acknowledge that recommendations do not cover the full extent of existing arrangements as they only target problem areas, therefore limiting the conclusions that can be drawn from our assessment, we understand that the eleven dimensions of integration and the five types of urban planning treatments of risk that emerged from our research can provide the current Royal Commission of Inquiry with a powerful framework to assess the coverage of its assessment and proposed recommendations as they are being formulated.

Our report (March et al., 2020), has developed an analytical framework to provide a holistic approach to assess the opportunities for better integration of urban planning and natural hazard mitigation in Australia with a focus on the five treatments of risk outlined earlier. We would be pleased to provide further details if requested. This analytical framework can be used as a broad canvas for designing policy reforms, particularly to edge development, infill development, existing development and re-development for adaptation.

Our research on tourism development and local resilience to disasters (L. Nogueira de Moraes & March, 2019a) points to the need to better integrate tourism development planning and management with overall urban and regional planning and emergency management arrangements. Tourism is a critical economic sector for Australia and for many of the regional areas affected by the 2019-2020 bushfire season, representing 10% of national GDP and 12% of employment in 2018 (WTTC, 2019). In summary, there is a need to better integrate tourism in emergency management arrangements, to consider emergency management, resilience and vulnerability in our national tourism strategy (L. Nogueira de Moraes & March, 2019b), and to better integrate tourism and emergency management considerations into our urban and regional planning decision-making.

Prevention of bushfires

The full range of measures, which could assist in the prevention of bushfires, are currently not being utilized in Australia. Few resources are allocated to improve understanding of the drivers of bushfire ignition, or for action to prevent ignition, the current approach being small, under-resourced, not coordinated, and rarely evaluated. We argue that the range of prevention approaches that could be implemented, also need a coordinating structure of itself, and one that links with the other components in Figure 1.

International trend data suggests that about 85% of bushfires are started by humans, either accidentally or purposefully. Without the influence of climate change, bushfires were not that difficult to extinguish. However, with climate change upon us, and worsening, the situation has changed. Many bushfires in Australia and internationally are now more extreme, being larger, hotter and more difficult to extinguish. The causes of the recent Australian bushfires are yet to be understood. However, causes are likely to be a mix of human ignition, lightening, and extreme fires creating other fires through the spread of embers. Human ignition is exacerbated by population growth extending into bush areas, as well as increasing inequality in Australia.

Climate change

Urgent attention is needed to establish policy to reduce the impact of climate change. The science is clear and unequivocal, and evidence is available that climate change now plays a role in every extreme heat event. Yet an adequate response to this knowledge is not occurring (Lewis & Perkins-Kirkpatrick, 2018). Given the current climate change policies, the world is on track to have a temperature rise of 3.1°C to 3.7°C by 2100 (Climate Action Tracker, 2018). The tragic bushfires that occurred in 2019/20 were in the context of a rise in temperature of just over one degree above the pre-industrial baseline (1850-1900) (World Meteorological Organization, 2018). Both lightening and the extreme fires are related to climate change. The occurrence of lightening and worsening bushfire weather conditions (dryness, wind conditions) increase as climate change progresses.

Other prevention approaches

There are many other prevention approaches that could be used, in the primary, secondary and tertiary prevention areas. The size and complexity of prevention approaches vary, as do the time to impact. There is a need for proximate and distal approaches (Weatherburn, 2001). Distal programs may address a person's background pre-dispositions to light fires, while a proximate prevention program may put in surveillance in an area where fires are often lit.

Reducing inequality, disadvantage and the risk of child abuse, addresses the known connections between malicious fire lighting and disadvantage. Education about bushfire and the safe use of fire and machinery should assist in the reduction of accidentally and recklessly lit fires. Such information should target hot spot areas and be in a range of community languages to inform tourist travelling to forest areas. Some current programs need adjustment. For example, the school bushfire education program initiated after the Royal Commission into the 2009 Black Saturday bushfires currently focuses structural fires with little to no emphasis on bushfire prevention.

Situational crime prevention involves altering the circumstances which are more conducive to a crime being committed in a particular location. Examples include preventing access to sites vulnerable to fire on high fire danger days, increasing surveillance through the use of cameras in places where fires tend to be lit, and removal of dumped cars and dumped rubbish that tend to be a target for those who wish to light

fires. Some changes are needed about how bushfires are presented in the media, to modify aspects that risk creating excitement and glamorise firefighting.

Tertiary prevention approaches include improving the apprehension rate of bushfire offenders, which is currently very low. This will require a lot more resources for the police. To gain a behaviour change in those arsonists who are caught, there needs to be an associated treatment program and the provision of opportunities to improve their wellbeing and employment options.

The community is a large under-utilized resource. There has been talk since the 2009 Royal Commission in Victoria, of 'shared responsibility' and 'community engagement' but this approach has rarely been taken up. There are many opportunities for preventative action here, which need to be accompanied by the community gaining decision-making capacities, resources and power sharing. Anonymous reporting of a suspicion of arson, available through Crime Stoppers Victoria, is a valuable prevention approach. An important way of granting more responsibility and decision making to the community is through a program such as the Gippsland Arson Prevention Program (GAPP). In this place-based model, local business, local government and the community collaboratively undertake measures that reduce the occurrence of bushfires. These actions particularly relate to community education and awareness-raising about malicious and accidental fire lighting, as well as undertaking patrolling during high fire-risk days and sharing information and resources between organisations.

Fuel reduction

Fuel reduction processes in Australia remain contested, with perspectives often based on ideology rather than evidence of effectiveness and consideration of the unintended consequences. Externalities include environmental damage and biodiversity loss and change, bushfire risk, health impacts associated with smoke, and how local residents view and understand their connection with the environment, sense of place and identity. Australian biodiversity is significantly under-researched, resulting in the distribution of many species and population numbers, even for species considered to be endangered, largely unknown. Thus, the impact of fuel burning on the environment is often unable to be adequately assessed.

In conclusion

The above information illustrates some of the wide-ranging research in relation to bushfire that has been under-taken in MSSI, The Melbourne School of Design and with colleagues. These findings are documented in books, articles, research reports, policy documents, inquiry reports and public documents.

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