Photo courtesy of Bernard Plumpton

PART I – MANAGING FIRE RISK

The Inquiry is required to examine and report on the strategies and plans related to managing bushfire risk in Tasmania in place before the fires on 4 January.

Identifying and managing risk is, or should be, an integral part of all emergency management arrangements for bushfires. For example, risk treatment options should be included in strategies and plans for preparation, response and recovery. These dimensions of risk treatment, in the context of the 4 January fires, have been examined in other parts of the Report and will not be re-examined. However, it should be noted that risk management models can be applied to those areas.

This part focusses on treatment options not included in emergency management operations referred to in the previous paragraph. They are still part of the State emergency management arrangements.

Factors Contributing to the Risk of Bushfires

The history of bushfire in Tasmania provided in PART B shows there is an ever-present bushfire risk. Although data recording practices may have changed over the years, the chronology tends to indicate an increasing risk of bushfire events.

The Inquiry does not intend to provide a comprehensive risk analysis for bushfires. Rather, it will indicate some of the primary contributing factors for the purpose of identifying areas where intervention is a reasonable approach to risk management. In examining these contributing factors, the comments in PART D on what influences fire behaviour should also be taken into account.

Bushfires and their intensity and severity are caused by a number of factors. For a fire to ignite and burn, it requires a fuel, oxygen and an ignition source. The intensity of a bushfire is in turn, dependent on how much and what type of fuel is available, prevailing weather conditions and the topography.

Fuel

The quantity of fuel and its arrangement contributes to bushfire intensity. If fuels are compacted or scarce, a fire will be less intense. Conversely, where fuel is arranged close together and is readily available to a fire, it will tend to be more intense. Ground fuels will be consumed first, allowing flames and heat to extend vertically into shrubs and undergrowth, providing a ladder into taller fuels above. In the right conditions, these fires move quickly into the crown of trees.

Moisture content is also important and rainfall contributes to fuel moisture content. Many large bushfires follow a serious long-term drought or rainfall deficit.

Weather

Wind is the most important factor in fire behaviour. Even on cooler or moist days if fuel arrangements suit, a bushfire can start and be pushed through the fuels with the fire pre-heating and removing moisture as it burns. Wind assists the spread of a fire.

Spotting of a fire is also promoted by wind. This occurs when burning bark, leaves and other material is picked up in strong wind currents and pushed downwind of the fire. It is known to have occurred up to 30 kilometres ahead of a main fire front. A fire front and new fires can rapidly occur by the spotting phenomena. A fire is generally controllable even when fuel is dry and in large quantities but the wind is less than 15kph. As wind increases so too does fire intensity. Wind will also influence the direction and size of the fire front.

Large bushfires can also create their own weather patterns, and completely change weather conditions in surrounding areas. Pyro cumulous clouds can form creating isolated rain and thunderstorms in bushfire affected areas. As bushfires become larger, they require more air carrying oxygen and so create their own wind patterns to feed the fire.

Topography

Slope on land will dramatically affect bushfire behaviour. As bushfires burn the radiant heat and convection currents pre-heats fuel in front of the fire. With a 10 degree slope a bushfire will double its speed; with a 20 degree slope, a fire will advance up the slope four times faster than without it. Gullies can channel the direction of a fire, and when conditions are right even wet gullies can burn rapidly.

The aspect of land can also play an important part in fire behaviour, due to the exposure of the fuel to the sun. North and eastern facing topography is typically much drier and fuel burns more readily. Where there has been low rainfall or drought conditions, westerly aspects can promote rapid bushfire behaviour.

Source of Ignition

The majority of bushfire ignitions are by human action. Most are accidental, but negligence is included in this classification of the cause of fires. These fires may be caused by the use of equipment or machinery, or lit with good intentions and escape, or are not properly extinguished. The good intentions can be significantly outweighed by the resulting damage. Other deliberately-lit fires are arson. This is a prevalent source of bushfires which often occurs in populated areas close to the urban/bushland interface.

Naturally occurring fires are caused through lightning activity and these are frequently difficult to detect in the early stages, particularly in remote areas.

Climate Change

The cause of climate change is the subject of much debate and opinion. The Inquiry does not need to enter this debate or proffer an opinion, only recognise that climate change is generally accepted as occurring, whatever the cause, and to acknowledge it as a factor in determining bushfire risk.

For this purpose, it is sufficient to refer to the Climate Commission and its points:

- extreme weather events are not unusual in Australia and are a natural feature of the climate system
- all extreme weather events are now influenced by climate change
- compared to 50 years ago, the climate system contains significantly more heat and all extreme weather events are happening in this more energetic climate
- the duration and frequency of heatwaves in Australia have increased, and the hottest days during a heatwave have become hotter
- it is virtually certain that extreme hot weather will continue to become even more frequent and severe
- since the mid-1990s, the southeast of Australia has become drier, especially in the cooler months of the year
- the projections for the future indicate a significant increase in dangerous fire weather for southeast Australia.[1]

Bushfire risk is not the only natural outcome of climate change; for example, there is a higher risk of flooding events.

The Climate Commission comments that the consequences of climate change are dependent on the exposure, vulnerability and adaptive capacity of people, infrastructure and ecosystems, where:

- exposure is the placement of people and property where they could be adversely affected
- vulnerability refers to the propensity to suffer negative impacts from an extreme event
- adaptive capacity is the ability to adjust to actual or expected events.[2]

Consistent with this prognosis, the Tasmanian Government developed the issues paper 'Adapting to Climate Change in Tasmania',[3] and circulated it for community feedback in October 2012. It is therefore very timely to include bushfire risk in the Government's consideration of the climate change issue.

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1 'The Critical Decade: Extreme Weather', The Climate Commission, Department of Primary Industry, Innovation, Climate Change, Science, Research and Tertiary Education, Commonwealth of Australia.

2 'The Critical Decade: Extreme Weather', at p. 11.

3 'Adapting to Climate Change in Tasmania', Issues Paper, Tasmanian Government, 2012.

The Issues Paper identifies four key roles for the Government in adapting to climate change:

- *providing sound public information at the regional and local level*
- *taking climate change risks into account in public policy, planning and regulation*
- *managing climate change risks and impacts to State-owned and managed infrastructure, assets and services*
- *helping vulnerable communities build climate resilience and adaptive capacity.*[4]

One of the six priority areas identified for community adaption is natural disasters. In this section, it is recognised that there is likely to be a climate change impact on natural emergency related events. The issues paper comment is that:

> *There are limits to the Government's ability to fund emergency management resources, so an appropriate balance of measures will need to be considered to manage the increased pressures on the emergency management system. For example, in some instances preventative land use planning policies may be more effective in managing the risks posed by natural hazards to people and property than emergency response actions.*[5]

Relevant risk management areas will be discussed below, and particular recommendations for change to the emergency management arrangements will be made in PART J.

Living in Fire Risk Areas

Regardless of climate change, but certainly compounded by it, is the current desire by many people to live in bushfire risk areas. The contribution of demographic movement to the risk of bushfire in Tasmania requires careful analysis. For example, there are likely to be a number of population movement patterns occurring simultaneously, such as the tendency for fewer young people to be engaged in agriculture, urbanisation, and residing in the urban/rural interface.

The extent to which there is a trend to live in areas of bushfire risk is relevant to risk management. It is argued that the single variable explaining most of the vulnerability of a home to bushfire is the distance from the bush. Studies in this field indicate that '85% or more of the houses lost in Australia since the 1967 Hobart fires were located within 100 metres of the bush'[6]. There are estimated to be 34000 or 11% of addresses in Tasmania which lie within 100 metres of the bush.[7]

Another perspective on the historical bushfire risk is provided from a database maintained at Macquarie University on the risk of natural hazards.[8] Records on fire go back to 1926 and show 14000 home losses throughout Australia. Tasmania has recorded 23 events since then or 3% of fires, and 1646 or 12% of the home losses. Clearly, the data on home losses will be influenced by the scale of the events and, like any small data figures, care should be taken on conclusions drawn. The figures do however reinforce the fact that Tasmania has a significant

4 Adapting to Climate Change in Tasmania, at p. 6.

5 Adapting to Climate Change in Tasmania, at p. 28.

6 'A history of vulnerability: putting Tasmania's bushfires in perspective', by De Oliveira, Felipe, McAneney, John, and Chen, Keping, an article in The Conversation, 11 January 2013, at p. 2.

7 'A history of vulnerability: putting Tasmania's bushfires in perspective', at p. 2.

8 'A history of vulnerability: putting Tasmania's bushfires in perspective', at p. 3.

historical fire risk, and data also shows that the majority of the risk is in the Hobart region. The implications of demographic change in rural areas, apart from the risk of people residing in bushfire risk areas, are complex and require detailed analysis. Some of the implications are included in the submission by the Tasmania Farmers and Graziers Association, including lifestyle risks associated with 'tree and sea change life stylers' and loss of forest firefighting equipment and skills.[9]

Recommendation 80 – that the Government take into account demographic change in its assessment of the consequences of climate change on emergency events.

Image courtesy of Andrew Skelly

9 Submission No. 75.

Risk Assessment, Responsibilities and Planning

There are a number of agencies and organisations with responsibilities relating to bushfire risk. Risk assessment models also provide outcomes at varying levels, ranging from high level strategic assessments to those at a local level for a specific risk.

Usually risk assessment models determine the level of risk by considering the likelihood of an event occurring and the significance of the consequences should it occur. Once risks are rated through this process, options for treating the risk — to prevent or mitigate it — are identified and considered. A number of major inquiries into bushfires have detailed commentary on the process of assessing risk, such as the 2004 Council of Australian Governments National Inquiry on Bushfire Mitigation and Management Report (COAG Report), and that form of information is not replicated in this Report.

However, it is necessary to comment on the focus of treatment options. It is usual to describe this in the emergency management spectrum, in terms of prevention or prevention and mitigation, as is the case in Issue 6 of the Tasmanian Emergency Management Plan (TEMP).

The COAG Report suggested a 5R framework replacing prevention in the emergency management model with risk modification.

There was concern that the use of the word 'prevention' may create a perception that fires can and should always be prevented, reinforcing an unachievable expectation.[10] This Inquiry prefers the retention of the emphasis on 'prevention and mitigation' as many fires can be prevented and it should not be expected that all fires are inevitable.

The COAG Report made a number of important points for consideration in treatment options:

- the way the risk management process is conducted and applied is critical to the acceptance of decisions by those with an interest in managing fire in the landscape
- the context of a landscape needs to be established and the various factors across a landscape understood
- community preparedness needs to be commensurate with the potential severity of a fire
- landscapes are highly complex matrices of different tenures, assets and infrastructure
- bushfires do not recognise boundaries, so that risk treatment is a whole-of-landscape process not confined to a single agency or tenure
- there is a changing nature of the mix of land uses and settlement patterns.[11]

State Emergency Management Committee (SEMC) responsibilities include preventing and mitigating emergencies. The statutory functions of the SEMC include 'to institute and coordinate, and to support … emergency management', which is defined to mean 'the planning, organisation, coordination and implementation of measures that are necessary or desirable to prevent, mitigate … an emergency'.[12]

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10 Council of Australian Governments National Inquiry on Bushfire Mitigation and Management Report 2004, at pp. 52 and 53.

11 COAG Report, at pp. 47 – 51.

12 Emergency Management Act 2006, at ss. 3 and 9.

Issue 6[13] of the TEMP contains a section on prevention and mitigation, which is mainly descriptive. However, there is a small part on prevention and mitigation strategies and these are set at a broad level. More detailed roles and responsibilities are outlined in section 2, where these are allocated to advisory agencies, management authorities and support agencies.

A management authority is responsible for prevention and mitigation of nominated hazards. In the case of bushfires, depending on land tenure, this is divided between the Tasmania Fire Service (TFS), Parks and Wildlife Service (PWS) and Forestry Tasmania.[14]

However, there is very little in the TEMP to specify action and accountability.

The Security and Emergency Management Advisory Group (SEMAG) has a role in providing strategic policy advice to the SEMC, which presumably includes risk management.[15]

There is no state risk management plan or an advisory forum on risk management at a state level. The Inquiry was told of a project to develop a Strategic Directions Framework for the SEMC, and that this would include strategic directions for 'Understanding and Mitigating Risk' and 'Building Resilience'. It remains to be seen whether this project will alter the status quo significantly.

The 2012 Tasmanian State Natural Disaster Risk Assessment (TSNDRA) report has just been completed to complement a number of national initiatives, including the National Emergency Risk Assessment Guidelines 2010, and the National Strategy for Disaster Resilience 2011. The methodology used was consistent with national standards.

The TSNDRA report provides a strategic, state-level risk assessment for the purpose of providing key emergency management decision-makers with information to assist in determining state risk mitigation priorities.[16] A detailed risk analysis was seen as not feasible for this report because of lack of data, unpredictability of disasters, and the overall context of the study.[17] For the purposes of the assessment, bushfire was taken to mean a vegetation fire.

Tasmania's top priority hazards were determined as bushfire, flooding and storms/severe weather.[18] The spatial spread and variability of the bushfire risk is illustrated by the map at figure 1.1.[19]

Interestingly, in the context of this Inquiry, a comment is made that:

> *Overall, existing controls in respect to response and recovery were considered effective.*[20]

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13 The operative plan on 4 January 2013.

14 Tasmanian Emergency Management Plan Issue 6 2009, at pp. 26 – 29.

15 The areas of policy advice are not specified in Issue 6 of the TEMP, but in Issue 7.1 the advisory function includes reducing risk. See para. 2.24 in both plans.

16 2012 Tasmanian State Natural Disaster Risk Assessment report, at p. 3.

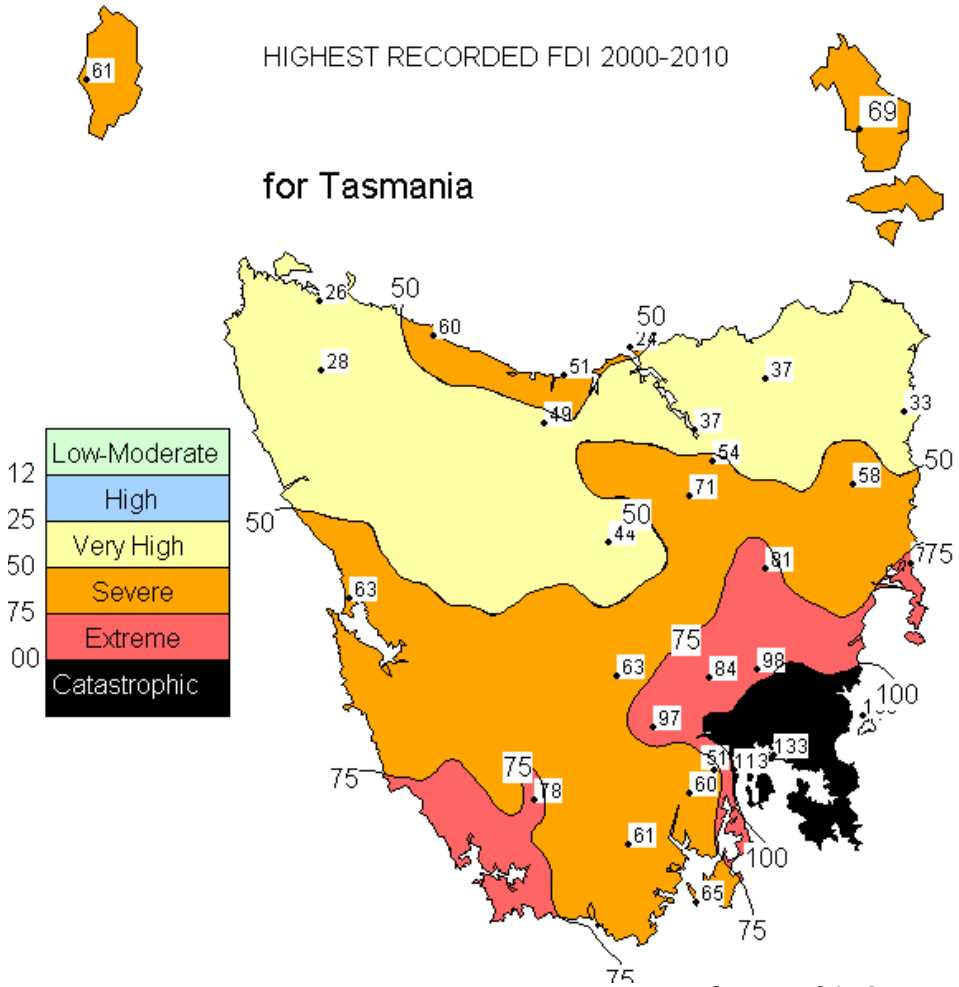
17 2012 Tasmanian State Natural Disaster Risk Assessment report, at p. 7.

18 2012 Tasmanian State Natural Disaster Risk Assessment report, at p. 11.

19 2012 Tasmanian State Natural Disaster Risk Assessment report, at p. 25.

20 2012 Tasmanian State Natural Disaster Risk Assessment report, at p. 27.

Figure I.1



Courtesy of the Bureau of Meteorology

Bushfire risk treatment options for consideration are outlined in Table I.2.[21]

Table I.2

Proposed Option	Intended Effect
Promote a greater focus on bushfire prevention and preparedness programs	-Reduces likelihood -Reduces Impacts
Develop and strengthen the strategic state-wide approach to bushfire fuel reduction activities	-Reduces likelihood
Evaluate the impact of recently implemented bushfire risk mitigation measures on the State bushfire risk assessment	-Increases confidence -Review and update fire
Education programs to ensure bushfire risk is communicated from school age onwards	-Reduces likelihood -Reduces impacts
Reinforce individual responsibility in fire risk messages	-Reduces impacts
Undertake further research and consideration of 'vulnerability' to improve the management of communities vulnerable to bushfire risks	-Reduces impact
Conduct state-wide catastrophic bushfire scenario exercise for the purpose of further assessing existing controls and capabilities and informing risk reduction priorities	-Increases confidence
Review state-wide approach to identifying 'vulnerable' critical infrastructure and prioritising the defence of assets at risk during a bushfire event	-Reduces impacts

Some strategic guidance is also provided by the key findings and common issues across hazards in the report, which are indicated as:

- the need for a consistent approach to community resilience assessment
- increased vulnerability leads to greater likelihood of natural disaster impacts
- community expectations of emergency management authorities are unrealistic
- maintaining focus on prevention in awareness and education programs
- capturing the extent and impact of natural hazard disasters
- emergency management awareness of critical infrastructure priorities.[22]

The TSNDRA report and its contents will have little meaning if it is not translated into practical action.

A more detailed approach to planning is provided by the Bushfire Risk Assessment Model (BRAM) developed and used by PWS to create Regional Strategic Fire Management Plans. There are four components to the BRAM, and it has the advantage of incorporating fire behaviour and values at risk, such as environmental and conservation interests, agriculture and forest industry, and infrastructure. The model takes a landscape approach and the input factors are shown in the following two figures.

21 2012 Tasmanian State Natural Disaster Risk Assessment report, at p. 30

22 2012 Tasmanian State Natural Disaster Risk Assessment report, at p. 22.

Figure I.3 – Likelihood Component[23]

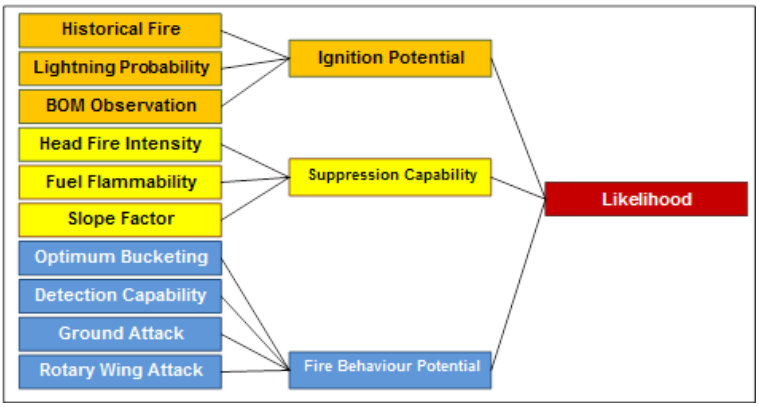
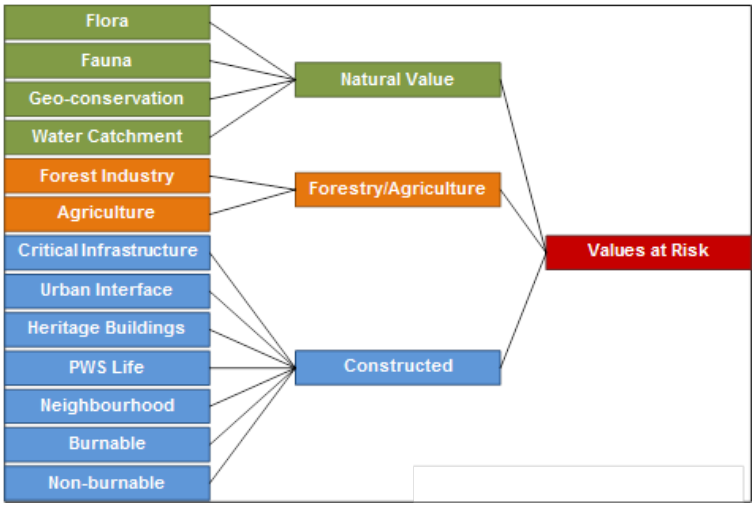


Figure I.4 – Consequence Grid (Values at Risk)[24]

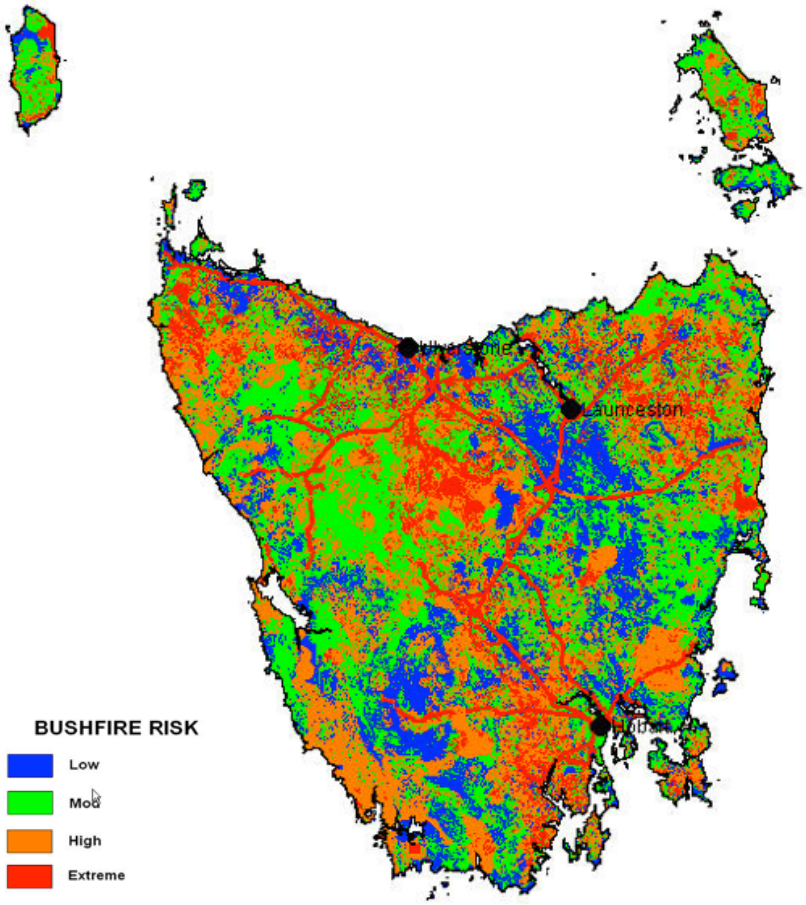


23 Bushfire Risk Assessment Model, Parks & Wildlife Service, p. 3.

24 Bushfire Risk Assessment Model, Parks & Wildlife Service, p. 4.

A detailed illustration of state bushfire risk is shown at figure I.5.[25]

Figure I.5



Effective risk treatment for bushfires ideally should be location specific and capable of providing more real-time assessments as the risk changes over time.

In the Special Report No. 99 on Bushfire Management, the Auditor-General examined the approach to risk management and the use of risk assessment tools by agencies and organisations with bushfire management responsibilities. There were two related important findings in the report:

- TFS, PWS, Forestry Tasmania, power supply organisations, and a number of municipal councils were examined. While they had addressed bushfire risk in some way, the approaches varied widely
- the BRAM was not universally accepted or used.[26]

It was noted that fire-related responsibilities were not core business for the agencies and organisations examined for the first point above (except for TFS) and that there was a need for an overarching body to focus on all aspects of fire management and mitigation. It was recommended that the State Fire Management Council (SFMC) should be funded to enable it to take a greater coordination role for bushfire risk and mitigation. The role of the SFMC will be discussed below.

25 Bushfire Risk Assessment Model, Parks & Wildlife Service, cover page.

26 Report of the Auditor-General, Special Report No. 99, Bushfire Management, June 2011, at pp. 36 – 41.

It was recommended that the SFMC should support the further development of the BRAM, so it becomes the central information source for all agencies with responsibility for fire management and mitigation. The development of the BRAM is being supported by TFS, and the Inquiry understands it is being undertaken in a collaborative way with all fire authorities.

A Risk Mitigation Strategy project is being managed by the State Emergency Service, which follows on from the TSNDRA, and it seeks feedback on the proposed risk treatment options outlined in that report. This process has not been finalised and discussed by the SEMC. However, these treatment options are at a high level and they would need a more detailed and practical application to be effective. It is not apparent that this is occurring and it is surprising that there are not more detailed strategies and plans on risk management for bushfires already in place at a state level. This may be a consequence of the structure of the TEMP, in simply nominating agencies to be responsible for specified hazards.

The State Fire Commission is responsible for the TFS and its functions include developing effective fire prevention measures throughout the State, and developing and promulgating a State Fire Protection Plan.[27] Presumably this includes risk mitigation.

At the time of the 4 January fires, Version 1 of the State Fire Commission's State Fire Protection Plan was in place, having been issued in 2010. On bushfire risk, the prevention strategies were described as:

> *Fire Permit System. Fire permits assist in preventing fires through the imposition of conditions that enable fires to be lit safely. The Fire Permit Period is generally declared based on local government areas when significant potential exists for damaging fires to occur.*
>
> *Total Fire Ban. A Total Fire Ban is the ultimate community warning of very high to extreme bushfire danger, prohibiting the use of outdoor fires.*
>
> *Fire Weather Warnings. The Bureau of Meteorology issues Fire Weather Warnings when forecast weather parameters exceed prescribed thresholds creating very high fire danger to discourage inappropriate fire lighting activity. These notifications are disseminated at Very High FDR 38 and above.*
>
> *Fire Management Plans. Assist land managers to develop and implement Fire Management Plans. Fire Management Area Committees are required to prepare Fire Protection Plans.*

This is a very limited approach to risk mitigation. The strategies identified are all important and would have an impact, but there is much more that could have been done. It is likely that there were other treatment measures in place. An amended plan was approved by the Commission after the 4 January fires. The current State Fire Protection Plan, though it combines bushfires with other fire risk management, now contains specific detail on treatment measures. There is no accountability framework in the plan, but it is more likely to be effective on risk management, if the measures are properly implemented.

27 Fire Service Act 1979, at s. 8.

The SFMC also has an important role in bushfire risk management. Statutory functions for the State Fire Management Council include developing a state vegetation management policy to be used as a basis for all fire management planning and to advise the Minister on matters relating to the prevention and mitigation of vegetation fires.[28]

There have been substantial changes for the SFMC over the past 12 months.

Funding has been obtained to provide better policy development, project management and administrative support for the SFMC, which will support a new role with Fire Management Area Committees and a fuel reduction program. The SFMC is now in a better position to be able to effectively perform its intended role.

The SFMC is essentially an advisory body; providing advice to the Minister for Police and Emergency Management and influencing those with direct responsibility to take action. It is a challenging role to bring together the diverse interests in bushfire management and gain cooperative and collective action.

An important part of the process is the responsibility to prepare suitable policy and a State Vegetation Fire Management Policy 2012 has been developed. The aim is to provide a standard and consistent framework for the management of vegetation across all land tenures and vegetation types. It identifies three key action areas:

- management of fire in vegetation
- community awareness and engagement
- building the knowledge base.[29]

The State Vegetation Fire Management Policy recognises the need to balance the diverse interests and to apply the principles approved in the 2004 COAG Report. Relevant stakeholder groups are 'encouraged' to take actions set out in the policy. The content of the State Vegetation Fire Management Policy appears to be suitable for its purpose.

There is also a National Bushfire Management Policy Statement for Forests and Rangelands, which was endorsed by the COAG in 2012, though there is some doubt as to its final status. Nonetheless, the Government of Tasmania has apparently supported the plan and the SFMC expects to use it in developing a Strategic Fuel Management Plan.[30]

The SFMC has more direct influence over the Fire Management Area Committees as they are appointed by the Council to specified areas with responsibilities to:

- coordinate fire management activities including community education and information, and fuel management
- identify and assess community bushfire risks, and prioritise strategic work in response to those risks
- submit an annual fire protection plan for its area, consistent with the plans, policies and instructions from the SFMC.[31]

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28 Fire Service Act 1979 at s. 15.

29 Submission No. 72.

30 Submission No. 72.

31 Fire Service Act 1979 at s. 20.

Recent changes brought Fire Management Area Committees under the control of the SFMC. The number of Committees is being reduced and the areas are being aligned with municipal boundaries. It is intended to include people on the Committees who have ownership of the issues and are committed to obtaining effective outcomes. The BRAM will be used along with local knowledge to identify bushfire risk.

The principal purpose of the Fire Management Area Committees is to prepare a fire protection plan for the area they are responsible for, to identify and prioritise bushfire vegetation risks, and prioritise strategic work to mitigate those risks.[32] Mitigation plans will be developed in close consultation with TFS and local councils. The Fire Management Area Committees are also expected to provide a vital link with local brigades. As indicated above, the fuel reduction aspect of these plans will be dealt with in a separate section.

Areas in the plans are expected to include a number of people with direct interests and responsibilities in the areas; for example, representatives from PWS and Forestry Tasmania. In addition, it is intended to take a strategic approach which necessarily means that priority risks and mitigation measures will not be confined by land boundaries. It is expected that land management agencies, such as PWS, will still be responsible for developing fire management plans, but these plans will be taken into account by the Fire Management Area Committees in developing their strategic fire protection plans. In this way, it is planned that the approach will be both comprehensive and strategic.

The fire protection plans will not be confined to fuel reduction and will include other matters related to bushfire risk, including fire trails, access points and water points. Standards for these have been discussed at the SFMC and it is expected that where they are of strategic importance they will be maintained and kept open.

Effective risk mitigation plans should involve dealing with a number of issues relating to the risk and the SFMC, SEMC and other responsible organisations should consider a broad range of these issues. Submissions to the Inquiry contain suggestions which are relevant to this process and they should be taken into account. For example, the Tasmanian Farmers and Graziers Association raised the following matters as needing to be included in any future bushfire management system:

- adequate resourcing for volunteer bushfire brigades
- systematic and comprehensive hazard reduction
- hazard management and access provisions in rural settlements
- establishing a strategic network of firebreaks and access roads
- ongoing review of operational firefighting procedures.[33]

It can be expected that there will be legislative issues to be overcome in making these plans effective, especially in fuel reduction.

A question which arises is whether the cooperative model will work in bringing together the diverse interests into collective action.

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32 Submission No. 72.

33 Submission No. 75.

The Tasmanian Farmers and Graziers Association argued that there needs to be a review of the way bushfire policy is set in the state, and a Tasmania Bushfire Policy Council should be established:

> *…crucial elements of the state's approach to managing bushfire risk are left too much to negotiation between different organisations and stakeholders. One outcome of this situation is, for example, the patently inadequate level of hazard reduction burning in the state. This situation is largely the result of the lack of an unambiguous priority being attached to hazard reduction.*
>
> *The problem has essentially arisen because there is no overarching policy, relating to bushfire risk management which stipulates what the necessary trade-offs between policy domains are to be, set at a level in government which has the authority to insist that trade-offs are adhered to and which therefore can provide the certainty that effective bushfire management needs – ahead of time.*

Image courtesy of Warren Frey

> *The TGFA recommends that the Tasmanian government establish a body to be known as the Tasmanian Bushfire Policy Council … to report directly to the Tasmanian Premier and with the responsibility for proposing policy which provides for the effective management of Tasmania's bushfire threat with an unambiguous statement of primacy for that policy as necessary, over other policy domains.*[34]

The Manager of the SFMC suggested to the Inquiry that the Fire Management Area Committee fire protection plans should be included in the TEMP, as a way supporting the plans with the authority of the *Emergency Management Act 2006*. This is potentially an alternative to solving the problem envisaged by the Tasmanian Farmers and Graziers Association. Another option, more in line with the Tasmanian Farmers and Graziers Association proposal, is to integrate it with the Security and Emergency Council suggested in PART J of this Report.

The SFMC has received funding to support it and there has been legislative change to the way Fire Management Area Committees operate. It remains to be seen whether the cooperative approach will work. However, the history of inaction on bushfire risk management suggests, and the Inquiry shares the concerns about effective implementation of the SFMC approach, particularly with fuel reduction. This matter should be further considered by the Government.

Land holders also have an interest in bushfire risk mitigation. Many of these are in the private sector and it is not proposed to generally examine those responsibilities in this area. However, one aspect that has been mentioned to the Inquiry, which may be relevant more generally, is that private land holders should be responsible for fires that start on and escape from their land. This is particularly relevant to fuel reduction burning on private land and it was suggested to the Inquiry that models in other countries, such as the requirement to have insurance against the cost of escape,[35] should be considered. It may be appropriate for the SFMC to examine this area and provide advice to the Minister.

PWS, Forestry Tasmania and Norske Skog are substantial land holders (the first two in the public sector), and comment will be made on their approach to risk mitigation because of their significance in this field. Detail on the treatable land will be provided in the section on fuel reduction.

Parks and Wildlife Service (PWS)

PWS is responsible for most of the State's public land, which now amounts to 2.5 million hectares following the recent Tasmania Forest Agreement and a transfer from Forestry Tasmania of approximately 730 000 hectares. There is a structured approach to planning with a strategic plan at state and regional levels and they cascade in a consistent way down to individual field centres. The plans operate across the emergency management spectrum, including response and recovery, and in that sense provide a comprehensive approach to risk mitigation. Fuel reduction is the primary approach to risk prevention and mitigation relevant to this part of the report.

With the significant addition to land under the management of PWS, there will be a substantial increase in risk if sufficient resources are not provided to manage this new responsibility.

34 Submission No. 75.

35 For example, New Zealand.

Forestry Tasmania

Forestry Tasmania also has a substantial public land responsibility. There was no reference in Forestry Tasmania's submission to the Inquiry of a planned approach to risk mitigation, apart from the Fire Action Plans each Forestry Tasmania District uses, and other arrangements, to prepare for and respond to fires. However, Forestry Tasmania does have a fuel reduction program.

Forestry Tasmania is concerned about the reduction in machinery and skilled operators available for bushfire operations, due to the collapse of Gunns Limited and contraction of the forest industries. The Inquiry was informed that the availability of bulldozers and other heavy machinery has been reduced by one third and the number of skilled operators has declined even further.[36] Forestry Tasmania recommends that the Government should note this reduction in resources and take action to ensure suitable machinery and experienced operators remain available. There are also concerns about the maintenance of access roads and infrastructure for fire management.

Norske Skog

Norske Skog is a private sector forestry company with substantial commercial timber interests. It maintains a fire management capability, and equipment and trained and skilled personnel are available to respond to fire threats on its own land and to work in partnership with TFS and PWS on joint fire operations. For example, Norske Skog personnel and equipment were significantly involved in the Lake Repulse fire operations.

Municipal Councils

Local councils have an interest in and should be more engaged in preventing and mitigating bushfire risk. Presently they are involved through the Fire Management Area Committees and it is expected they will be stakeholders in these committees. It appears that councils are mainly involved in managing risks in a reactive way by responding to fire hazards which are regarded as a nuisance. Councils can issue abatement notices through s. 200 of the *Local Government Act 1999*.

Tasmania Fire Service (TFS)

TFS also has authority to deal with fire hazards. S. 49 of the *Fires Service Act 1979* empowers an authorised officer to require a land holder to rectify a fire risk where any hedge, vegetation, rubbish or similar matter is in a condition which poses a fire danger. The Inquiry was informed that this provision is most often used to support a local council with a fire hazard. It too, is used in a reactive way, though it has potential to be able to be used proactively.

In terms of mitigating bushfire risk, a strategic approach as envisaged by the SFMC is desirable and is supported, but the Inquiry is satisfied that a more structured and systemic approach to dealing with fire hazards is required. This would ensure a more comprehensive approach to the risk, and deal with hazards that may present as a source of bushfire or aggravate the risk once a fire is started. Such an approach would engage municipal councils in a practical and effective way of protecting their assets and their local community.

The Tasmanian Farmers and Graziers Association submitted that there should be strict obligations on land owners to manage fuel on their land and maintain access roads and tracks on their property to allow ready access by brigades.[37] This supports a better approach

36 Submission No. 76.

37 Submission No. 75.

to hazard management and the matters raised by the Tasmanian Farmers and Graziers Association should be considered by the SFMC.

A structured, systemic and proactive approach to hazard reduction would probably require amendment to the *Local Government Act 1999* to empower councils in a similar way to TFS and possibly establish obligations as envisaged by the Tasmanian Farmers and Graziers Association, and the development of a strategic and planned approach by the SFMC.

One final matter to discuss in this section is the need for specific emergency management plans for areas of high risk. The bushfires on the Tasman Peninsula highlight the risks posed by the local conditions and it is not necessary to canvass those again. There should be a program involving the preparation of contingency bushfire plans (and for other hazards) across the state for these high risk areas, so that risks are mitigated by appropriate emergency management action.

Recommendation 81 – that the State Emergency Management Committee considers structuring the Tasmania Emergency Management Plan in a way that provides more specific guidance, commitment to and accountability for action to be taken.

Recommendation 82 – that the State Emergency Management Committee determine suitable risk management tools, such as the Bushfire Risk Assessment Model, and encourages their use in assessing bushfire risk in a consistent manner.

Recommendation 83 – that a specific risk prevention and mitigation advisory body be established for the State Emergency Management Committee.

Recommendation 84 – that the resources available to the Parks and Wildlife Service, to manage bushfire risk following the recent increase in land under its tenure, is reviewed.

Recommendation 85 – that the Government considers whether a peak body should be established, with authority to effectively implement a bushfire mitigation plan.

Recommendation 86 – that the State Fire Management Council considers developing a structured, systemic and proactive bushfire hazard reduction program with municipal councils and Tasmania Fire Service; and advises the Government on any legislative or other changes required to implement such a program.

Recommendation 87 – that the State Emergency Management Committee includes in its planning, the development of contingency emergency management plans for areas of high risk due to local conditions.

Recommendation 88 – that the State Fire Management Council note the decline in machinery and skilled operators from the forestry industry in the private sector and determines how this reduction in fire management capability can be addressed.

Enforcement of Criminal and Other Inappropriate Behaviour

An effective risk management strategy for bushfires is to deter intentional, reckless or negligent behaviour that causes bushfires (or increases the risk of those fires) by prohibiting or regulating this behaviour with suitable legislative sanctions.

The Inquiry was not able to examine this matter, but was advised that the current approach was ineffective as the current laws were not rigorously enforced.

To provide some scope for consideration of whether this area warranted further attention, the Inquiry obtained data from the TFS Australian Incident Reporting System on the cause of fires between 1 July 1998 and 13 March 2013. A preliminary analysis indicated there were 31128 vegetation fire incidents reported, and within this data:

- 11 258 fires were deliberate
- 6 105 were accidental–misuse
- 8 393 were undetermined.

The number of deliberately-lit fires appears to be substantial. However, it is likely that many of these were not fully investigated and the true cause identified or at least classified as suspicious. It is expected that this category would include arson as well as regulatory breaches such as lighting a fire without a permit.

During a permit period, a permit is required for any fire greater than one cubic metre in size. Anecdotal advice to the Inquiry suggests that if a brigade attends a fire where a permit should have been obtained, then one is sometimes issued retrospectively rather than to prosecute a person in breach.

With negligent fires, classified as accidental–misuse, there may be a breach of the legislation, such as not adhering to permit conditions or properly controlling a fire. Again it is suggested that there are few investigations, infringements or prosecutions.

The large number of undetermined fires may be due to the difficulty in identifying a cause or because they have not been investigated for this purpose.

If this situation is correct, it may indicate a very relaxed attitude towards enforcing the law or insufficient investigatory resources being applied to the matter. Certainly, any rigorous enforcement program will need suitable investigatory capability in resources and skills for TFS and Tasmania Police (TASPOL). A suggestion made to the Inquiry included re-establishing an Arson Squad. This is a matter for TASPOL, but there should be the necessary skills to examine crime scenes and investigate criminal offences.

If there is not a suitable enforcement arrangement, then an important strategy for preventing and mitigating bushfire risk will not be in place.

Recommendation 89 – that the legislation and enforcement arrangements are reviewed to ensure there are suitable offences and penalties, investigation and enforcement capabilities, and a rigorous approach is taken to breaches of the law.

Fuel Reduction Burning

Fuel is an essential element of a fire model and it contributes to fires igniting and the intensity of a fire. For bushfires the fuel is vegetation. Reducing vegetation can prevent a bushfire, help in the way it is managed, and reduce its intensity and impact. Putting aside direct fire management (such as with back burning), the primary means of reducing vegetation is through controlled burning. This is the issue to be discussed in this section.

In the Lake Repulse, Bicheno and Forcett fires, previously burnt areas had an influence on the behaviour of the fires. Detail of this can be seen in PART D. Comments in the PWS submission should also be noted, in that less than 5% of the area burnt by the Forcett fire is managed by PWS; that a more extensive fuel reduction burning program by PWS would not have made any difference to the overall damage caused; and that fuel reduction burning has limited value in assisting fire control under very extreme weather conditions.[38]

Fuel reduction burning (also referred to as prescribed or controlled burning) is a highly contentious subject. Conflicting interests have been a cause for a lack of progress in preventing and mitigating bushfire risk by this treatment method.

Fuel reduction burning has been closely examined in a number of inquiries into bushfires. The 2009 Victorian Bushfire Royal Commission convened an expert panel and there is a detailed examination of the subject in its Report. Recommendation 56 proposed an annual program of prescribed burning of 5% of public land. The Inquiry, therefore, is not intending to undertake such a detailed analysis and accepts that fuel reduction burning is a legitimate risk management strategy for bushfire.[39]

Fuel reduction burning to reduce bushfire risk can be conducted on private and public land, to clear along roadways, to create fire breaks, and to abate hazards. Hazard abatement has been referred to in the previous section and this could include clearing along roadways. All these areas could be included in fuel reduction burning programs.

Only certain types of vegetation are suitable for treatment by fuel reduction burning. This includes dry eucalypt forest, scrub, heathland and button grass, but not wet eucalypt forest and alpine heathland and woodlands. These are approximately 2.57 million treatable hectares of dry woodland, forest, heath and moorland in Tasmania in which fuel reduction burning could reasonably be undertaken. Of this 0.86Mha are in reserves managed by PWS, 0.5Mha are in State Forest, 0.1Mha on unallocated Crown lands, and the balance (1.1Mha) are on privately owned lands and other lands. Treatable vegetation by land tenure is set out in Table 1.6.[40]

38 Submission No. 85, at p. 11.

39 The Operational Guidelines and Review of Current Knowledge for Planned Burning in Tasmania, Jon Marsden-Smedley for the Tasmanian Fire Research Fund, is also a very useful source of information.

40 Email received from Adrian Pyrke, Parks and Wildlife Service, on 12 July 2013.

Table I.6

Class Name (TASVEG)	PWS fuel reduction burning Treatable Area (ha)	Forest Reserves fuel reduction burning Treatable Area (ha)	TFA fuel reduction burning Treatable Area (ha)
Scrub, heathland and coastal complexes	153,712	2,015	6,410
Dry Eucalypt Forest and Woodland	250,535	83,032	182,090
Moorland, Sedgeland, Rushland and Peatland	551,385	5,029	30,349
Non-Eucalypt Forest and Woodland	5,613	206	197
Agricultural, Urban and Exotic Vegetation	3,785	862	2,813
Native Grassland	7,162	133	210
TOTAL TREATABLE AREA (ha)	**972,192**	**91,277**	**222,069**
% treatable	38.7	41.2	43.2
TOTAL RESERVE AREA (ha)	**2,509,565**	**221,785**	**514,500**

Not all vegetation can be burnt at any time and the level of dryness and weather conditions are also factors that determine when and how fuel reduction burning can be conducted.

Another matter to consider is hot and cool burning, which relates to a fire's intensity and the impact it will have on the vegetation, with a hot burn causing much more significant damage.

The *Fire Services Act 1979* sets out requirements for fires, fire usage, where fires cannot be lit, and how fires should be managed. Fire permits are the most relevant form of regulating fuel reduction burning. A fire permit period can be declared by TFS, so that fires over one cubic metre in size require a permit. During this period, any person wanting to conduct fuel reduction burning will need to obtain a permit. The permit period is determined by an assessment of fire risk and is generally dependant on soil dryness.

A fire permit period will vary in timing and it can apply throughout the state or to any part of the state.[41] Usually periods are declared by region; that is the three fire regions in the state. When and where permit periods apply is controversial with land holders, mainly farmers.

Fire permit officers are appointed by the SFMC from brigade members in fire management areas on the basis of their skills, qualifications or experience. They are required to consider advice, recommendations and reports from the State Fire Commission or the local Fire Management Area Committee.[42] Fire permits for land managed by PWS are issued by appointed TFS officers and for Forestry Tasmania they are issued by appointed Forestry Tasmania officers.

Permits can further be controlled depending on conditions, by the capacity to issue an embargo on the issue of permits across a region, and by declarations of a total fire ban.

41 Fire Services Act 1979, s. 61.

42 Fires Service Act 1979, ss. 65 and 65A.

One of the issues that can arise is the conflict of interest inherent in the issue of permits; land holders may want a permit when conditions for burning are right, but the issuing officer has an interest in avoiding fires and may adopt a risk averse approach.

How much fuel reduction burning occurs now? Most fuel reduction burning occurs on public land. Data is available from PWS and Forestry Tasmania, but the burning on private land is under-reported because it occurs before a permit period, or without a permit, or the size of a permitted burn is not accurately recorded. As a percentage of treatable vegetation, the percentage subjected to fuel reduction over the last three years is estimated at:

- 1.56% in 2010–11
- 0.27% in 2011–12
- 0.63% in 2012–13.

The amount of treatable vegetation burnt is likely to vary between years to some degree, depending on whether conditions are favourable or not.

Parks and Wildlife Service (PWS)

PWS conducts its fuel reduction burning programs through Strategic Fire Management Plans for each of its regions. PWS defines its land in terms of fire management zones:

- asset zone: assets of high strategic importance, including natural, cultural and economic values
- asset protection zone: areas of high strategic importance to protect values in Asset Zones
- strategic fuel management zones: areas that will increase the likelihood of controlling a bushfire or the spread of a fire and to contain the size of a fire to no more than 5 000 hectares
- land management zone: to maintain appropriate regimes for the landscape vegetation communities, species diversity and cultural heritage.

The highest priority is assigned to asset protection zones. The BRAM risk assessment model is used to further refine priorities in these zones. The PWS zoning approach and the use of BRAM are being further refined. [43]

PWS supports fuel reduction burning and endeavours to do as much as it can with the resources available. An increase in the area subjected to fuel reduction burning would require additional resources. This is particularly relevant to the expansion of the area under its control and a recommendation has been made to review its resources.

PWS told the Inquiry that fuel reduction burning programs are carefully planned well in advance of when they occur by specialist personnel. Priority is given to burns with the most strategic advantage for protecting towns and communities. PWS asserts that to adequately mitigate bushfire risk, much more burning is required in the state.[44]

43 Submission No. 85.

44 Submission No. 85 at p. 10.

Forestry Tasmania

Forestry Tasmania conducts burning programs, some of which are fuel reduction burning. High intensity burning occurs as part of the logging process, mainly for regeneration of forests assets. Some low intensity risk mitigation burning occurs and this is intensively planned and conducted in accordance with established practices. Fuel reduction burning is usually on the periphery of important logging assets. Over the last three years, there were four fuel reduction burns in 2009–10, eight in 2010–11 and one in 2011–12. Waste material in heaps and windrows is also burnt.

Forestry Tasmania supports an expanded fuel reduction burning program, arguing that it is particularly valuable in two situations: close to or adjoining high value natural and capital assets, and as broad strips strategically located across historical fire paths. It is said to be most valuable of all in the urban interface zone, where low density housing has occurred and houses are surrounded by natural bush and often with poor vehicle access.[45]

Municipal Councils

Local councils have an interest in risk mitigation with land under their control. Capability varies with councils, depending on their land assets and the resources available to them. Larger councils, such as Hobart City Council, have fire management plans that include cultural and biodiversity issues. Fuel reduction burning is usually smaller in size and of a tactical nature, rather than being strategic. There are also constraints for councils around the urban/rural interface. Many councils concentrate on removing hazards from land under their control, frequently by mowing and brush cutting. Local brigades often assist councils in their burning operations.

Others

There are a number of major private forest companies managing plantation timber and native forest. Norske Skog has been referred to in the previous section. It appears that no high intensity burning occurred last fire season and generally low intensity fuel reduction burning occurs with fire management plans.

Fuel reduction burning on private land is difficult to assess. There is often little appreciation of the risk and a lack of skill in managing vegetation fire. Brigades help land holders, but this is not coordinated, usually not well recorded, and is of a tactical nature. Some of the bigger land holders do not manage the fire risk on their land well. The farming and agricultural sector is much better positioned to conduct fuel reduction burning on their land, with many land holders having a strong interest and experience in fuel reduction burning.

There is an interface of interests which tend to be unfavourable to fuel reduction burning, including:

- the risk of fire escaping from a fuel reduction burns and damaging other property
- competing land uses, some of which can be affected by smoke, such as the wine industry (and the best time for fuel reduction burning often coincides with a period of most vulnerability for the wine industry)
- air quality and smoke pollution, with lifestyle and potential health effects
- conservation and environmental issues

45 Submission No. 76, at p. 42.

- land holders who do not want to do fuel reduction burns, compromising fuel reduction burns by others.

Legislation provides for some of these interests, including:

- permits are to be obtained under the *Threatened Species Protection Act 1995* to protect native flora and fauna
- smoke management is required under the *Environmental Management and Pollution Control Act 1995*
- Aboriginal heritage needs to be protected
- there are requirements under the *Nature Conservation Act 2002* and Forest Practices Code.

The Inquiry received a wide variety of submissions on the issue of fuel reduction burning. In terms of conservation, some argued that protected areas created a fire risk and they could not convince people to approve or undertake fuel reduction burning, so that with the hot burn of the 4 January fires the protected area is now a wasteland for flora and fauna. It is not possible to examine individual cases to determine the accuracy of claims; nor is it likely to be possible to reconcile competing views on these sensitive issues.

Submissions were received from parties expected to have environmental and conservation views and there was some in-principle form of recognition of the need for fuel reduction burning. For example, the Tasmanian Conservation Trust said it 'understands and supports the need for appropriately planned and implemented controlled burning of many forest and non-forest vegetation types'.[46]

A distinction was made between supporting hot and cool burns. In this sense, Forestry Tasmania's practice of regeneration burns using high intensity fire to make the environment suitable for seeding was opposed, but fuel reduction burning cool burns were seen as managing the natural environment and supporting its biodiversity complexity.[47]

It should be possible to reconcile these competing interests through the BRAM risk assessment process, as it is intended to take into account the various values and by taking a strategic approach. However, it is probable that it will not be possible to accommodate every interest as it may limit the practicality of fuel reduction burning. The protection of life should be the highest value and priority. The notion of targets for fuel reduction burning will be discussed later in this section.

Farmers, farming groups and the Tasmanian Farmers and Graziers Association made submissions, and the Inquiry met with some of them. Not all issues raised are within the Inquiry's terms of reference (for example, the Government meeting half the cost of fencing on the boundary with Crown). In general, these broad issues were raised:

- not enough fuel reduction burning was occurring on Crown and other public land, putting their properties at risk
- the interrelationship between the various pieces of legislation was too complex and contradictory

46 Submission No. 59. See also submission No. 91.

47 Submission No. 91.

- conservation and environmental issues stop farmers from being able to protect their land by conducting fuel reduction burning where and when they think best
- the permit system was a cause of restriction and aggravation.

The scale of fuel reduction burning will be discussed later in this section.

The interrelationship between the various pieces of legislation is complex, but there does not appear to be a direct inconsistency between them. It is more likely that they are misunderstood because of the complexity, and it may be possible to clarify this with some clear advice available to the public. Indeed, it would be of broad value to have some consolidated information on the various pieces of legislation available in a simple form for the community.

Concerns about not being able to protect their land seem to involve entering into conservation covenants. Sometimes this followed landowners applying for the certification of a forest practices plan, to harvest timber or to clear their land, and this was refused for conservation reasons. When this plan was not approved, the landowner then negotiated and was paid for a conservation covenant. Landowners may feel that they have been forced into this position and may want to now conduct fuel reduction burning on this land. The issue is dependent on the terms of the conservation covenant they agreed to and it is not something this Inquiry will deal with.

The permit system was the subject of a number of concerns:

- that the permit system should not apply to farmers, who should be able to conduct fuel reduction burning when the conditions are right
- farmers should not have to prepare fire plans
- farmers should not have to register any fuel reduction burning outside a permit period
- conditions of fire risk are not the same across all areas and permit periods were too broad and general, in both time and location, and unnecessarily restricting burning
- some permit officers were too risk averse and would not issue permits
- permits could not be quickly obtained
- because of the difficulty with permits, famers did not do any fuel reduction burning in the permit period.

PWS also raised practical issues in conducting fuel reduction burns even with a permit:

- identifying suitable boundaries for fuel reduction burns — often the logical boundaries are on private property that adjoins reserved land
- engaging neighbours or stakeholders to agree to, or assist with, burning on their land
- providing adequate firefighting resources when neighbouring assets are of high value
- managing the impact of smoke on public health, road safety and wine growers
- mitigating the risk of escapes.[48]

48 Submission No. 85 at p. 10.

The Tasmanian Farmers and Graziers Association also submitted that community fire management effectiveness needs to be maximised by delegating as much authority as possible to land owners and volunteer bushfire brigades.[49]

The Inquiry is satisfied that there should be controls for conducting fuel reduction burning during periods of heightened bushfire risk. It is neither practical nor desirable to exempt individuals or organisations from reasonable controls where there isn't a satisfactory way of ensuring they have the knowledge, experience and resources to manage fuel reduction burning without creating a risk to other members of the community. However, it may be possible to authorise people and organisations where suitable conditions are satisfied. This is a matter which should be further examined by TFS.

The Inquiry is also satisfied that a more flexible approach should be taken to the declaration of permit periods so there is a better match between period, area and the fire risk. The way permits are issued should also be examined to ensure permit officers aren't unduly risk averse and the process occurs in a timely and efficient way.

It may be appropriate to change the name of the permit period to better emphasise the fire risk, for example, by calling it the Bushfire Danger Period.

Further, to provide greater confidence to the community in the permit system, as well as to ensure there is accountability in the process, a means of reporting to the community on the management of the permit process should be established. The best means of doing this is to include the information in TFS's annual report and on its website. The information should correlate with the way the system should operate; for example, the number of permits applied for and refused, reasons for refusing a permit, and the time it takes to approve a permit.

Image courtesy of Workplace Standards Tasmania

49 Submission No. 75 at p. 13.

The manner in which fuel reduction burning is being conducted at the present was also an issue for a number of farmers. There were suggestion that there was too much science going in to burning programs, once fuel loads reach 10 tonnes per hectare the fuel needs to be removed, plans take too long to develop, plans should be across tenures and burning done by local brigades, plans for fuel reduction burning should include private nature reserves and land bought for biodiversity offsets, and state and local government should maintain road verges.[50] These are matters the State Fire Management Council should consider in developing its program.

There is much support for an expanded fuel reduction burning program and the Inquiry is satisfied that this should occur as a high priority. The Tasmanian Farmers and Graziers Association proposed that a systematic and comprehensive program should be established. It is a fact of history that these programs are recommended by inquiries into major bushfires, but the complexities of dealing with competing interests and requirements, in addition to not committing sufficient resources, often sees them wither on the vine. A question then arises, what does an expanded program mean? As indicated above, the 2009 Victorian Bushfire Royal Commission specified a 5% annual fuel reduction program on public land.

Setting quantitative targets has its difficulties. Not all vegetation is treatable and it could be satisfied by reducing fuel in an area where there is a very low risk to people and assets. The pattern of fuel reduction burning should be considered rather than large blocks, to provide the best protection. Suitable weather will affect the timing of a fuel reduction burning program and it may be that some years are better than others. Moreover, there should be an integrated program involving both private and public land.[51]

A strategic approach is preferable to simply setting a quantitative target. PWS submitted that meaningful targets could be calculated based on zoning, risk assessment and ecological sustainability.[52] Fuel load, as suggested in a submission, would be part of the risk assessment.

The State Fire Management Council has obtained funding to prepare a Strategic Fuel Management Plan for Tasmania and this would be managed by a unit within the State Fire Management Council.[53] Conducting research to establish the scientific case for strategic fuel management is the first step in the project and it is expected this will take 12 months. The Manager of the State Fire Management Council informed the Inquiry that there was enough evidence available to support a strategic fuel management program, and what was needed in the research was to identify the zones and percentages of treatable area required.

It is envisaged that there would be a significant increase in fuel reduction burning each year, but that it would take several years to undertake the planning, and build up capacity, resources and experience. A phased approach to introducing the plan is envisaged, as appears to have been the experience in Victoria and New South Wales.[54]

Restructuring the Fire Management Area Committees is a key element of implementing the plan. The Fire Management Area Committees would produce fire protection plans and

50 Submission No. 52.

51 Submission No. 91, at p. 7.

52 Submission No. 75, at p. 10.

53 Refer to Submission No. 72 for detail on the process of developing the proposal.

54 Submission No 72, at p. 4.

these would incorporate information from other plans, such as bushfire mitigation plans and community protection plans. It is also envisaged that planning would cross all land tenures and deal with conservation and environmental sensitive issues, including conservation covenants.

This strategy will not be without its difficulties. It is a cooperative model with numerous stakeholders, and reservations were expressed in the previous section on whether the cooperative model will work. Other issues include whether private land owners can be compelled to reduce fuel on their land, who will pay for the cost of mitigation action, what legal protection is there for people engaged in fuel reduction, and how will the different interests in the various pieces of legislation be reconciled. For example, will the *Emergency Management Act 2006* be able to be used to overcome restrictions in conservation covenants? No doubt it would be of assistance to simply be able to manage the various interests in a collective way.

The delay in introducing an effective fuel reduction burning program should be disappointing for many people. Concerns have already been expressed by the Inquiry about the cooperative nature of this model (refer to that section of the Report). Considering the delays, the form of the model and the difficulties likely to be encountered, Government commitments should be made to actively support the plan. Otherwise, the Inquiry is not confident that meaningful bushfire risk mitigation will be achieved by fuel reduction burning.

One final comment in this area is on setting targets. A problem with not having a measurable target is accountability, and the tendency for activities to discontinue if they are not monitored. Taking a strategic approach and setting targets are not incompatible. There should be measurable targets set by the State Fire Management Council as part of the plan and these should be reported on in its annual report.

Recommendation 90 – that Tasmania Fire Service or another suitable agency provides information to the community which shows, in simple form, the legislation applicable to approvals for lighting fires on private property and the various relationships between that legislation.

Recommendation 91 – that Tasmania Fire Service conducts a review of the fire permit system in the Fire Service Act 1979, and implements change to improve the efficiency and effectiveness of the system by:

- *considering whether it is appropriate to authorise persons or organisations to conduct fuel reduction burning during a permit period*
- *providing a better match between the period, area and fire risk*
- *maintaining a timely and efficient process for issuing permits*
- *naming the period in a way that draws attention to bushfire risk*
- *establishing a reporting and accountability process.*

Recommendation 92 – that the Government actively support the timely development and implementation of an ongoing Strategic Fuel Management Plan.

Recommendation 93 – that the Strategic Fuel Management Plan includes measurable targets and they are actively monitored and reported on to the community.

Building in Bushfire-Prone Areas

Land use planning and building in bushfire-prone areas is an important part of risk management. This is especially so, considering demographic and climate change, with more people living in bushfire risk areas and a heightened risk of bushfires occurring. The 2009 Victorian Bushfire Royal Commission devoted considerable attention to this subject, providing comment and making recommendations on planning, developing and building in bushfire-prone areas.

In the Auditor-General's Special Report No. 99 on bushfire management, where progress in implementing the recommendations of the 2004 COAG Report was examined, the COAG Report was cited as reporting that land use planning was the single most important mitigation measure for preventing future bushfire loss. In 2011 when the Auditor-General reported, changes had not been made to the regulation of land use planning and building construction, and disappointment was expressed over the delays and the protracted nature of change.[55]

Significant changes have recently been made in Tasmania, with the introduction of the Bushfires-Prone Area Code. Potentially a broad range of land usage might be included in this subject, such as agricultural and primary production which increases fuel hazards, and building fire safety bunkers for residential dwellings.

A significant barrier, especially from a residential dwelling perspective, is the community's appreciation of the risk and its preparedness to implement sometimes costly protective measures. People tend to forget the risk very quickly, even following major and catastrophic fire events. Building community resilience and educating people about the risk of living in bushfire prone areas should contribute to a greater acceptance of the need to introduce and maintain bushfire safety measures in land use.

Before the recent initiative, there was a wide diversity to the inclusion of bushfire requirements in council planning arrangements and a lack of consistency in approach. From November 2012, Planning Directive No. 5 included the Bushfire-Prone Area Code in the Building Regulations 2004, which activates the relevant requirements of the Building Code of Australia.

A bushfire-prone area is defined and the code essentially regulates land use and buildings which involve people occupying buildings in areas likely to be subjected to bushfire in the future. Construction standards, vegetation management, access to water supplies, emergency vehicle access and evacuation options are among the issues covered.

This is a mandatory requirement for any new planning scheme and will apply uniform standards across Tasmania. It currently is in the process of implementation with councils and not all have yet incorporated it into their planning schemes. Measures may need to be taken to ensure all councils adopt the Code as a priority.

A system of accredited assessors will be provided to certify proposals, and TFS is responsible for accrediting these assessors. The training and accreditation process is currently being undertaken.

55 Report of the Auditor-General, Special Report No. 99, Bushfire Management, June 2011, at pp. 54 to 58.

The new code and the arrangements appear to be a substantial improvement, but there are some aspects which need to be considered:

- the scheme does not apply to existing buildings
- standards following development and construction will be difficult to monitor and maintain
- knowledge and expertise on land use and construction for bushfire safety needs to be further developed
- a means for continuing to develop improvements should be established.

In respect to the latter point above, one option is to formalise the industry reference group used for the development of the Bushfires-Prone Areas Code and give it a broader terms of reference. Another suggestion is to establish a State Policy on Climate Change and Bushfire Management.[56]

Land use planning and building construction is a substantial and complex subject, and the Inquiry has not been able to undertake a comprehensive examination of this area of bushfire risk prevention and mitigation in the time specified by the terms of reference. However, it is an area which should be accorded a high priority and resources and expertise should be devoted to ensuring appropriate measures are adopted and implemented as soon as possible.

Recommendation 94 – that the Government makes land use planning and building construction to prevent and mitigate bushfire risk a high priority and establishes a means to progress improvements in this area, such as a designated body or group, as soon as possible.

Building Community Resilience

Community resilience was commented on in PART F in the context of a resilient community being able to recovery more quickly from an emergency. Comments there should be read with this section.

In 2009 COAG agreed to 'adopt a whole-of-nation resilience-based approach to disaster management'. Subsequently, in February 2011 COAG approved the National Strategy for Disaster Resilience. The key policy intention is outlined in the following extract from the 2009 COAG Statement, as provided in the National Strategy for Disaster Resilience:

> ***A collective responsibility for resilience***
>
> *Given the increasing regularity and intensity of natural disasters, Australian Governments have recognised that a national, coordinated and cooperative effort is required to enhance Australia's capacity to withstand and recover from emergencies and disasters. A disaster resilient community is one that works together to understand and manage the risks that it confronts. Disaster resilience is the collective responsibility of all sectors of society, including all levels of government, business, the non-government sector and individuals. If all these sectors work together with a united focus and a shared responsibility to improve disaster resilience, they will be far more effective than the individual efforts of one sector.*

56 Submission No. 91, at p. 15.

Role of government

Governments, at all levels, have a significant role in strengthening the nation's resilience to disasters by:

- *Developing and implementing effective, risk-based land management and planning arrangements and other mitigation activities;*
- *Having effective arrangements in place to inform people about how to assess risks and reduce their exposure and vulnerability to hazards;*
- *Having clear and effective education systems so people understand what options are available and what the best course of action is in responding to a hazard as it approaches;*
- *Supporting individuals and communities to prepare for extreme events;*
- *Ensuring the most effective, well-coordinated response from our emergency services and volunteers when disaster hits; and*
- *Working in a swift, compassionate and pragmatic way to help communities to recover from devastation and to learn, innovate and adapt in the aftermath of disastrous events.*[57]

A draft Implementation Plan has been developed by the SEMC, but it has not been approved. A copy of the plan is at Appendix I.1 – copy of plan in the appendices. The first step in the draft plan was to audit the then current activities in terms of the framework of the National Strategy for Disaster Resilience (NSDR), and this has been completed. A number of procedural actions have also been taken, including linking funding guidelines for programs, providing agencies with key messages, linking SEMC priorities and linking a draft SEMC strategic directions document to the NSDR strategies. However, no action of substance has been taken to develop an appropriate strategy for Tasmania or to implement the NSDR. This is apparently due to a lack of resources and other priorities.[58]

A suitable strategic plan for Tasmania is preferable to just implementing the NSDR, so that key policies and strategic directions can be tailored to Tasmania's circumstances and needs. The White Paper on Victorian Emergency Management Reform provides some indication on what the content of a strategy at state level might look like:

- engaging the community: community resilience is established by ensuring people in that community are fully engaged in the resilience-building process and that the process is led from within the community
- community-based planning to mitigate hazards: community resilience can be improved by using planning approaches that consider likely risk factors and vulnerabilities, and identify how to mitigate against those risks
- community awareness and education: emergency service organisations and government departments currently deliver programs that help people make informed emergency-related decisions
- making information available during emergencies: initiatives to foster long term behavioural change do not replace the need for ready access to information during an emergency

57 National Strategy for Disaster Resilience

58 Email message from Director of State Emergency Services, 9 August 2013.

- crisis management planning: planning and preparation using tools like business continuity plans can help governments, businesses and the public more easily navigate the disruption and adapt to new circumstances
- managing risks to critical infrastructure: the ability of critical infrastructure industries to continue functioning through an emergency is vital to a community's resilience
- coordinating relief and recovery in communities. Enabling communities to contribute to their own recovery is essential to restoring community functions
- role of local government: local government is a key component of Victoria's emergency management system.[59]

It can be seen that the intention is to take a more holistic approach to community resilience, and not to bolt-on a collection of initiatives. This list also reflects significant aspects of the emergency management arrangements dealt with in other parts of this Report, which reinforces the integral role community resilience is intended to have.

The project developing a Strategic Directions Framework for the SEMC referred to in the section on Risk Assessment, Responsibilities and Planning, includes a strategic direction for Building Resilience. This project may help overcome current weaknesses in the approach to community resilience.

Community education is a significant component of community resilience and is recognised as such within the authorities with bushfire management responsibilities. A key strategy is to educate and inform the community of bushfire risk and the options available to them. In PART G this area was examined in detail and it is not proposed to reiterate the discussion there. In particular, detail in the preliminary Bushfire Cooperative Research Centre's report on the Forcett fire was examined, but the primary focus there was on how people responded on the day of the fire.

Long-term preparations are an important basis for community resilience, and the Bushfire Cooperative Research Centre's report sought information on this. The three most frequently reported long-term preparations by residents in the area of the Forcett fire were clearing vegetation around the house (66%), having an unwritten bushfire survival plan (53%) and clearing space around the home (51%). The least reported (all less than 5%) were reviewing the local community protection plan, ensuring house security protection and having a written bushfire survival plan.

A comparison with other states on this topic was sought to obtain some measure of how effective the education programs have been in Tasmania. Survey results from the Bushfire Cooperative Research Centre over the 2012–13 fire season at Table I.7 indicate:[60]

Table I.7

	Tasmania	South Australia	New South Wales
Written plan	11.5%	26.1%	11.6%
Mental plan	81.2%	84.6%	69.8%

Note: the figures do not aggregate to 100% due to definitions used.

59 Victorian Emergency Management Reform, White Paper, Government of Victoria, December 2012.

60 Email from Damien Killalea, Director, Community Fire Safety, Tasmania Fire Service, 7 June 2013.

Care should be taken in drawing conclusion from this data and it is only provided for illustrative purposes. It does suggest a low take-up rate for written plans in the community, but a fairly high penetration rate for unwritten plans.

As indicated above, there is a clear recognition of the importance of community education on bushfire safety and this was included in the 2004 COAG Report. For example, one recommendation was that national and regionally relevant education programs about bushfire be developed and implemented. The Auditor-General examined this recommendation in Special Report No. 99, and found that while high quality education material was being delivered in Tasmanian schools, the full implementation of the recommendation was dependent on the national curriculum.

The subject of educating the community requires further examination. However, the Inquiry wants to emphasise that there should be a professionally developed communications strategy on all dimensions of educating and informing the community, coordinated across the fire authorities. It would appear to be appropriate that TFS should take the lead in this matter. Other measures are being introduced by TFS to build community bushfire resilience include the Community Protection Plans and Bushfire Ready Communities (referred to in PART H). These initiatives are related and are still works in progress. They are important and practical ways of managing risk and building community resilience, with an emphasis on being ready in a bushfire emergency.

The Bushfires Ready Project commenced in 2009 and it recognises that communities differ in their needs and capabilities, and preparations are tailored accordingly. Community protection planning uses different plan formats to assist communities to prepare by identifying Nearby Safer Places (assessed against criteria) for people who are at immediate risk from a bushfire to use for shelter.

Recommendation 95 – that a bushfire community education and information strategy be professionally developed and coordinated across the fire authorities by Tasmania Fire Service.

Recommendation 96 – that the State Emergency Management Committee develops and coordinates a whole-of-government community resilience strategy for emergencies in a form that can be practically implemented, as a priority.

Effectiveness of Risk Management Strategies and Plans

Emergency risk prevention and mitigation does not appear to have been a high priority in the emergency management arrangements, though there has been better development in the area of bushfire risk.

At state level, the SEMC is not structured in a way which focusses on risk prevention and mitigation, the TEMP does little to detail action and accountability, and the few risk initiatives developed by or for the SEMC have been at a high level with little emphasis on practical implementation and readiness. Fundamental change in the structural arrangements and the approach to risk management should be considered.

A current project to develop a strategic framework for the SEMC may overcome some of the long-standing weaknesses in the state level arrangements and approach to key issues.

There has been more activity for bushfires and it should be noted that many of the issues dealt with in other parts of this Report relate to bushfire risk management. But so too do weaknesses in those issues, such as the state of readiness discussed in PART G. Specific bushfire related risk prevention and mitigation issues have been examined in this part. Some risk management arrangements for bushfire are either in place or being developed.

However, this area is not without difficulty, and further improvements should be considered, including:

- adopting common risk assessment tools
- reviewing whether the cooperative approach through the SFMC is suitable or some form of peak bushfires authority is required
- establishing a more structured and systemic arrangement for reducing bushfire hazards
- overcoming the decline in resource availability for bushfire management in the forestry industry
- establishing a suitable expanded and on-going fuel reduction program in a timely way
- reforming the fire permit system.

Progress has been made with the new code for building in bushfire-prone areas and it is in the process of being implemented. Further reform on building in bushfire-prone areas should be considered.

The present approach to building resilient communities lacks progress and substance, and is not directed at creating a strategy tailored for Tasmania's needs. This may be overcome to some degree with the strategic framework project. Opportunities are being missed and more should be done.