4 Operational readiness: an assessment

(A discussion of aspects of ACT government agencies' operational readiness to deal with bushfires and their aftermath)

A multitude of factors affect ACT government agencies' capacity to respond to bushfires and their aftermath. Some are confined solely to the emergency services bodies whose task it is to deal with bushfires when they occur. But that is only part of the story: through their activities, other government agencies can have an impact on the performance of those responsible for fire suppression and prevention.

This chapter discusses the more important elements of operational readiness and makes a number of recommendations for improvements.

Fuel management

All fires develop as a result of the application of three elements—heat, oxygen and fuel. In a bushfire-prone environment, heat and oxygen, relative humidity and wind, cannot be controlled by human intervention. Thus, the only element that can be influenced by human endeavour is fuel. This notion is at the heart of one of the fundamental arguments related to fuel management. The fuel does not start fires, but it directly influences fire behaviour and fire intensity, both at the time of ignition and subsequently.

Fuel-reduction burning—also called controlled burning, hazard-reduction burning or prescribed or cool burning—has been much debated for some years. The debate has exposed the sometimes conflicting views of environmentalists, pastoralists, managers of parks and forests, and governments. Scientists are also divided in their views about the impact of fires and fuel-reduction burning on the myriad natural ecosystems in fire-prone environments. The various aspects of the debate are summarised in this section.

The January 2003 fires in the ACT, and fires more generally in eastern Australia during the summer of 2002–03, have given new impetus to the public debate, which is also an important consideration for this Inquiry and others currently under way. Criticism of the lack of a regular or robust burning regime in ACT parks and forests was voiced in numerous public comments in the immediate aftermath of the January fires and subsequently in a number of submissions to the Inquiry.

The purpose of fuel-reduction burning

The accumulation of fuels is an unavoidable characteristic of Australia's ecology, and fuel-reduction burning is the only effective *broad-scale* measure available to reduce the fuel hazard. It does not prevent bushfires; rather the aim is to reduce the available fuel load for any particular fire, thereby:

- inhibiting its early development
- reducing its intensity
- reducing the opportunity for the fire to develop into a crown fire[1]
- reducing the likelihood of spotting[2] and blowing embers-where light fuel such as leaves and bark is blown ahead of the fire front and start further fires.

When a fuel-reduction program has been successful, the ignition of a bushfire leads to a smaller geographic area being burnt, fewer resources being needed to extinguish the fire (and a consequent cost reduction), and less risk to firefighters, members of the public and property.

It is generally accepted that fuel loads in the Brindabella Range, while variable in different parts of the hills, were very high and very dry in January 2003. This would have promoted early fire development, increased fires' intensity, and increased the potential for spotting. Such conditions should have alerted firefighters to the importance of attacking any fires with great urgency at the outset, in an effort to mitigate the danger posed by the fuel. The conditions also meant that controlling a fire that became established would be exceedingly challenging.

Areas subjected to fuel-reduction burning can still be affected by severe wildfires. In extreme conditions such as those experienced on 17 and 18 January—even had there been a more robust program of hazard reduction—it is highly unlikely that that the fires could have been extinguished or contained before they reached the edge of Canberra.

Achieving a low risk of damage from bushfire in all possible combinations of circumstances requires a range of strategies, some of which are beyond the available resources of the ACT, even with the support of the Commonwealth and the states. In particular, rural–urban interface planning and operational response and suppression strategies, together with fuel mitigation, would be required if the best possible outcome were to be achieved. This highlights that fuel-reduction burning—although it is the only element in the 'fire triangle' that can be manipulated—is never going to be a fail-safe remedy for bushfire risk in all circumstances.

In relation to the January 2003 fires, the real significance of fuel reduction rests with the potential to control the fires immediately after the lightning strikes on 8 January. Fuel reduction directly assists with fire control, and a mosaic of fuel-reduction burns offers a better opportunity to arrest a fire's progress. It does, however, have less impact once extreme weather conditions develop, as occurred in the ACT on 17 and 18 January.

A controlled-burning regime over time could have the effect of providing a greater level of protection against damage from small and medium-sized bushfires, rather than those very occasional events that are at the extreme end of the scale. In addition, the Inquiry received submissions contending that the January 2003 fires' impact on biodiversity and endangered species in Namadgi National Park is likely to be more severe in the long term compared with the risk of environmental damage associated with conducting regular fuel-reduction burns through the area.

Arguments in favour of fuel reduction

Apart from being the only element in the fire triangle that can be manipulated, prescribed burning is further supported by reference to the unique nature of the Australian biota. It is argued that fire is a fundamental element of the Australian biota, and the Inquiry was advised that many native plant species are reliant on fire for regeneration. Although there is continuing debate about the precise biological impacts of fuel-reduction burning, there is general acceptance that fire is beneficial for a number of plant species and is a natural part of the Australian environment.

A further argument relates to the question of 'preservation' as opposed to 'conservation' in this context. Preservation implies maintenance of the status quo—no change. Conservation implies acceptance of some management actions to maintain the overall existing land use and value. Historically, preservation has tended to eventually fail, leading to catastrophic events such as a major fire burning a total park environment. Conservation actions such as fuel-reduction burning have led to a reduced incidence and intensity of fire, although this is difficult to quantify scientifically.

From a historical perspective it is further argued that, through natural events such as lightning and intervention by Indigenous Australians, local environments were regularly affected by fire. Although fires were not lit with the intention of fuel reduction, this view does highlight that the land has sustained numerous fires in the past and that flora and fauna in Australia have co-existed with fire for millennia.

It is also claimed that conducting prescribed burning assists in developing and maintaining the skills of land managers and firefighters. The Inquiry was advised that these skills have been degraded—in large part as a result of the reduction in prescribed-burning activity—leading to a cycle of less experience and fewer skills in the management and control of bushfires when they inevitably occur.

Finally, although grazing can have some impact in reducing fuel loads, this has little effect on the accumulation of dry forest fuels. The only practical, broad-scale comprehensive way of significantly reducing fuel loads in native bush and commercial forests is through prescribed burning, even though there are significant limitations in pine forests.[3]

Arguments against fuel reduction

While there is general acknowledgment that fire encourages the regeneration of some native species, there remains debate about fuel reduction having adverse ecological effects on specific biotas. The absence of fire is seen as supporting the survival of these fragile environments, particularly where there are endangered species.

A focus solely on fuel-reduction burning places undue emphasis on this particular form of hazard reduction. Hazard can also be reduced by grazing, mowing, and taking into account topography and proximity to urban development and other infrastructure in the planning process. These factors together with the severity of particular seasons, all need to be taken into account when aiming at reducing risk.

Further, fuel-reduction burning is a risky activity. Although it is usually done in autumn or spring, when weather conditions are generally benign, successful prescribed burning requires dry fuels and a breeze. Despite land managers and firefighters being cautious, there have been many occasions when prescribed burns have become uncontrollable. This obviously predisposes land managers and governments to adopt a cautious approach—quite apart from the pressure from those in the community who are strongly opposed to fuel-reduction burning on the basis that the benefits are outweighed by the potential for damage to property and the natural environment.

Fuel-reduction burning is also labour and resource intensive. Considerable resources, often including aerial support, are required, making the practice expensive due to the heavy reliance on voluntary personnel. Governments have often underestimated the costs involved.

Additionally, fuel-reduction burning can lead to extensive regrowth, and it has been argued that in the short term the regrowth can outweigh the fuel reduction achieved.

Smoke from fuel-reduction burns has often given rise to complaints from local communities. Approval from the relevant environment protection authority is generally required whenever smoke may affect urban areas.

Finally, fuel-reduction burning can be done only in very specific weather conditions: as few as 25 to 30 days a year (including weekends) might be assessed as suitable in eastern Australia. This severely restricts the area that can be burnt, and the limited availability of volunteer personnel can also be a problem. Because of these factors, long-term goals should be identified; that is, burning programs ought to be set for achievement over a period of, say, five years, rather than trying to meet annual targets. This allows for the setting of realistic targets that are less dependent on the vagaries of the weather in a particular year.

The Bushfire Fuel Management Plan

In the ACT, fuel management is the responsibility of both private and public landholders. The ACT Bushfire Service is responsible for fire suppression across all ACT lands outside the urban area; the ACT Fire Brigade is responsible for Canberra.

Following a difficult bushfire season in New South Wales in 1993–94—including a number of fires in the ACT that threatened property, one of which caused minor property damage in Curtin—the then Minister for Emergency Services, Mr Gary Humphries, established a Task Force on Bushfire Fuel Management Practices, chaired by Mr Graham Glenn AO, to identify possible inadequacies in the then current bushfire fuel management approach.

The Task Force's principal recommendation called on government land managers to produce bushfire fuel management plans for the lands over which they had control and specified that these plans should be submitted to and approved by a Bushfire Fuel Management Committee. This recommendation was given legislative effect in 1996, through an amendment to the *Bushfire Act 1936*, although the proposed committee was not established in legislation, and it had been decided that the draft plans would instead be approved by the relevant Minister.

An initial plan was prepared in 1998; it was reviewed two years later, as required by the legislation. Following the fires in December 2001, which penetrated the urban boundaries of Canberra but resulted in no loss of property, that plan was approved and issued in November 2002. The Bushfire Fuel Management Plan 2002–2004 has as its primary aim to 'contribute to an improved level of protection from bushfire for the ACT', while its primary objective is described as to 'reduce the potential impacts of bushfire so as to protect human life, property, and significant natural and cultural values'. The Plan covers 70 per cent of the ACT, taking in lands that are the responsibility of Environment ACT, Canberra Urban Parks and Places, the Land Group, and ACT Forests. It does not apply to private leases, these being urban homes and rural leases. It presents itself as a collaborative and detailed document representing a whole-of-government approach, and its production meets the requirements of the *Bushfire Act 1936*.

The Plan details fuel sources and clearly identifies the threat of fire from the north and west, consistent with the ESB risk assessment. It is much more prescriptive than its predecessors, with specific outcomes and performance measures itemised. Divided into sections on technical information, strategic directions and works programs, the Plan identifies the need for greater fuel management action to diminish the risk of fire and reflects the intentions of land management agencies through a series of detailed maps and listed actions. Despite this, the Inquiry was advised that after a large portion of Namadgi National Park was burnt in 1983 a 'no or low burn' practice was adopted in an effort to minimise detrimental environmental impacts in the Park; the Plan appears to maintain this approach of minimal burning in much of the Park.

Because of the limited time available to it and the impact of the January 2003 fires, the Inquiry was unable to ascertain the extent to which the works programs detailed in the Plan have been implemented. Development of the Plan is commendable, but subsequent actioning, assessment and accountability remain a significant, and to this date, unresolved, problem. Quarterly and annual reporting regimes were specified, and this occurs through output and agency annual reports.

The existence of a more detailed plan than had until then been available represents a positive commitment by the authorities and the Government to making fuel management an integral part of land management responsibilities. But plans are of little value if they do not give rise to practical management outcomes against a clear policy framework and an unambiguous set of measurable objectives. Financial budgets also need to reflect a realistic capacity to achieve the specified outcomes.

The reality

Large quantities of fuel have accumulated in ACT parks and forests. Appendix E shows the areas of the ACT that have been burnt in recent years. Of note, however, are the extensive areas that have not been burnt for many years. In the 2002–03 season, fuel loads in some areas were estimated at between 35 and 40 tonnes per hectare, described by some as the 'maximum available fuel load'—that is, the balance between the level of fuel that naturally degenerates through composting and the fuel that accumulates through leaf litter.

The 2002–04 ACT Bushfire Fuel Management Plan nominates fuel-reduction burning as a tool that should be used. As noted, the areas identified for fuel-reduction burning are relatively small, with the emphasis on those areas at greater risk. The Plan was prepared before 2003 fires, and far more extensive fuel reduction would have been necessary if there were to have been an appreciable impact in reducing the fire risk in ACT parks and forests before the 2002–03 fire season.

After January 2003

The ACT now has an opportunity to take advantage of the substantial reduction in fuel loads that resulted from the January fires. Planning should be reviewed, access tracks further developed, and future strategies determined. This is easier to do when there is less fuel in forests and parks. The likelihood of fires of the same ferocity occurring in the next few years is considerably diminished, although grass fires are a threat and some areas still carrying a heavy fuel accumulation—both in Canberra and in rural areas—remain a high fire risk.

The Bushfire Fuel Management Plan should be revised to take account of the changed circumstances as a result of the January fires. Greater emphasis should be given to controlled burning, in combination with other measures such as mowing and slashing, in and around Canberra.

Other matters

The Inquiry was impressed with the Victorian Code of Practice for Fire Management on Public Lands[4], which was issued in 1995 after extensive consultation with stakeholders within and outside government. It provides for the establishment of fuel management zones, giving priority to areas of public land carrying the greatest risk. Fuel reduction can thus be directed towards the high-risk areas before efforts are made to reduce fuel in larger, less significant zones. Zoning does not reduce the need to carry out fuel-reduction burning

across all areas, but it does identify priorities and—given that, historically, goals were not regularly achieved—this determining of priorities is important. The ACT would benefit if similar priorities were developed for the zones already identified in the Bushfire Fuel Management Plan.

The apparent disparity between the requirements for public and private land management was raised with the Inquiry. Private landholders expressed the view that they can be required to ensure that fire hazard–mitigation works occur, whereas public authorities such as ACT Parks and ACT Forests are required only to maintain management plans, with little emphasis being given to compliance.

Conclusion

In the light of the two federal inquiries that have been initiated—the House of Representatives Select Committee on the Recent Australian Bushfires and the National Inquiry into Bushfire Prevention and Mitigation (to be conducted under the auspices of the Council of Australian Governments)—this Inquiry did not reach a conclusion on the level of fuel-reduction burning that should be pursued in the ACT in future. The Inquiry is, however, of the view that, as a long-term strategy, something more substantial than the present program is warranted in those areas that were unaffected by the 2003 fires. Before the fires, the fuel levels in ACT forests and parks were very high, and this was well known by the authorities. Further, the fuel was extremely dry.

The Inquiry is confident that more fuel-reduction burning would have helped the authorities contain the fires that resulted from the lightning strikes on 8 January 2003. It is less confident, however, that extensive fuel-reduction burning would have had a significant impact on fire behaviour on 17 and 18 January, even though the overall forest fuel load and its proximity to urban areas, clearly contributed to the fires' intensity and the generation of a very substantial volume of embers. The extreme conditions on those two days meant that forest fuel loads—regardless of the ground fuels and lesser vegetation that would have been removed with fuel-reduction burning—exacerbated the severe fire conditions that eventually affected ACT rural areas and Canberra suburbs.

The Inquiry considers that fuel management through controlled burning is the only practicable way of reducing the excessive build-up of fuel loads in the ACT's extensive areas of park and forest. The burning provides no guarantee that bushfires will be prevented, but when they do occur their intensity is likely to be less and they will be more amenable to early containment or extinguishment.

Controlled burning requires experience, an appropriate mix of personnel and equipment, a properly planned and carefully managed approach, and an understanding of and sensitivity to the potential for damage to natural ecosystems. The Inquiry recommends that there be greater emphasis on controlled burning, as part of a revised fuel management regime for the ACT.

Any significant increase in fuel-reduction burning would necessitate a change in policy, with the attendant implications for how this might best be achieved and at what cost. These are not easy considerations and they should not be underestimated. They require political judgment—to successfully balance the benefit of natural public assets against the risk of loss of infrastructure and human life as well as the added risk of loss of natural assets from occasional catastrophic fire events. The community values associated with the protection of the natural environment and the need to reduce risk to an acceptable level need to be identified. It is important, therefore, that bushfire fuel management plans continue to be endorsed by government, as a reflection of its judgment about how the overall community interest is best accommodated.

There is little point in having plans even those endorsed at the highest levels, if they are not carried through. The approval process in the ACT needs to be reviewed to make it easier for public land managers to be able to proceed when the weather is right. This should not mean that environmental and other community concerns about burning are ignored. However, it should be possible for the government's own agencies, to proceed with government approved fuel management operations, in accordance with arrangements that are open to public scrutiny but that do not impose more limitations on agencies simply because they involve excessively bureaucratic procedures. As a contribution to making the process more accountable, an annual audit of performance of the land management agencies against the annual objectives set in the fuel management plan, should be undertaken by an independent person and reported to the relevant Minister.

Recommendations

- The ACT Bushfire Fuel Management Plan should be reviewed in the light of changed circumstances since the January 2003 fires. Increased emphasis should be given to controlled burning as a fuel-reduction strategy.

- The Victorian Code of Practice for Fire Management on Public Land should be used as a 'best-practice' guide when revising the ACT Bushfire Fuel Management Plan and a similar set of priorities should be developed in relation to zones identified in the Plan.

- An addendum to the existing 2002–04 Bushfire Fuel Management Plan needs to be prepared prior to the 2003–04 bushfire season, noting the extensive consultation process required under the *Bushfire Act 1936*. This addendum should focus on the area unaffected by the 2003 fires and the buffer zone surrounding Canberra's exposed northern and western perimeter. The addendum should be submitted to government for approval.

- An annual audit of achievements under the Bushfire Fuel Management Plan should be conducted, with the results reported to government and published.

- A public information strategy should be prepared to educate the ACT community about the beneficial and protective aspects of fuel-reduction burning and about the degree of inconvenience that will inevitably result for ACT residents during such burning. This should accompany the public launch of the revised Bushfire Fuel Management Plan.

- The approval process for individual fuel-reduction burns that are consistent with the government-approved Bushfire Fuel Management Plan, should be simplified so as to enable the limited time when the weather conditions are right, to be used to maximum advantage.

Notes

1 A fire burning in the crowns of trees and usually supported by fire in ground fuels; it is a fast-travelling fire that usually consumes all available fuels in its path.

2 The ignition of spot fires from sparks or embers.

3 Burning in pine forest is not generally considered viable, although protective fuel reduction about the borders of the pine forests, in nature forest reserves within pine plantations and as part of post-clearfall management regimes is appropriate.

4 Department of Conservation and Natural Resources, Melbourne 1995.

The following Ministerial statement accompanies the 2002–04 Bushfire Fuel Management Plan. It expresses very well some important points that are consistent with themes in the report (emphasis added).

Ministerial Foreword

This Bushfire Fuel Management Plan will be effective from 1 December 2002 until 30 November 2004. It supersedes the 2000–2002 Plan.

Severe fire events in the ACT during December 2001 have demonstrated that the **ACT community is not immune from the devastating impacts of bushfires** recently experienced in other parts of Australia. One of the lessons learned from the bushfires that occurred here last year was **the need for land management agencies** and the ACT Emergency Services Bureau **to work collaboratively to develop effective fuel management strategies** that target priority areas across land management boundaries.

This plan demonstrates an integrated, whole of Government approach, providing, for example, a single map for any area showing fuel management strategies regardless of agency responsibility. It takes a strategic approach to developing fire fuel management strategies for high-risk sites, based on a robust risk management framework developed by the Emergency Services Bureau.

The background text has been written to reflect our better understanding of fire behaviour and fire risk. This links technical information with proposed strategies and actions. A table has been included to provide an easily accessible summary of fuel management actions and agency responsibility. This table **is a clear statement of performance indicators for the implementation of the plan**.

The plan has been subject to **public consultation** and a number of amendments were made as a result of the submissions received.

This plan calls for an **increase in the number of strategic bushfire fuel management actions to be implemented within plantation pine forests and Namadgi National Park**. This aspect of the plan will require further development over the next few years to adequately protect important community and biodiversity values.

It is important to acknowledge that **fuel management is only one of the tools** used to reduce the impact of bushfires. The ACT will also continue to rely upon good **urban planning, rapid detection** of fire ignitions and **prompt response** to the fires reported as a means of reducing the impacts of fires on the community.

Bushfire management is a partnership: this Bushfire Fuel Management Plan represents the Government's intentions for land managed by Government agencies (ACT Forests, Environment ACT, Canberra Urban Parks and Places and the Land Group). **ACT residents can play their part** and be good neighbours by **reducing fire hazards on their own property**.

Ted Quinlan MLA
Minister for Police,
Emergency Services and Corrections

Bill Wood MLA
Minister for Urban Services

Fire access

Access to fires is a central element of operational readiness. Access is needed so that firefighters, their vehicles and the necessary equipment can reach a fire. The quality of that access influences the speed of the response and the safety of firefighters travelling to and from the fire ground. Although firefighters generally use public roads to travel to the vicinity of a fire, they are often reliant on specially prepared tracks to enable their light and heavy tankers to be used at the fire. For remote area firefighting teams, or RAFTs, access can be gained by helicopter drops into prepared or opportune landing sites.

In assessing the preparedness and effectiveness of fire access routes, the Inquiry noted comment in various submissions, reviewed a Department of Urban Services mapping product, *Namadgi National Park—pre suppression plan* (dated December 2002), and had discussions with staff from both the Department and ESB.

Although there is an effective system of roads and tracks around Canberra, in urban parkland and through ACT forests (albeit largely for commercial requirements), there are few fire tracks in Namadgi National Park apart from the Mount Franklin track, which follows the ridge separating the ACT from NSW. A number of tracks are marked 'dormant track' on existing maps, presumably meaning the tracks are no longer used or maintained.

Effective access to remote fires is reliant on the following:

- policy formulation
- risk assessment
- mapping and information systems
- local knowledge
- maintenance.

Policy formulation

Policy statements in relation to fire access trails are limited but are being developed. The Bushfire Fuel Management Plan 2002–2004 is silent on access to fires; the *Rural Fire Control Manual* makes reference to road closures but not to fire access. The Department of Urban Services submission to the Inquiry stated that a fire management plan for Namadgi National Park is being drafted and is due for completion in 2004. The Inquiry was advised that this work includes 'consideration of fire access and trails'[1] and that Environment ACT has

established a Road and Fire Trail Strategic Planning Group 'to examine the current and future requirements of the road and fire trails network'.[2] Detailing access considerations in fire management plans is appropriate. The Inquiry was also advised that existing road access has been managed 'in accordance with public expectations concerning the management of such land for its water catchment and conservation values'.[3] That may be so, but it is apparent that track access in Namadgi National Park has not been managed with fire access in mind.

The Inquiry received advice through submissions from the public and Department of Urban Services employees (both current and past) that track access in Namadgi had progressively been 'closed down', although no formal policy reflecting this existed. The Inquiry's observations support this view. In an effort to reduce unwanted public recreational access, tracks were revegetated either through closing off their entry from larger roads or through replanting. The effect was the same: the tracks became difficult to locate and over the years indistinguishable from the adjacent vegetation. In discussions with various stakeholders it became evident that the fire access requirements had not been made clear and that full communication of expectations and implications is needed.

The Inquiry considers that a clear policy statement outlining the requirements of adequate fire access should be reflected in all relevant plans. Considerations relating to wilderness maintenance and water catchment are important in their own right, but access for fire-suppression purposes is just as important. A lack of easy access significantly impedes the initial response to fires and their subsequent rapid suppression, as well as hampering efforts to scale-up the attacks on fires if they increase in size. The result is what occurred in January 2003—with highly detrimental outcomes for both wilderness values and water catchment quality. The Department of Urban Services submission noted several concerns in this regard:

- the intensity and location of a track network
- track quality in relation to fire use
- cooperative arrangements with other land management agencies, including those interstate.[4]

These are all relevant, but they must not inhibit the establishment of clear policy within the ACT.

Risk assessment

As land use changes from logging to national park, track use and demands change. A formal risk assessment should be carried out, to ensure that access is established where it is required and not simply in areas historically used for logging or recreational pursuits. The Inquiry was not made aware of any risk assessment having been conducted before the existing network of fire trails was established in the ACT. It was advised, however, that a risk assessment would be conducted in order to determine future access needs in Namadgi National Park and that this would include access into NSW to meet NSW Rural Fire Service requirements. The Inquiry considers that ESB is best placed to conduct that risk assessment and provide advice to the Department of Urban Services.

Mapping and information systems

Firefighters and fire managers need good mapping products. Police and supporting agencies also rely on up-to-date maps. The Inquiry was told on a number of occasions that mapping products were inadequate during the response to the January fires. Examples are:

- local crews relying on a 1:100000 map of the ACT when responding to a fire—such a large scale map making detail difficult to identify
- incoming local and interstate fire crews receiving photocopies of out-of-date maps
- inadequate resources for updating and producing current maps for incident management teams.

The Inquiry notes the ESB recommendation for improved 'spatial analysis capacity',[5] but it considers that having mapping products suitable for everyday use is absolutely essential and that ESB should focus on achieving that goal first. A number of fire authorities in various jurisdictions have prepared 'map books'—like an extended version of a street directory for emergency management use. These are used by the fire authorities, police, land managers and emergency services and, depending on the degree of private information included, have the potential to be sold commercially. When these products are used on a day-to-day basis, familiarity is developed. Consistency is also achieved since all those likely to be involved in an emergency are using the same map. The Inquiry viewed some examples of these products from elsewhere in Australia and considers that similar products should be developed and made available in the ACT. Simply by virtue of their format and size, map books are a user-friendly product that can be referred to in the cabin of a fire truck.

Obtaining the necessary data centrally, from within the Department of Urban Services, is also important; so that consistent data are used and kept up to date. The large number of volunteers in the ACT Bushfire Service and ACT Emergency Services gives the Department an excellent opportunity to gain additional detailed feedback on the naming of local roads and other features often referred to during emergencies. Reliance on the Department's capacity to produce the maps offers the further potential to present the data in a form that can subsequently be used in data transmission once the new ESB communications network is in operation.

The Inquiry noted ESB's recommendation in its submission to significantly develop in-house geographical information system capabilities. Although the Inquiry did not specifically review this aspect, it noted that capabilities already exist in the ACT Government and that any additional capability developed in ESB should not duplicate existing resources. The Inquiry understands that ESB will need to develop additional specific data sets to maximise capabilities with future computer-aided dispatch systems and communication networks.

In addition, maps of fire history are an excellent source of intelligence about possible future fire behaviour. The Inquiry considers that fire history maps of the ACT would be of considerable benefit because past major fires followed a path that was very similar path to that of the fires in 2003. The Brindabella area has featured as a source of ignition from electrical storms in the past. Although a number of useful maps are currently on the ESB website, reference to previous fires could be provided in the suggested map-book format to further raise awareness of previous fire paths and activity.

Local knowledge

Good access during emergency operations is not only a result of good mapping: local knowledge is vital. Local knowledge can be gained by familiarising staff through 'on the ground' visits. This takes time, but dedicated periods need to be set aside for physically travelling around the area. An alternative is to entice or engage others to act as guides; ex-forestry workers are an option, although this would probably be less effective than using existing staff who have gained their local knowledge first hand. The Inquiry considers that extensive familiarisation is essential for all senior firefighters (deputy captain and above), both paid staff and volunteer, and that this should be encouraged.

Maintenance

Once the location of tracks is identified as a result of a risk assessment, the tracks have been built, and firefighters have become familiar with them, an ongoing program of maintenance is essential. While this can be either outsourced or undertaken within government, there is a requirement to have heavy plant available and on call in the ACT for fire operations during the summer. This equipment could be engaged in the spring, to ensure that roads and tracks are well prepared by the time the fire season arrives.

No detailed assessment has been completed, but the engagement of one grader and at least one small (D4) bulldozer for track and facility maintenance in ACT parks and forests does appear to be justified. A number of submissions referred to the advantages of this. A smaller dozer can readily be transported on poor roads, reducing the need to 'walk' the equipment in to fire locations and reducing the time taken to respond. It would have been ideal for helping firefighters at Bendora on 8 January and could have been used to establish access to Stockyard Spur on 9 January. Having this capability available to fire authorities throughout the fire season makes good sense: on fire ban days, it could be pre-positioned in the mountains, ready for immediate deployment. As with aircraft, during some years there will be minimal use and during others there will be great demand. In contrast with aircraft, though, this heavy plant can be used in a number of useful ways and on various projects throughout the summer if the fire danger is not high.

During the January 2003 bushfires in Victoria around 50 such bulldozers were used for constructing containment lines.[6] It was noted that, while ACT Forests had two contract dozers that were available and used during the fires, these were larger D7 and D9 dozers that were difficult to transport into the area of the fires.[7] Additional plant resources (dozers and graders) were eventually obtained from the Australian Defence Force through Emergency Management Australia, together with some civilian plant from outside the ACT.

The use of bulldozers as an important and readily available firefighting resource does not seem to have been a high priority for ESB. No contracts had been entered into, and when staff tried to engage private sector contractors to assist on 9 January none was able to respond immediately. The contracted D7 and D9 dozers engaged by ACT Forests were tasked by them on Day 1 and Day 2 to establish firebreaks adjacent to the ACT border south-east of the McIntyre Hut fire.

Another form of access that is often under-exploited and is critical during the early response to a fire is air. Namadgi National Park contains numerous helicopter landing sites. Using helicopters to transport crews is an effective way of initially responding to a fire in a remote area, before vehicle crews arrive. The success of this approach depends on well-maintained landing sites strategically positioned throughout the area in question and the ready availability of helicopters capable of carrying in remote area firefighting teams.

A small, permanent team of staff dedicated to maintaining the landing sites would be needed. These officers would then be in a position to act as RAFT crews when necessary, since they would have gained good local knowledge through their daily work. Such teams already do maintenance work around the city, and a further group is required to maintain fire access in the remote areas of the Territory, particularly during spring and summer. This is further discussed later in the report.

Responsibility

Responsibility for making the suggested improvements should be shared between the fire authorities and the land managers. The land managers, ACT Parks and ACT Forests, should be responsible for the policy guidelines and for establishment of the expanded maintenance crews and plant resources. The ACT Bushfire Service is in a good position to shoulder responsibility for the risk management functions, coordinating the emergency management mapping and information system requirements, and subsequently auditing the process, to ensure that the necessary fire access trails and sites are in place.

Conclusion

Fire access is a central aspect of fire preparedness. It became critical in the attempts to suppress the fires in January 2003. Initial and subsequent suppression of the fires was adversely affected by the following factors:

- a lack of policy, leading to neglected or non-existent fire trails
- senior operational fire staff working in unfamiliar terrain
- the initial unavailability of suitable plant
- the lack of suitable mapping products.

Because of the importance of access, the revised fire management plans should identify a strategic network of tracks and fire trails and plans for the trails' progressive re-establishment and maintenance. These are needed to facilitate access by firefighters involved in controlled burning and hazard reduction,

consistent with targets and programs established in revised plans, as well as to provide easy access for future bushfire fighting efforts.

All these shortcomings should be remedied, to provide a more effective system of fire access in all parts of the ACT. Good access offers the opportunity for rapid fire suppression. Competing interests such as those associated with water catchments and conservation may call for restricted access, but it is the Inquiry's view that these considerations should not cause a policy vacuum or a lack of preparation. Day-to-day access can always be restricted if necessary.

Recommendations

- Clear policy guidelines should be developed and implemented to support the identification of a strategic network of fire tracks and trails and their establishment and maintenance. An audit process should be instituted to ensure that the policy's effectiveness is regularly monitored.
- A risk assessment should be conducted by ESB to assist in determining access needs across the ACT, linked to interstate requirements with advice being provided to land managers.
- ESB should coordinate the development of emergency management mapping products such as 'map books' for police, land managers, emergency service crews and incident management teams; these should be produced in both printed and data form.
- Greater opportunity should be provided for all senior firefighters to become more familiar with remote areas of the ACT.
- Sufficient funding should be provided for additional crews and plant, so that a program of improved fire access and trail and site maintenance can be implemented.
- Responsibility for fire access should lie with the land managers: advice and auditing functions should be the province of the fire authorities.

Notes

1 Department of Urban Services submission, p. 72.

2 ibid.

3 ibid., p. 71.

4 ibid., p. 72.

5 ESB submission, p. 141.

6 Auditor General, Victoria 2003, *Fire Prevention and Preparedness*, Report no.15, Auditor General, Melbourne, p. 130.

7 A third contracted D4 dozer was damaged earlier in January and was not available during the fires.

Aerial operations

The volatile nature of much of Australia's vegetation, the extremes of climate, and the trend for people to live in semi-rural environments mean that fires will continue to threaten life and property and pose significant economic and environmental risks. Although rural fire authorities are becoming more and more sophisticated, with their volunteer-based ground operations using improved tankers and equipment and greater speed of response, aerial operations are playing an increasingly valuable role in fire suppression. As a result of past media exposure, the public is also coming to expect that aircraft will be used.

But aircraft acting alone rarely put out fires. Wherever aircraft are used for aerial bombing of fires—for example, in North America, the Mediterranean region and Australia—firefighters are also needed on the ground. Their purpose is twofold: to achieve a coordinated effort, concentrating resources on particular aspects of a fire; and to extinguish fires that are not put out from the air. People are also needed on the ground to 'blacken out' areas doused from the air, regardless of the volume of water dropped.

In Australia aerial operations have been used for many years—for both observation and water bombing and using both fixed-wing aircraft and helicopters. The number of aircraft involved has depended on the availability of the resource, the fire authorities' ability to fund aerial operations, and firefighters' willingness to use aircraft. There have been three basic options:

- Canadair has consistently promoted the use of 'super scooper'–type aircraft from Canada. These aircraft are effective in areas with plentiful water—Canada has 13 000 lakes—but Australian fire authorities are unconvinced of their cost-effectiveness for the local situation. To date, they have not been used here.

- Erickson air cranes have been contracted to Victoria for the past six years (and more recently in NSW) and have demonstrated a high capacity for asset protection in the urban–rural interface. They are expensive—at a reported $2 million each per season—but the Victorian Government is convinced they save assets worth far more than that amount. The Western Australian Government claims that savings in the form of asset protection and suppression costs avoided exceed the annual costs of fire bombing by between five and ten-fold.

- General-purpose fixed-wing and rotary wing aircraft—normally used for agricultural spraying, general observation and transport (including medivac)—are also used. In the 2002–03 fire season the NSW Rural Fire Service used over 100 aircraft, both rotary and fixed-wing, to assist with firefighting at a reported cost of $70 million.

On behalf of fire authorities, the Australasian Fire Authorities Council recently produced a detailed submission to the Commonwealth Government and federal funding for some aerial firefighting support was provided for the first time during the 2002–03 fire season. The Council is reviewing arrangements for the coming fire season and is promoting a joint national approach to aerial support, rather than each state and territory pursuing arrangements in isolation.

Although the ACT is a very small player in this arena, the Inquiry considers there would be great benefit in it participating in any national aerial firefighting initiatives that offer the prospect of giving the ACT better access to aerial facilities when needed, at reasonable cost. In addition, the ACT would benefit from having a formal understanding with NSW that it could draw some aerial resources from the NSW Rural Fire Service on terms agreed to. Being involved with any arrangement that included Victoria could also potentially be advantageous to the ACT. Arrangements of this kind would provide better assurance that the ACT could quickly access aircraft when an urgent need arises, as well as improve the availability and use of the available aerial assets involved.[1]

Through the Australasian Fire Authorities Council, fire authorities have reached agreement that 'aerial fire suppression is indeed a safe, effective and efficient tool in many situations ...'[2], despite the following qualifications:

- It is not always appropriate for reasons of effectiveness and safety. Expectations need to be managed.

- Optimum returns come from rapid attack on incipient fires. Aircraft need to be readily available for this, and there is a direct correlation between the time taken to carry out the first drop and the degree of effectiveness in suppressing a fire.

- It must be integrated with other fire operations and is generally ineffective if used in isolation.

- It is a risky undertaking in hazardous conditions. It needs to be managed by competent supervisors and performed by experienced, skilled aerial firefighters.

Access to a range of aircraft types will ensure that optimum benefits are gained from aerial suppression.[3]

Aerial operations involve four key aspects: central coordination, aerial attack supervision, ground–air coordination, and aerial bombing.

Central coordination

Because of the strategic nature of this resource, the ability to rapidly redeploy and the high cost, aerial firefighting is generally coordinated centrally, at a state or territory level. Fire agencies coordinate deployments through cross-agency 'state aircraft units', to avoid duplication and to allocate this finite resource on the basis of agreed priority.

Air attack supervision

The greatest benefit is gained from aerial bombing when an 'air attack supervisor' coordinates it. This is a specially qualified officer, airborne above the fire ground, who has experience in observing aerial bombing and can coordinate the efforts of all available resources. Apart from being able to map the fire and direct aerial bombing efforts as required by the incident controller, an air attack supervisor ensures that the aircraft at a fire operates in such a way as to maximise safety, both in the air and on the ground.

Ground–air coordination

Ground–air coordination provides safety for firefighters and ensures that aerial bombing is used to its maximum potential. Poorly coordinated aerial bombing can be a serious hazard to firefighters: they can have tonnes of water dumped directly on them or they can be struck by limbs or debris falling from trees as a result of the aerial bombing. Ground firefighters' ability to communicate with aerial bombing aircraft (through an air attack supervisor) is therefore critical.

Further, the greatest benefit from aerial bombing is gained by concentrating the efforts of both ground and air resources. This requires coordination by the incident controller, between ground crews, air attack supervisors and pilots. The pilots should be experienced in the role and be considered firefighters themselves, albeit in the air. This is less likely to be the case with contractors or Defence pilots, who are called on to respond with little notice, are unfamiliar with the procedures or are unable to communicate with those on the ground—despite displaying exemplary flying skills, courage and determination.

Aerial bombing

Aerial bombing is done by aircraft dropping loads of firefighting foam, retardant or water. Foam is commonly used in fire operations: it expands the water bulk through air bubbles and helps the water stay on the vegetation, rather than immediately running off. The foam is mixed in on board fixed-wing and specially fitted rotary wing aircraft. It is environmentally friendly and relatively inexpensive.

Using retardant is more problematic and more expensive. The retardant mix, a red phosphate, is imported (generally from Canada) and costs almost $1000 per aircraft drop. Purpose-built facilities are needed to pre-mix the retardant with water before the slurry is pumped onto the aircraft. As an alternative to a mineral-earth break, defoliation or a back-burn, a retardant firebreak can be placed on vegetation possibly adjacent to a fire to slow the fire's spread or reduce its intensity.

A retardant's effectiveness depends on the concentration of the retardant mix, the width of the firebreak, and the time since the break was laid. As with aerial bombing, effectiveness is greatly enhanced if firefighters are present at the retardant firebreak. Use of retardant is dependent on the availability of suitable pre-mixing facilities and suitable aircraft—generally fixed-wing. Its use is limited by the cost and the potential environmental impacts since it is a phosphate-based powder and can have harmful effects in certain environments.

The final aerial bombing option—water—is perhaps the most commonly used in ad hoc arrangements. Water bombing is done by helicopters using either slung buckets or incorporated 'belly' tanks. The advantage is that the aircraft can obtain water from almost any water source, through pumping or dunking their bucket. This reduces the turnaround time, a critical factor in the overall effectiveness of aerial fire suppression. Long delays between the delivery of loads significantly reduce the benefit of aerial bombing of an active fire.

The quantity of water used is also a consideration: an aerial drop of 400 litres from a small 'bambi bucket' will have minimal effect on an active fire compared with a drop of 3000 litres (from a modern agricultural aircraft), 6000–9000 litres (from the latest Canadair model and the Erickson air crane respectively). There is a direct relationship between the quantity and frequency of drops in determining the effectiveness of fire suppression.

Tasking

Regardless of the aircraft or the quantity or type of suppressant being used, the greatest benefit is gained from aerial operations when they are used during the initial period of attacking a fire. The next-greatest benefit comes from using aerial resources to protect specific assets (particularly structures such as houses and sheds) as fire threatens them. Aircraft's flexibility also allows them to respond to emergency situations—for example when a tanker and crew are being threatened by fire and cannot escape. Whatever the role, the effective use of aircraft is dependent on high-level coordination and liaison with ground firefighters, to achieve specific goals. The Inquiry considers it doubtful that there is any benefit in individual aircraft carrying out random aerial bombing, in isolation from firefighters on the ground, for purposes such as reducing the intensity of a fire or impeding its progress.

The question of flying conditions needs to be examined before arrangements in the ACT are reviewed. Early during a fire's development, aircraft tend to be able to operate unhindered by smoke. As a fire develops, however, and fire weather intensifies, smoke, dust and strong winds can restrict (and in extreme cases ground) air operations. On numerous occasions—during the Ash Wednesday fires in Victoria and South Australia in 1983, for example—it has not been possible to use aircraft during the height of the fire because the flying conditions have been too dangerous. The Inquiry received advice that on 18 January 2003 the work aircraft could do was limited by poor visibility and strong winds. Fire managers cannot always rely on aerial bombing.

What was available to the ACT in January 2003?

At a cost of $100 000, the ACT Bushfire Service engaged a light helicopter for the 2002–03 fire season, primarily for observation but with a secondary purpose of water bombing. (The period of engagement was subsequently increased because of the potential severity of the season.) The aircraft was a light observation helicopter, so it could carry only a small bucket, of 450 litres, when engaged in aerial firefighting. The ACT Bushfire Service also had access to the Snowy Hydro Southcare helicopter for water bombing, when it was not being used for its primary task as an air ambulance; it is able to use a 1100-litre bucket. Both these aircraft were engaged in aerial firefighting throughout the period from 8 to 30 January. A further civilian light helicopter was engaged early during the fire response, but it crashed into Bendora Dam on 13 January and was not replaced.

The Snowy Hydro Southcare helicopter provided valuable support throughout the emergency. Photo courtesy ESB.

In addition, two Navy Seahawk helicopters and two light observation Navy Squirrel helicopters were requested from the Department of Defence through Emergency Management Australia and were provided from 13 to 28 January. On 18 January, as the fires moved into Canberra suburbs, additional aerial resources, including an Erickson sky crane were redirected from NSW to assist with asset protection in the ACT.

ACT aerial bombing operations involved water with limited use of foam. No retardant was used.

Procedures

The ACT Bushfire Service has used a helicopter, *Firebird 7*, for aerial observation for some years. For the 2002–03 fire season it was positioned at the Australian Federal Police complex at Weston, in order to improve its response time by locating it outside Canberra Airport's controlled air space. It conducted observation and limited water-bombing operations. The ACT Bushfire Service sought the Snowy Hydro Southcare helicopter, which was provided after it had been reconfigured. That aircraft did begin water bombing late on 8 January: ESB advised the Inquiry it completed three-and-a-half hours' flying that day.[4] It initially concentrated on the Stockyard Spur fire, then moved to the Bendora fire. No firefighters reached the Stockyard Spur fire on the first day, so the opportunity to concentrate all aerial and ground resources on a single incident early in the development of the fires was minimised.

Use of *Firebird 7* and the Snowy Hydro Southcare helicopter was coordinated centrally through an ESB air operations manager, and central management of this limited resource continued throughout the fire emergency. This was appropriate.

The ACT had no air attack supervisors since only one aircraft was on permanent standby—with that being in place essentially for air observation. As the number of aircraft increased to seven (three civilian and four military) there was definitely a need for an air attack supervisor. Not only would this have assisted with the safety of aircraft operating in difficult conditions over a concentrated area; it would also have increased the effectiveness of ground–air coordination and ensured that the aerial bombing occurred precisely where the ground firefighters wanted it. In the absence of anyone else, the pilot of *Firebird 7* effectively took on this supervisory role at various times, although he was not formally qualified to do so. Ground–air coordination is far more difficult to achieve from the ground under a canopy of trees, compared with flying in an observation helicopter directing other aircraft. Although it recognises that the ACT might have only an occasional requirement for an air attack supervisor, the Inquiry does consider that having such a capability within the ACT Bushfire Service is warranted.

In addition, it is the Inquiry's opinion that, under the existing arrangements, whereby helicopters use slung buckets and ad hoc support is provided by the Navy, the use of foam rather than just water was generally not practical. This should, however, be considered for the future. Without access to fixed-wing aircraft and the necessary pre-mixing equipment, the use of retardant was also not a viable option. In addition, retardant is likely to provide a less effective barrier in forests, where coating of the ground fuels as well as tree foliage is required. That said, the NSW Rural Fire Service does conduct aerial bombing with retardant in alpine areas and opportunities to trial retardant use in the ACT should be explored further.

The most crucial procedural factor concerns how the aircraft were initially used to assist in the suppression of the fires. Once the location of the fires had been confirmed, both aircraft in the ACT—*Firebird 7* and the Snowy Hydro Southcare helicopter—should have concentrated on aerial bombing of the Bendora fire, where firefighters were on the ground, to achieve a concentration of effort and benefit from ground–air coordination. Instead, aerial bombing occurred at both the Stockyard and Bendora fires. The fact that the most effective use of the available aerial support was not made meant that this potentially valuable

asset was squandered to some degree, and the available time was limited because water bombing could not occur after nightfall.

It might be argued that by the afternoon of 9 January, and certainly by 10 January, the existing aerial resources in the ACT were never going to be adequate. The ACT Bushfire Service did make efforts, through the existing contractor, to increase the number of aircraft, but it was informed that no additional aircraft were available because the NSW Rural Fire Service had contracted all usable aircraft in the region. (It is noted that at the McIntyre Hut fire the Rural Fire Service deployed up to 17 aircraft in aerial bombing operations.) The Inquiry received a submission suggesting that additional aircraft were available at Bankstown and that, had the ACT Bushfire Service made a greater effort at the time, these could have been engaged.

Conclusion

Aircraft have the potential to be very useful in the ACT when they are employed quickly during the early stages of fire development and in concert with firefighting operations on the ground. They also offer considerable flexibility. The ACT Bushfire Service will never be resourced in the way that the NSW Rural Fire Service is in relation to aerial firefighting, but it should enter into a joint arrangement with the Rural Fire Service to ensure optimum availability and use of assets. The ACT Bushfire Service should also consider whether the continued use of a light observation helicopter is giving it the best range of options. If a medium-lift helicopter were engaged for the fire season, it would provide greater water-bombing capability and the option of moving fire crews—particularly remote area firefighting teams—rapidly across the fire ground.

Having aerial resources on standby would be a considerable expense, and in some years they may be used only rarely. Nevertheless, adopting a view similar to that held in Victoria and Western Australia, in the long term the cost of the aircraft on standby will be much less than the cost of losses to the community from fires. Having aerial bombing resources on standby is basically an insurance policy. It is often too late to locate aircraft once major fires are under way: resources need to be immediately available, thus offering the greatest potential benefit when fires are most likely to be extinguishable.

Recommendations

- Aerial bombing should remain a capability used in the ACT during bushfires, with particular emphasis on using the aircraft for water bombing as an immediate response—as soon as fires are detected. This should be backed up by the use of ground crews.

- A small number of ACT firefighters should be trained as air attack supervisors, to provide a capability when the number of aircraft involved requires it.

- To enhance it's initial attack capability as well as to provide it with greater flexibility in the utilisation of aerial assets, the ACT should employ a medium-lift helicopter, rather than a dedicated light helicopter, to support its fire-suppression operations during the peak of future bushfire seasons. Such an aircraft, coupled with the potential use of the Snowy Hydro Southcare helicopter (when it is not engaged for medivac purposes), would provide greater flexibility and a far more formidable first-strike capability.

- The ACT Bushfire Service should seek a joint agreement with the NSW Rural Fire Service, for the purpose of providing the ACT with enhanced capacity to draw on the aerial expertise, aircraft availability and efficiencies afforded by a much larger bushfire service.

- The ACT Bushfire Service should explore conducting a joint trial with the NSW Rural Fire Service to assess the effectiveness of retardant bombing.

- The ACT should continue to participate in Commonwealth-level discussions that may result in enhanced aerial support for firefighting becoming available on a national basis in the future.[5]

Notes

1 The ACT Government announced on 22 July that it had agreed to participate in the national aerial firefighting arrangements and was negotiating funding for this purpose. The Inquiry welcomed this development.

2 Australasian Fire Authorities Council 2002, *National Aerial Firefighting Strategy*, AFAC, Melbourne, p. 5.

3 ibid.

4 ESB submission, p. 98.

5 The Inquiry was informed in late July that the ACT was negotiating to join the national aerial initiative being coordinated through the Australasian Fire Authorities Council.

Communications and computer-aided dispatch

The ESB submission stated that 'radio communications systems did not meet the substantial demands created by an event of this magnitude'.[1] Among the problems brought to the Inquiry's attention were the following:

- inadequate coverage
- congestion on various networks
- overwhelming of the communication centre
- apparent shielding, possibly because of dense smoke
- inadequate ground–air communication
- difficulties with interoperability between the various firefighting elements
- insufficient quantities of equipment.

Some of these problems can be explained by the extent and rapid progression of the emergency close to and on 18 January, but others had been apparent before then. Of particular concern are the shortcomings that had been identified 13 months before, as a consequence of the December 2001 fires; these are discussed in the section entitled 'The December 2001 fires' in this chapter.

Communications are a vital element of safe firefighting, and the highest priority should be given to ensuring that an adequate system is in operation to support all firefighters, both in Canberra and in rural areas. Inadequacies in communication systems have been a recurrent theme in past coronial inquiries.

Because of the complex nature of current communications systems, lead times for changing and replacing equipment are long. Communications upgrade projects were started at ESB in 1999, and the Inquiry was informed they were well developed before the January fires. Because of the amount of effort ESB has already devoted to this area—including the full-time assignment of the Director of the Ambulance Service to lead a communications redevelopment project—the Inquiry did not review in detail the communications projects. Nevertheless, it does point out that future communications efforts on the part of ESB need to focus on the following:

- coverage problems, particularly in the Brindabellas and other remote areas of the ACT—if necessary through supplementary use of mobile communication facilities
- commonality across emergency services and compatibility with ACT Policing.

- improved interservice compatibility—particularly with the NSW Rural Fire Service
- a balanced approach to communication capabilities, both within Canberra and across the remainder of the ACT. There is a perception that communication upgrades are centred on the urban areas at the expense of remote areas of the ACT.

The current projects are detailed in the ESB submission. They are:

- a new computer-aided dispatch system
- a mobile data sub-system—with automatic vehicle location in urban Canberra
- a direct turnout sub-system
- a new radio communication system.

In the 2003–04 Budget, which was handed down during the course of this Inquiry, the ACT Government made provision for substantial funding to procure and operate a computer-aided dispatch system and to improve the emergency services communications infrastructure. Including the funds already committed, some $40 million in capital and operating costs over the next four years will be spent on these improvements. The communications upgrade will allow for radio interoperability with the land management agencies' response vehicles, as well as improving portable radio communications, mobile data and radio relay equipment, and providing an automatic vehicle location system. When implemented, these projects will greatly improve the operational effectiveness of emergency services and their capacity to work together in a more integrated fashion.

One remaining weakness that the communication projects will not resolve is the difficulty of achieving complete systems interoperability between ACT emergency service agencies and ACT Policing (which follows Australian Federal Police nationally determined standards) and the NSW Rural Fire Service (which follows a different NSW statewide government standard). The benefit of these agencies being able to maintain effective operational communications during emergencies is self-evident.

The different communications approaches followed by emergency service bodies across Australia are related to decisions taken by the separate jurisdictions at different times, seeking to take best advantage of rapidly changing technology. The high cost of replacement goes against easy adoption of a more national approach. In addition, decisions taken by the Commonwealth spectrum-allocation body add another level of complexity.

Despite the inherent difficulties the continued pursuit of greater interoperability between emergency services organisations throughout Australia should continue to be a long-term aim.

Although it may take a long time to achieve, the ACT should take whatever steps it can to encourage the development of a national solution to communication between emergency services bodies, which as part of crisis management, need to be able to have unimpeded communication with each other.

Conclusion

The current ESB communication projects should continue, with adequate resourcing and taking account of the experience of recent events. These developments should proceed, in close liaison with ACT Policing to maximise opportunities for interoperability. In the light of the steps already being taken to identify the future communication needs of the emergency services and to develop specific proposals for approval, and of the funding commitment already made by government, the Inquiry concluded that the urgent need for an upgrade had been identified and was being dealt with. As a result, no recommendations on the Inquiry's part are called for.

1 ESB submission, p.151.

The current ESB building. Photo courtesy ESB.

The Emergency Services Bureau headquarters

The ESB headquarters building is in the Woden Valley, at the former North Curtin Primary School. Originally constructed in the early 1960s, the building was extended in the 1970s and was closed as a school in the early 1990s. ESB was being formed at that time and was located in the facility, along with other tenants. The facility currently houses ESB headquarters, a childcare centre for 85 children and a day-care association.

Building consultants engaged by ESB found that the external building fabric is sound, although major water leakage through the roof has been a continuing problem. There is considerable wasted space in the form of internal courtyards; parking facilities are inadequate; and serious security concerns have been identified by ESB management and external security consultants. At the height of the fires in January 2003, the facility proved seriously inadequate for dealing with the large number of people present as the crisis developed, the high volume of communications traffic, command and management functions, and the provision of public information and advice.

Site limitations

The physical layout of the building and site is poor for an emergency services centre, for several reasons:

- The site is located in the centre of a residential suburb.
- The site offers open access to the public.
- Security for ESB vehicles and in terms of building access is inadequate.
- The site is co-located with childcare facilities.
- The existing building layout does not facilitate the performance of emergency services functions.

Among the specific inadequacies are the following:

- lack of an adequate operations facility accommodating
  - the Incident Control System functions of planning, operations and logistics
  - purpose-built liaison functions for police, the Bureau of Meteorology, utilities, and relevant government departments
  - a media viewing and briefing facility
- limited uninterrupted power supply

- poor capacity to 'ramp up' for an ongoing emergency
- lack of air-conditioning other than in the communications and operations centre
- threats to the facility itself during the firestorm.

In January 2003 the layout and lack of functionality of the facility directly affected operational managers' capacity to receive and analyse information, control and direct their assets, plan future operations, and adequately deal with the hundreds of residents who were calling seeking emergency service support or advice.

In his submission to the Inquiry, the Chief Executive of the Chief Minister's Department noted the difficulty in maintaining continuing current operational information on the fires. He stated that this required considerably more effort than should have been necessary, essentially because of the natural focus of operational and planning staff on dealing with the fire emergency itself, as well as the limited staff available for those tasks.[1] This issue was also raised in media comments to the Inquiry. The layout and technical deficiencies at Curtin would have compounded these difficulties.

Coordination

The functionality of the facility was further stretched by the appointment of the Chief Fire Control Officer as the Alternate Controller, leading to the need for additional coordination meetings at the facility. In addition, personnel found themselves regularly travelling between the Curtin facility and the Winchester Centre in Belconnen, where the Police Operations Centre is located and where the Management Executive met from Sunday 19 January onwards.

Operating between the two facilities added a further degree of complexity to coordination and facility use, as well as placing an unwanted burden on personnel who had to travel between the two centres at the height of the emergency.

The large number of people present at Curtin during the critical stages of the event, coupled with the inadequate layout and set-up, made it impossible to separate people and functions in a way that is optimum for managing a major, continuing emergency. The Inquiry reached no conclusion about whether these inadequacies should have been better attended to when preparing for the 2003 fire season—and in the light of the 2001 fires. However, with the development of an ongoing campaign after the ignitions of 8 January 2003, it is difficult to understand why more infrastructure preparations and planning to manage a major event were not carried out at ESB between 9 and 17 January,

albeit within the existing inadequate infrastructure. There is no doubt that, compared with the police facility at the Winchester Centre, the ESB facility provided inferior management support in all areas other than access to emergency services communication.

The lack of an adequate operations centre and associated facilities has been acknowledged by ESB management. Although urban emergency services tend to use operations centres less, because of the short duration and limited impact of the vast majority of emergency responses (to house fires, vehicle accidents, and so on), rural fire and emergency service agencies historically have needed major operations centres for several reasons:

- the longer duration of many events, requiring ongoing planning and logistics
- the larger number of resources used to respond to the emergency
- the more holistic approach required by the response—for example, because of effects on the community, government and utilities.

Although the ESB facility has served reasonably well as an emergency centre headquarters for the past decade, fundamental design and structural deficiencies remain. These represent an inconvenience for small and medium-scale emergencies, but they pose serious barriers to operational effectiveness during larger events.

Operations centre facilities

Regardless of the scale of the operation, what is required is an operations centre with the following features:

- a central operations room equipped to provide timely information about deployments and developments, using displays, maps and tasking boards
- communications support to provide information and the means to task resources
- a separate area for planning, isolated from the main operations room
- facilities for planning and managing logistics support, ideally adjacent to the operations room
- purpose-designed areas for commanders and managers to be able to concentrate on specific aspects of an emergency while maintaining a strategic overview

- facilities for liaison staff from the Bureau of Meteorology, the police, other emergency services, utilities, and relevant government departments
- adequate conference rooms for planning and coordination
- an area for press briefings, near external access to the facility, together with an area for press viewing separate from but adjacent to the operations centre
- administrative support for all users, including office and other facilities.

Upgrading

Various consultancy reports have identified weaknesses at the Curtin facility and opportunities for relocation elsewhere. The Inquiry understands that some funding has already been allocated for upgrading or relocation and that ESB is forwarding recommendations directly to government.

Relationship with the Police Operations Centre

The Territory's Emergency Management Plan identifies the Police Operations Centre at Belconnen (the Winchester Police Centre) as the normal venue for the Territory Emergency Operations Centre, with the ESB headquarters at Curtin nominated as the alternative centre.

During the January fires the Curtin centre was the primary operations centre throughout the event. At the start, the fires were managed as a normal bushfire incident, and the ESB building, with its facilities, was the natural place for the management of operations. As the fires escalated, the limitations of the centre became apparent, but moving to the better set up and equipped Police Operations Centre was never really entertained because of the dislocation and distraction this would have caused at a difficult time, quite apart from its impact on normal police operations.

When the Curtin centre was threatened by fire on Saturday 18 January some contingency preparations were in hand to move to an alternative centre, but had that been necessary it would have been more likely that the move would have been to the AFP Headquarters Operations Centre in Civic.

When there were intermittent power failures at Curtin late in the afternoon the possibility of a forced relocation re-emerged but eventually temporary power was restored. The communications centre and limited other facilities at Curtin had emergency power installed, which maintained the supply without a break. The remainder of the facility was later supplied with power when an auxiliary generator was urgently acquired and connected.

The Police Operations Centre at Belconnen operated throughout the period providing normal support to police operations including supporting the police's own efforts directly associated with the fires.

When a state of emergency was declared at mid-afternoon on 18 January and the Chief Fire Control Officer, who had been responsible for managing the operational response to the bushfires, was appointed Alternate Controller, the bushfires remained under his operational command. A move to another operations centre, merely because the Emergency Plan envisaged this, was clearly not an option. Indeed the appointment as Alternate Controller appears to have been for the very purpose of ensuring that the existing command arrangements were not disrupted at the height of the crisis.

Some of the communications load generated by the public and the media was transferred from the Curtin centre to ACT Policing at Belconnen and to Canberra Connect during the Saturday afternoon. This helped to ease somewhat the mounting pressure on the Curtin facility, but it did generate significant cross-service communication and coordination problems.

In his submission to the Inquiry the ACT Chief Police Officer explained some of the difficulties in the following terms:

> While this structure enabled the fire fighting and police efforts to continue uninterrupted during the emergency, it did generate significant cross-service communication and coordination problems. There were times, for example, when it was difficult to secure a phone line between the two centres. At one stage, officers at the POC [Police Operations Centre] could communicate with the ESB office and gain fire updates only by leaving a telephone line open and passing the phone from one person to the next. Police liaison officers at ESB would attend briefings and relay this material by phoning the POC using mobile or landline. POC officers wanting to relay information or ask questions in light of police intelligence would phone the ESB based members. This was problematic given police officers were at times unavailable as they were attending briefings, and there were limited phone connections between the two centres due to infrastructure damage and the use of one main line for communication between the two centres.
>
> Members based at the POC had no other ready way to secure fire information except for relying on police field patrols. ACT Policing relied on its patrols and communications network to obtain up to date, situational reports on the fires' locations and movement.

> The communication difficulties between the two centres also affected the speed at which fire maps and other data were sent to the POC on occasion, by which time such information was received the data was out of date, such was the speed of the fires.
>
> In addition agencies working in recovery aspects did not necessarily know in the first few days which centre to contact to relay information, seek advice or direction.[2]

The Executive Director of ESB also informed the Inquiry that ESB experienced difficulties similar to those described by the Chief Police Officer as a consequence of communications problems between the two operations centres.

This experience is relevant to the long-term planning of emergency management in the ACT. There are broader considerations to be addressed—beyond simply improving the facilities available to ESB for its normal emergency management responsibilities. These include the needs of government itself for high-level operational support during a crisis or serious emergency; the relationship between the emergency services and the police and how best to support the related but different responsibilities of each of these arms in an emergency, while ensuring that there is no loss of essential contact, communication and exchange of operational information between them; the development of the Police Operations Centre as the Territory's command centre for terrorist-related events; and questions of building redundancy into the overall system, and of security.

The Inquiry limits its recommendation to ESB's need for a more efficient and effective operations centre, catering for the integrated operational management of emergency services in the Territory, and for ESB to be capable of being scaled-up to meet the needs of a significant emergency.

Recommendation

The ACT Government should take urgent steps to upgrade the Emergency Services Bureau's operational command and control facilities—either by carrying out a major refurbishment of the existing facility at Curtin or, preferably, by locating to a more suitable alternative site, where a more functional, longer term operations centre can be developed.

Notes

1 Chief Minister's Department submission, pp. 4-5.

2 ACT Policing submission, p. 29.

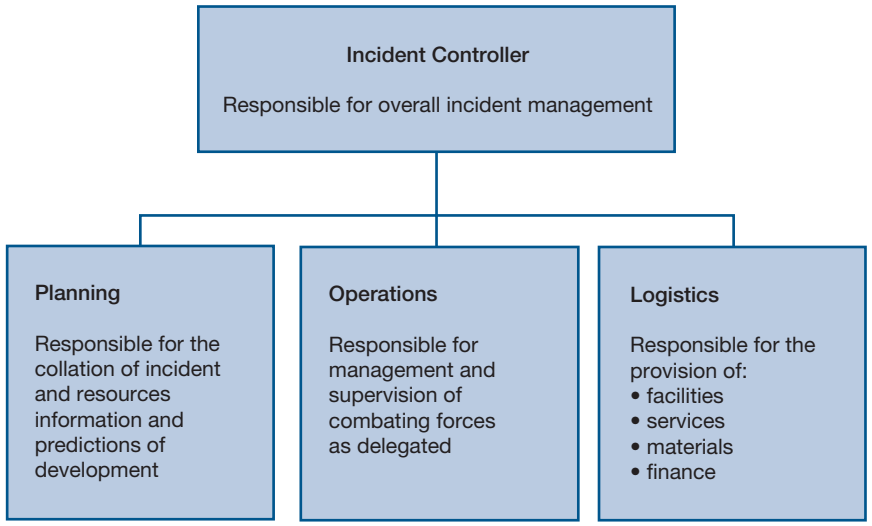
Incident command and control

To understand how the fire-suppression activities were managed in January 2003, it is necessary to examine the incident command and control system in operation in the ACT Bushfire Service. The Inquiry used as a point of reference two publications of the Australasian Fire Authorities Council: publication 4.04, *Incident Control Systems* (1999) and *Incident Control Systems—the operating systems of AIIMS* (2nd edn, 1994). The Inquiry is aware that AFAC is reviewing the AIIMS Incident Control System, although the results of the review are not yet available.

Effective incident command and control is essential for successful emergency management. It provides a framework for thorough planning, unequivocal decision making, and suitable logistical support. In the context of a wildfire, successful suppression and the safety of those on the fire ground (firefighters, police and the community) are dependent on the timely adoption of a single, consistent command and control system that is understood at all levels. This becomes even more critical as the size and complexity of an incident increases and as the risk of losing control of resources on the fire ground becomes more pronounced. Such a system should not be based on a single emergency service, such as the ACT Bushfire Service: it needs to be a multi-agency approach, in keeping with the philosophy of ESB, and there should be capacity to link seamlessly to police and interstate services—in the case of the ACT, particularly the NSW Rural Fire Service.

The AIIMS (Australian Inter-agency Incident Management System) Incident Control System has been developed for such a purpose. It is endorsed and supported by the Australasian Fire Authorities Council and all Australian fire authorities. It has been adopted by ESB and is incorporated in the ACT Bush Fire Council's *Rural Fire Control Manual*. The system is based on an American model adapted for Australian conditions and was adopted by rural fire services in the 1980s. The ACT's Chief Fire Control Officer was closely involved in introducing the System into rural fire agencies. It provides a systematic approach to complex command challenges, dividing activity into planning, operations and logistics and identifying a clear incident commander. It can be implemented at any level of an event and is applicable to large and small emergencies. Figure 3 shows the ICS relationships.

Figure 3
Incident management team
Incident Control System relationships



Australasian Fire Authorities Council, 1999 *Incident Control System*, AFAC Limited, Victoria, p. 11.

For a major wildfire event, the dissection of the operations function into division and sector commanders, who become responsible for areas on the fire ground, is a common approach—see Figure 4.

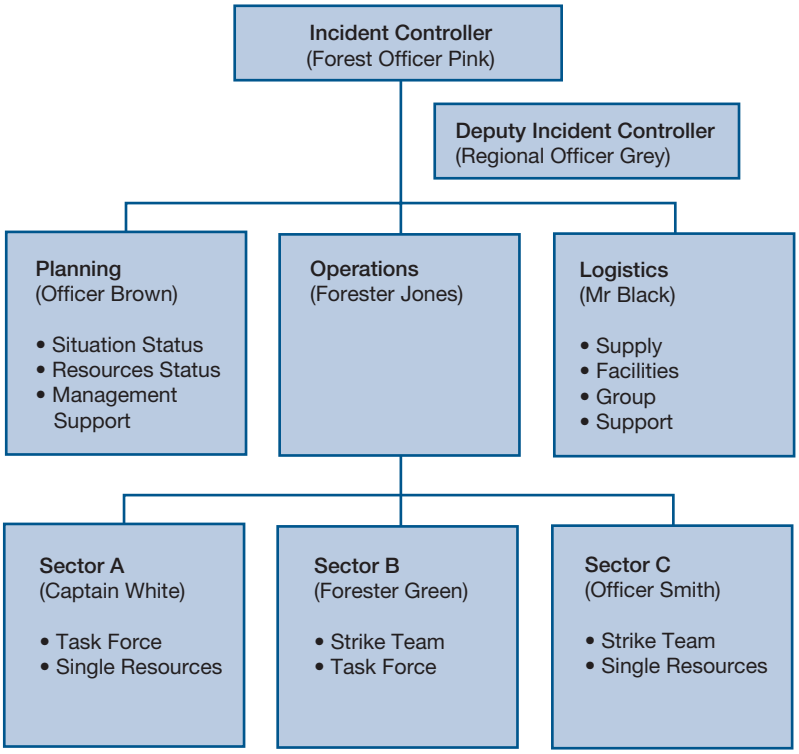
The AIIMS ICS identifies a number of principles:

- one controller for an event or a specified part of an event
- functional delegation
- management by objectives
- management plans
- span of control
- command within agencies.

Only two of these principles—span of control and management by objectives—are specifically mentioned in the ACT Bush Fire Council's *Rural Fire Control Manual*.

Figure 4
Wildfire

Likely to be a multi-agency response.
The functional responsibilities may be shared among the agencies in attendance.



Australasian Fire Authorities Council, 1999 *Incident Control System*, AFAC Limited, Victoria, p. 23.

The ACT approach

The Inquiry is satisfied that ESB is fully committed to managing in accordance with ICS principles and notes that courses were conducted before the 2002–03 fire season, providing ICS overview, planning, operations, and logistics training for officers. The Inquiry is not convinced, however, that the manner in which the ICS has been implemented in the ACT is totally consistent with the AFAC-endorsed approach, particularly in relation to large bushfire events or best serves the ACT Bushfire Service.

Smaller events often do not expose underlying weaknesses in management approaches. The extreme stresses and pressures accompanying larger and extended emergencies such as campaign fires are much more likely to expose weaknesses. What follows is a description of the ACT's application of its incident

management approach and the Inquiry's assessment of how the system measured up when placed under great stress.

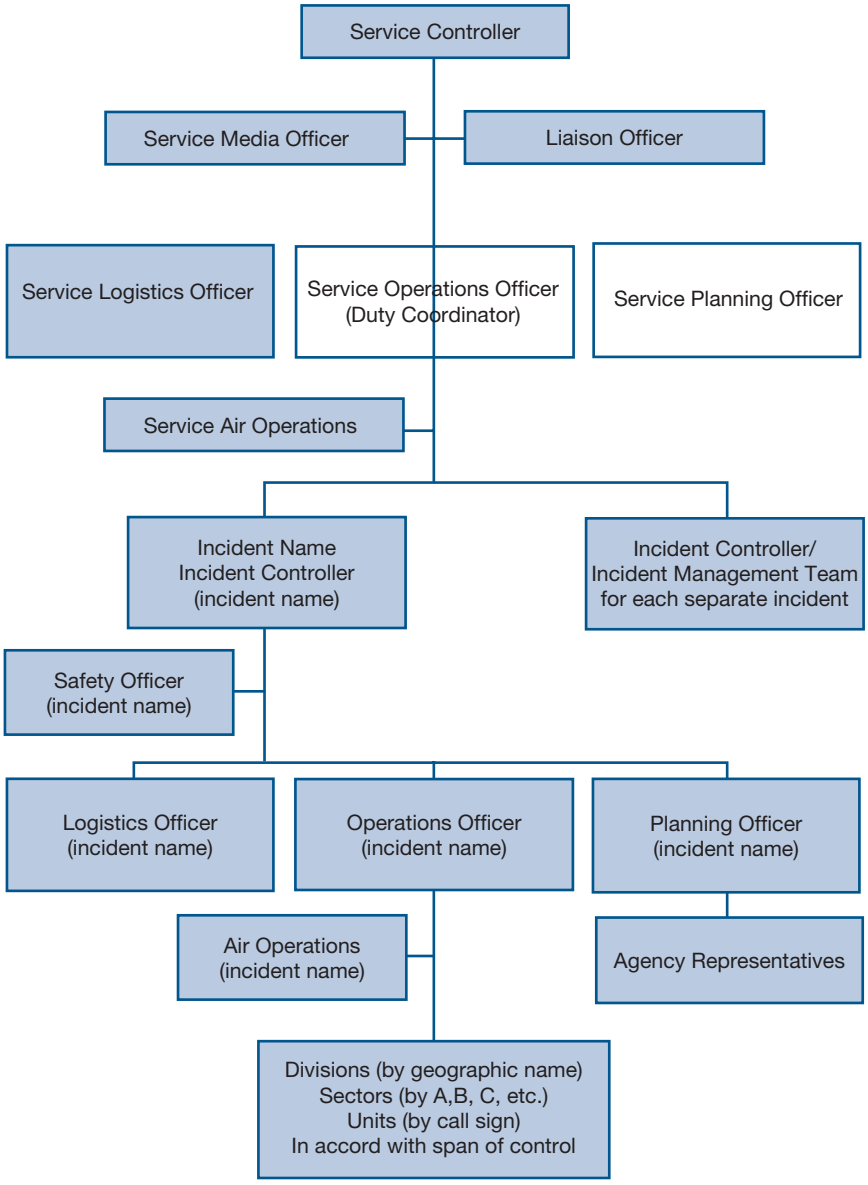
The *Rural Fire Control Manual* states that the ACT has modified the ICS to distinguish between the Incident Management Team (those in the field responsible for command and control) and the Service Management Team (which operates out of headquarters in Curtin and is responsible for coordination and support). In discussions with senior Bushfire Service staff, the Inquiry was advised that the Service had not modified the AIIMS ICS; discussions centred on how and where the various ICS functions were performed and the local terminology used.

Figure 5 shows the ACT Bushfire Service's approach to ICS implementation. The Service Logistics Officer, Service Operations Officer and Service Planning Officer—the three vital functional elements that are needed to support the incident controller—are part of the Service Management Team located at headquarters in Curtin. The Service Controller is the Chief Fire Control Officer.

The ACT Bushfire Service appoints an incident controller for each fire event in the ACT. During the 2003 bushfires, incident controllers were appointed to respond to each of the Bendora and Stockyard Spur fires and subsequently at times the Gingera fire. The difficulty with appointing the commanders of the operational response as incident controllers is that they are not in a good position to be responsible for 'managing the entire response to the incident'[11], as the ICS requires. The view was expressed by the Bushfire Service that, because of the small geographical scale of the ACT and the lack of facilities other than in Canberra, this functionality is best achieved at ACT Bushfire Service headquarters at Curtin. People in the field lack proximity to and awareness of the planning and logistical support functions that remain at ESB and do not deploy to the fire ground. The situation becomes more problematic when incident controllers are changed on a daily basis, as occurred during the January 2003 emergency, leading to a lack of continuity and of a strategic approach.

Across the border in New South Wales, in the Yarrowlumla Fire Control District, the incident controller was the Fire Control Officer, the senior officer in the Fire District. He was appointed on Thursday 9 January and remained in that role for the duration of the fires. An Incident Management Team operated with him at the district office in Queanbeyan. Operational commanders in the field were sector or divisional commanders. The New South Wales approach is more consistent with that adopted in Victoria and South Australia; it allows for continuity and a consistent strategic outlook, with field commanders focusing on action plans developed by the Incident Management Team.

Figure 5
Incident Control System operational structure



The distinctive ACT approach appears to have given rise to a range of views, reflected in submissions to the Inquiry, about the Bushfire Service's incident management through the ICS. Specific reservations were expressed in relation to aspects such as the following:

- a lack of clarity about the ICS's functioning within ESB
- the blurring of roles and poor communication between the Service Management Team and Incident Management Team
- inadequate delegation of non-essential functions
- what should have been ICS strategy meetings becoming larger general briefing sessions.

The lack of clarity about the ICS's functioning within ESB appears to turn on who is in control. There is clarity about the incident commander in the field having the authority to make tactical-level decisions on the fire ground, but the planning support required to make those decisions is at ESB. Although logistical support was well established at the Bulls Head staging area, there was no comprehensive Incident Management Team in the field to support the appointed incident controller. The mere title Service Management Team, raises doubt about the function and purpose of those in headquarters and is an unusual term to visiting firefighters.

The incident controller thus lacked an effective Incident Management Team in the immediate vicinity to provide advice and carry out directives. The resources that under the ICS that should be available to support the incident controller were in Canberra. The controller's reliance on support and advice from the Service Management Team at Bushfire Service headquarters in Curtin created an impression, real or otherwise, that headquarters was controlling or directing events. Although the purpose of this arrangement may have been to ensure that the field commander was able to make operational decisions, the reality is that, without close support from a comprehensive Incident Management Team, the appointed incident controller is powerless and basically responds to the directives of the central Service Management Team.

Such a situation makes responsibilities and expectations unclear and places a heavy responsibility on unimpeded communication between the incident commander in the field and the support functions at headquarters. In practice, this is very difficult and time-consuming, and if it is inadequately achieved confusion can result. Within the ICS arrangements as currently applied,

the recent incident controllers became reliant on handovers and radio briefings in the field for instruction about tasks to be performed during their shift. Some felt obliged to visit the Service Management Team at headquarters to exchange information, both before deploying and on return from the fires. The shifts in the field were already 12 hours, so this makes for a very long day.

Two options were immediately available. One was to have planning, operations and logistics support for a designated incident controller deployed closer to the fire ground, with the controller; the other was to manage the incident from Curtin, where the incident controller would also be located, assisted by sector commanders in the field. Either option would have been more in keeping with accepted ICS practice.

The Inquiry also considers that some functions should have been decentralised or physically separated from Curtin. Concentrating many support functions at Curtin placed great strain on an inadequate facility. Catering could have been carried out elsewhere. Further, with such an intensity of operational effort and resource deployment, the establishment of divisional forward command centres should have been considered, potentially co-located with police forward command posts, to reduce the build-up of pressures on a single inadequate command centre.

The Australian Federal Police had asked ESB for liaison officers to be represented at the Police Operations Centre and the police forward command posts. A fire liaison officer was sent to the Winchester Centre on 18 January while other rural and urban officers were based at the northern police forward command post following 20 January. Staffing pressures within ESB explained the initial absence of fire officers at the command posts.

Concerns expressed about the apparent lack of ICS strategy meetings and the diversion of planning meetings to briefing sessions are another reflection of a lack of clarity about responsibilities. Within an orthodox ICS approach, the idea of engaging in strategic planning without clear guidance from, and most likely the direct involvement of, the appointed incident controller would not be contemplated. During the fire emergency, however, this happened daily, because the appointed incident controllers were at the fires. This further illustrates the confusion and confirms that in reality, the Chief Fire Control Officer was acting as the incident controller and the appointments in the field at the fires were effectively sector controllers. As the fires merged and became larger, formal incident command eventually moved to headquarters under the Chief Fire Control Officer, on 17 January 2003.

The Inquiry is satisfied that significant operational planning was carried out, albeit much of it informally and quite possibly without all relevant stakeholders present. Those people (minus the appointed incident controllers) generally were present during the daily briefing sessions, when strategies and current fire developments were discussed. These briefing sessions did not, however, provide a suitable forum for detailed debate of strategic options, and increasingly became an information-sharing mechanism as greater numbers of senior personnel became involved in the fire event.

Although these shortcomings in themselves did not generate the disarray that was experienced on 18 January, they contributed to a weakening of the clarity of command and control, strategic direction, and consistent application in the field throughout the event. Unequivocal command and control is essential for effective emergency management. The means by which the ICS is implemented in the ESB does not fully achieve this. Adopting a standard approach to the ICS within the ACT, consistent with that used by the NSW Rural Fire Service across the border, would make it easier for the various ACT emergency services, and interstate fire crews when they are assisting, to work more closely together.

Members of the Incident Control Team working at ESB headquarters. Photo courtesy ESB.

Finally, the *Rural Fire Control Manual*'s identification of the 'Operations Room adjacent to the Communications Centre ... in order to provide coordination during large incidents or multiple incidents'[2] reflects at best a very optimistic view of preparing for such events. The Inquiry considers that the operations room, as identified, is totally inadequate for such a task. A visit to the operational facilities of the NSW Rural Fire Service in Queanbeyan confirmed this. The January fires proved the point: incident control functions had to be located in training rooms, corridors, and effectively all available space at ESB. They demonstrated that the ICS functions within ESB need to be reviewed with the aim of decentralising non-essential functions and reallocating the use of available space at ESB headquarters or at a future operations centre located elsewhere.

Conclusion

Although ESB management expressed confidence in the operation of the Incident Control System as it is applied in the ACT, the Inquiry received sufficient comment from others and reached its own conclusion that incident command as it is currently practised is not fully effective.[3] There is no doubt that the existing poor facilities at ESB headquarters hindered the effective operation of the ICS. Nevertheless, the Inquiry considers that recent events (the December 2001 fires) and the steady build-up of the January 2003 fires, gave ESB opportunities to learn how best to use the existing infrastructure and shape the ICS management team accordingly. It appears this was not done as well as it might have been. Resolution of the ICS is critical to the successful command and control of future fires in the ACT. Because of this, a review of the ICS needs to be workshopped particularly between land managers and ESB, but also including police.

The overall impression created has three main elements:

- The Incident Control System used in the ACT lacks clarity and effectiveness with terminology contributing to this.

- Too much detailed information became centralised at ACT Bushfire Service headquarters during January 2003, limiting the ability of senior operational managers to concentrate on the strategic picture and contributing to problems with decision making by incident controllers in the field because of their need to continually seek information and support from Curtin.

- There should be greater integration of ICS functions between the ACT Bushfire Service, land managers and the ACT Fire Brigade. More Fire Brigade and land management personnel could be trained in ICS management; this would increase the pool of personnel who could be drawn on in a major bushfire event in the future.

Notwithstanding these criticisms, the loss of control at ESB headquarters late in the afternoon of 18 January is explained more by a combination of communications difficulties and the inadequacies of the facilities at Curtin—coupled with the speed and enormity of events and the problems associated with obtaining a timely and accurate picture of the fire front's advance—than by a fundamental breakdown in the Incident Control System itself.

Recommendations

- The ACT Bushfire Service should review the current Incident Control System arrangements, through an inter-agency workshop involving ESB, the ACT Fire Brigade, the Department of Urban Services and ACT Policing, to better clarify the application of the system. In particular, incident controllers should not be expected to operate when separated from their supporting elements; they should function as part of a cohesive, integrated management team.

- ESB should establish joint ICS teams, made up of ACT Bushfire Service, ACT Fire Brigade and Department of Urban Services personnel, to jointly manage emergency incidents within the ACT, regardless of location or the services' areas of responsibility.

- Facilities at ESB headquarters should be such as to provide the best opportunity for the ICS to function at a tactical and strategic level in accordance with the Australasian Fire Authorities Council doctrine.

Notes

1 Australasian Fire Authorities Council, 1999, *Incident Control Systems*, AFAC, Melbourne, p. 24.

2 *Rural Fire Control Manual,* paragraph 10.5

3 During the course of the Inquiry ESB acknowledged that terminology used in the ACT should be adjusted to closer match AFAC doctrine.

Vehicles and other equipment

For emergency and fire services, properly equipped vehicles are essential items of their inventory. They provide mobility for crews, they carry the essential 'tools of trade', and they are important to the safety of personnel.

The urban fire service experienced difficulties with its Scania pumper, which displayed a design fault when embers that were sucked in set fire to paper air filters. Two appliances broke down as a consequence of this defect; a third was destroyed. The defect had been experienced at a fire in 1999, as a consequence of which the supplier fitted a modification. As events on 18 January demonstrated, however, when the appliances were exposed to extensive ember attack the modification did not eliminate the problem. It has since been ascertained that similar problems have been experienced in other jurisdictions, but this knowledge had not been passed on to ESB. Negotiations are continuing with the manufacturer.

The ACT Fire Brigade pumper burnt due to embers entering the engine. Photo printed with permission of the *Canberra Times*.

Two other pumpers suffered extensive damage to some exposed nylon air lines. A solution to this problem has since been developed. The occurrence of both the air filter and air line problems was unfortunate, but it is partly a result of the fact that urban fire appliances are not normally designed to be exposed directly to fire, as they were during the January 2003 fires.

Submissions to the Inquiry also highlighted the large amount of plastic on new rural appliances and some poor design features. Because of time limitations, the Inquiry was unable to review the concerns about design, but it did become aware that other rural fire services were facing similar problems with the multiple use of plastic in modern truck cab chassis. Because new rural tankers are built on a standard commercial truck and the ACT Bushfire Service is a small customer in terms of truck purchases, there is no opportunity to persuade truck manufacturers to better 'fire proof' their standard truck designs. Improvements need to be engineered locally.

The other problem associated with vehicles and equipment was the lack of immediate access to bulldozers and graders, to assist with track clearance and the construction of firebreaks and containment lines. In the section entitled 'Fire access' in this chapter, the Inquiry stresses the value of ACT Forests and Parks authorities having immediately available some heavy plant of this kind, so that it can be rapidly deployed to fires as soon as they break out.

These problems aside, the overall quality and level of provision of the equipment used by the emergency services was not criticised in submissions, nor were complaints raised—other than in relation to the urban pumpers and rural tankers—during the Inquiry's visits to some of the urban, bushfire and emergency services brigades.

It was noted, however, that funding has not yet been identified for replacement of the major appliances in the urban brigades' inventory when they reach the end of their economic life. The Inquiry did not deal with this question in detail. It may not be a problem when the time comes for replacement, but government, and its financial advisors, should be aware of the need to make provision for re-financing these capital assets.

Conclusion

In order to privide maximum flexibility to the fire services the Inquiry sees benefit in the provision of four 'rural pumpers'—four wheel drive appliances that carry adequate water for rural operations and have a large pump for urban use. This hybrid appliance—which is commercially available—overcomes limitations of using urban pumpers at rural fires. They also enhance the existing cross crewing arrangements in the ACT Fire Brigade where crews man either an urban pumper or rural tanker depending on the fire call.

Apart from the matters raised here, the standard and quality of the operational vehicles and equipment available to the emergency services in the ACT appears to be satisfactory.

Recommendation

That four rural pumpers be added to the fire service vehicle fleet, specifically for use in the rural–urban interface.

ACT Ambulance Service paramedics supported the firefighters during the emergency. Photo courtesy ESB.

The *Rural Fire Control Manual*

The Inquiry reviewed the ACT Bush Fire Council's *Rural Fire Control Manual*. The publication is dated, having been developed over 10 years ago. It originally reflected the Bush Fire Council's responsibility under the *Bushfire Act 1936* to '... prepare a rural fire control manual containing particulars of all aspects of the operation and organisation of the service'. It covers a combination of operational policy matters and firefighting techniques, with links to the Council's Basic Training Modules.

With the introduction of the Emergency Services Bureau and its assumption of responsibility for the ACT Bushfire and Emergency Service, the manual has continued to have application through its adoption by ESB. However, although it still meets the legislative obligation in the Bushfire Act, it has been difficult to update because of the changed role of the Bush Fire Council and the recognition that the Bushfire Act itself is in need of major amendment. Despite the acknowledged need for legislative change, to date it has not been possible to give priority to reviewing the Act.

The purpose of the manual is described as seeking to:

- optimise [the Council's] ability to control fires
- protect life and property
- minimise adverse effects of fires that do occur
- promote responsible land use management
- educate the public about the dangers of bushfires and minimisation of risk.

The manual is divided into sections on fire suppression and fire protection. It aims to detail the legal requirements, bushfire realities and feasible practices, with a stated objective of helping to make these things better understood by the public. This intent is commendable, but the Inquiry considers that the manual, when updated, should be in a different form.

In its current form, the manual aims to serve three different purposes: to describe the Council's policy approach; to provide information the Council considers the public should have in order to understand and prepare for bushfire threats; and to describe a range of detailed operational procedures. ESB has already begun reviewing the manual and separating it into three parts, reflecting these separate purposes. The Inquiry considers that, following government's consideration of the recommendations in this report, the Bushfire

Act should be entirely replaced by new legislation. The need for a comprehensive manual of the type that currently exists should then no longer be necessary.

The operating procedures and instructions governing bushfire operations, which are essentially for internal use, should be solely a matter for management. They should of course be open to public scrutiny, but there is no need for them to be contained in the form of a disallowable instrument. They deal with operational matters, so it is not appropriate that they can be countermanded by the Legislative Assembly. The Assembly's role should be confined to establishing the legal framework within which the operations are conducted and defining the governance and accountability arrangements that ought to apply.

The Inquiry notes that the Victorian Code of Practice for Fire Management on Public Land is a 'best practice' document that outlines policy for a wider public audience; it considers that the ACT would benefit from the development of such a publication.

Notwithstanding the foregoing comments, the manual contains much relevant and useful information.

Identification of the threat

The manual describes fuel types and their impact in terms of suburban gardens, open grasslands, woodlands, natural forests, pine plantations, and so on. The following are among the observations:

> For most of Canberra, the type of suburban garden has little effect on the [Bush Fire] Council's activities; but where houses are located on the suburban perimeter or close to hill parks clothed with native vegetation, the type of garden can have a serious effect on the level of damage done to buildings and the threat to life and other property when a bushfire burns into them.
>
> ...
>
> Because [dry forests] often contain rough bark species such as peppermints and stringy barks they have a high spotting potential and fires in these forests can present a serious threat to the adjoining properties and particularly houses in suburban Canberra adjacent to hill parks. [The Bush Fire] Council recommends periodic fuel reduction by burning with low intensity fires as a practical means of reducing the fire hazard in these forests; the aim is to maintain the fine fuel loads at less than 10 tons per hectare. [section 2.6]

The manual also details characteristics of fire and fire weather in the ACT:

> Under the worst recorded conditions grass fires can travel up to 18–20 km per hour and fires more than 60 km away may threaten Canberra.
>
> ...
>
> It is important that we recognise that, under these extreme fire weather conditions, which may occur every five years or so, it is impossible for any fire suppression organisation to control the fire if it is burning in abundant fuels.
>
> ...
>
> While much can be done with early detection and rapid initial attack, if a fire burns from some distance away and enters the ACT in a broad front then suppression forces available in both rural and urban fire brigade services will be overwhelmed.
>
> ...
>
> Prevention of loss of life and damage to property can be undertaken only by individual home-owners.
>
> ...
>
> ... the potential weather to create widespread havoc within the suburban area has existed and there are adequate examples in history to indicate the potential for a bushfire disaster. [The ACT's fire history is detailed in Chapter 1 of this report.]
>
> ...
>
> Often the fire danger may be low in the early morning and rise to very high or extreme by early afternoon and then drop back to low again some time in the late evening. [section 2.7]

These statements show that the possibility of a bushfire threat to Canberra was recognised and documented. Many of the statements were borne out in the December 2001 fires; 13 months later, they were all borne out.

Despite acknowledging that it appreciated the risks, ESB management failed to translate that into timely advice to the public. How this happened is discussed in Chapter 5.

Firefighting practices

The firefighting practices as detailed in the manual clearly identify the types of risks the emergency services were facing in January 2003 and the potential implications. The following examples highlight important matters that were clearly understood by the Bush Fire Council in 1992.

The need for rapid intervention and containment:
The fire suppression policy of the RFS[1] is to have very rapid initial attack to contain all fires to as small as possible an area. If the initial attack fails and the fires defeat the first crews sent to suppress it, the RFS policy is then to attack the fire to keep its area to the minimum practical size with the resources available to it ... in general the RFS policy changes from a minimum area suppression to a minimum time suppression. Some areas need to be sacrificed in order to contain the fire at defensible fire lines within the available time-frame. [section 11.23]

Spotting during back burning:
If the main fire is spotting at all then it will be virtually impossible to control spot fires produced from the back burn and escape will be inevitable ... in almost every situation in forest country, backfires (fires from back burning) are unsuccessful and only serve to increase the difficulty of suppression and the final burnt area. [section 11.23.5] [This accurately describes the experience of crews as early as 9 January 2003].

Fire breaks:
Fire breaks are not considered useful in native forest country because fire brands from even moderate intensity fires will carry the fire across even quite wide fire breaks. [section 11.6]

Training

On 28 April 1988 the ACT Bush Fire Council adopted a number of policies relating to training and minimum standards. The Inquiry notes these and commends the Council for its foresight in seeking to prescribe a minimum of training at a time when this was not a general practice across the bushfire industry.

Conclusion

The *Rural Fire Control Manual* deals with a combination of operational policy matters and firefighting techniques. It is dated and requires revision, but it contains considerable wisdom, presumably gained from experience. Much of the manual remains relevant and some will be reinforced by the most recent bushfire experience.

Recommendation

Work already begun on the review of the *Rural Fire Control Manual* should be resumed with the view to replacing the manual by new publications that cover the following:

- a document detailing public policy in relation to fire management
- an operational policy manual for internal use
- a supporting set of standing operational procedures covering techniques and practices reflected in the Basic Training Modules publications.

Notes

1 The ACT Rural Fire Service, the forerunner to the Bushfire Service.

ACT Bushfire Service personnel combating grass fires close to Canberra. Photo printed with permission of the *Canberra Times.*

Training and development

The training and development of personnel are primary obligations of authorities seeking to establish and maintain an efficient and effective emergency services organisation. The same applies to organisations for which firefighting is an important but ancillary function—for example, the agencies that manage forests and parks.

The Inquiry is satisfied that all the ACT authorities concerned attach high importance to the 'skilling' of their personnel. In each organisation, training and development programs appear to be well developed, well structured, and relevant to the needs of both the organisations and its personnel.

The National Training Agenda has stimulated the fire and emergency sector like all other industry sectors, to develop and prescribe national training standards based on the competencies required to work effectively and safely in the sector.

The Australasian Fire Authorities Council has developed the Fire Qualifications Training Framework, which prescribes the national training standards required for bushfire fighters at all levels in Australia, with particular reference to firefighting and incident management roles performed under AIIMS (the Australian Inter-Service Incident Management System). A central component of AIIMS is the Incident Control System, which specifies the structure for chain of command and communications during a fire.[1]

In 1998 all fire agencies in Australia, through the Council, began developing their training programs, consistent with the National Framework. ESB has been working on linking all training requirements in the ACT to the national competency and assessment standards. Although the competency modules are part of the national framework, ESB and other similar agencies have developed and are continuing to develop training modules and assessment tools appropriate to the structures, procedures and equipment configurations applying in the ACT.[2]

The Inquiry was advised that training in the ACT is conducted to national standards in each of the necessary skill areas, including the skills required to operate each piece of equipment used to fight a bushfire. Training is provided by qualified firefighters with significant experience in the practical aspects of firefighting.[3]

Training, both initial and refresher, seems to have a high priority in all services. There are four levels of bushfire fighters in the ACT firefighting training framework:

- *Basic bushfire fighter.* This is the initial level of training provided to all firefighters. Once they have completed it, they are permitted onto the fire ground under supervision. Training is the responsibility of each of the brigades, including the parks and forests brigades, although ESB sets the modules and assessment tools for the training program. Eight 'units of competency' need to be completed at this level.

- *Advanced bushfire fighter.* A person with this qualification operates under orders but can do so without direct supervision if required. The training involves four units of competency.

- *Brigade officer*. A brigade officer can supervise bushfire fighters. Training is the responsibility of ESB through the Bushfire Service. There are three units of competency.

- *Group officer*. A group officer can manage an incident where several brigades are operating. Training is the responsibility of ESB and three units of competency are involved.

Additional refresher training is conducted in spring in each year, before the start of the bushfire season. The Bushfire Service maintains an electronic log of the training competencies of every member of the Bushfire Service, both paid and volunteer.[4]

ESB submitted that it takes advantage of:

> every opportunity to provide practical training in a realistic environment ... Hazard reduction burns conducted in 2002 were used to provide volunteers and departmental bush firefighters with training opportunities, particularly in the practical management of fire and command and control measures.[5]

It noted, however, 'This training is difficult to coordinate as the "Permit to Burn" gives a narrow "window of opportunity" to complete the hazard reduction burn and the permit may only be granted a short time before the event'.[6]

The Inquiry was advised of training initiatives taken in response to the December 2001 bushfire experience and of activities designed around possible future scenarios. The following are examples.

The incident controllers exercise

In late October 2002 the ACT Bushfire Service conducted an exercise with a scenario similar to the events that occurred on 8 January 2003. The course was designed for experienced officers, to give them an opportunity to maintain their skills in incident management, and for new officers, to allow them to learn about incident management in a controlled environment. It was a condition that officers had previously completed the general Incident Control System course. Eighteen officers attended the course, which was conducted by the Manager Operations, ACT Bushfire and Emergency Services, the Manager Risk Management, ESB and the Logistics Coordinator, ACT Bushfire and Emergency Services.

The scenario involved a fire that was reported in the morning, about 1.5 kilometres north-east of Bendora Hill. Participants were required to work in groups, assuming the role of incident controller and deciding how they would respond to the fire. The exercise was designed to test the incident controller's role in:

- briefing crews and allocation of units
- deciding on the location of a control point
- determining the future fire growth and the implications of this
- assessing the suitability of a response by tankers, light units or remote area firefighting teams
- preparing a communications plan
- providing situation reports to the communications centre
- reviewing objectives and strategies
- calling for an increased weight of attack.

Participants were required to continually assess these operational factors as the fire grew in size and to consider switching from direct attack to indirect attack. A further scenario involved spot fires occurring in the Bendora Creek area, giving the course participants a different range of problems to contemplate.

Many ACT Bushfire Service officers who were later involved in the early stages of the January 2003 fires took part in the exercise. The course was well received and all present said it provided good training for dealing with fire-control problems in high country.

Map reading

In order to provide a targeted training program during 2002, ACT Forests conducted a 'fire training needs analysis' after the December 2001 fires. As a result of this, a course in map reading was developed and delivered before the 2002–03 fire season. Environment ACT is planning similar training.

Back-burning

An area ACT Forests identified for improving operational skills was back-burning. This task requires significant experience of prescribed burning and a thorough understanding of fire behaviour in response to weather, topography and fuel. At present very few staff in the Department of Urban services have formal training in the conduct of prescribed burning or back burning operations. Given the limited opportunities for gaining experience with prescribed burning and back-burning, ACT Forests sent one of its staff members to a course on fire management techniques that was held by the Department of Natural Resources and Environment in Victoria in 2002. It is intended that this officer will develop and deliver a training course on fire management techniques for land managers in the ACT.[7]

Physical fitness is an important requirement for bushfire fighting. Two years ago, the Department of Urban Services Land Managers Group introduced a compulsory fire fitness policy for all employees involved in firefighting. A similar approach has been taken in the volunteer ranks. The fitness standard requires that people have passed either the moderate or the arduous fitness level. The moderate level is required for anyone going onto a fire ground; the arduous level is a requirement for any person who is a member of a remote area firefighting team. Any fire that requires people to be self-sufficient and away from their vehicle for the full shift is classed as a remote area fire.[8]

For the 121 Department of Urban Services personnel in the forests and parks brigades who were available for testing, fitness assessment results before the 2002–03 fire season showed that 46 per cent met the moderate standard and 54 per cent were at the arduous level.

In public submissions to the Inquiry training was raised as an area of difficulty—see Chapter 3. The Inquiry makes some comments about training in the section entitled 'Scaling-up', later in this chapter.

Although it did not carry out a comprehensive training evaluation of all the organisations covered by its terms of reference, the Inquiry did form the view that there is a case for some additional resourcing to strengthen the skills base of

the emergency services and to provide more opportunities for greater exposure of some of the staff to interstate experiences. In general, competency levels in a formal sense seem quite satisfactory, but over time there has been a gradual decline in the depth of experience of personnel in the ACT Bushfire Service.

Formal training plays a part in redressing this problem, but practical experience—on the ground, dealing with fires—can be gained only by being there. More opportunity for ACT personnel to be exposed to the 'hands-on' experience would be very beneficial in terms of both morale and confidence. This experience will need to be gained principally through interstate attachments.

A joint emergency services training facility

The Government has authorised a scoping project associated with a proposed joint emergency services training facility. The facility would provide classrooms and outdoor training facilities, including hot-fire, rescue and mock structures for urban fire and rescue simulations. There was a possibility that the police driver training complex at Majura Road might be available for redevelopment but this now appears less likely. There remains a need to provide a site for practical operational training for the emergency services.

The Inquiry considers that such a facility is necessary to enable national training accreditations to be achieved as well as helping to provide more realistic practical experience to emergency services personnel in a controlled training environment.

Conclusion

General firefighter training and skills were not highlighted as deficient during the January 2003 event. The need for broader skilling in incident control roles was bought to the Inquiry's attention and some training deficits were discussed, but they did not appear to have a direct impact on the operational response during the emergency period.

Although the ESB submission detailed many of the training activities conducted in the 12 months preceding January 2003, the Inquiry notes the following:

- Use could be made of interstate expertise to 'train the trainers' for the seasonal firefighters brought in during the summer; Victoria's Department of Sustainability and the Environment has a long-running program for more than 600 firefighters annually that appears to hold particular merit.

- A formal exchange program or deliberate attachment during major campaign fires would offer considerable benefits to ACT firefighters and assist in broadening their appreciation of operations in other jurisdictions.

- There should be continued emphasis on Incident Control System training—particularly with the involvement of ACT Fire Brigade and Department of Urban Services personnel, to allow them to become more familiar with the demands of managing complex rural fires.

- Additional resources should be devoted to training in specific skills such as chainsaw use and driver expertise. Both volunteer and paid firefighters claimed there were deficiencies in skills of this kind as a result of a lack of training resources.

- ACT Bushfire Service personnel also need better training in dealing with simple-structure fires as they are the first responders to such fires on rural properties.

- All training should continue to comply with the national competency standards. The Inquiry notes the progress made in this area by ESB agencies. This emphasis should be maintained and, in particular, all firefighters within ESB need to develop common competencies, even though their roles and the nature of their employment will vary.

- With additional funding for training, Bushfire and Emergency Services would be able to accelerate their aim of having all members qualified to the appropriate national competency standard in 18 months, rather than three years as at present.

Recommendations

- In conjunction with the land management agencies, ESB should undertake a review of training and development needs for personnel involved in firefighting activities and develop a detailed future plan, identifying any additional funds required to support such a program. The plan should be submitted to government for consideration as soon as possible. It should take account of the comments and recommendations in this report that bear on training and development, including the need for secondments interstate with other fire authorities.

- The Government should consider the proposals when they are submitted with the view to allocating some additional funding to enable the bushfire authorities to improve the training and professional development opportunities available to paid and volunteer personnel, in the interests of increasing their skill base and experience.

- An outdoor training complex for all of the emergency service organisations should be provided; ESB should develop a detailed proposal for submission to government for consideration.

Notes

1 Department of Urban Services submission, p. 50.

2 ESB submission, p. 69.

3 ibid.

4 ibid, p. 70.

5 ibid, p. 73.

6 ibid.

7 Department of Urban Services submission, p. 50.

8 ibid, p. 51.

Occupational health and safety

On a number of occasions during the course of the Inquiry reference was made to occupational health and safety legislation and its relevance to firefighting. The passage of modern OH&S legislation since the 1970s has strengthened the obligations employers generally are required to accept in order to protect the health and safety of their employees. Duty of care responsibilities, formerly enshrined in the common law, have become more explicit, and better understood, by being given statutory expression.

The ACT *Occupational Health and Safety Act 1989* generally contains provisions similar to those in equivalent legislation in other jurisdictions. It imposes on employers a duty to '... take all reasonably practicable steps to protect the health, safety and welfare of the employer's employees' (s. 27(1)). 'Reasonably practicable steps' embraces the maintenance of a working environment and systems of work that are compatible with the aim of protecting employees from harm. In a firefighting environment, this includes provision of adequate equipment, appropriate training and instruction, proper supervision and use of operational methods and practices that are developed over time, being mindful of best practice in the firefighting industry.

It is in the nature of firefighting that a level of risk must be accepted as an ever-present factor. Yet the conscious exposure of personnel to the risk of injury in the course of fighting bushfires would, at first glance, appear to fit uncomfortably with a literal interpretation of legislation that aims to limit or eliminate the exposure of people to known hazards in the workplace.

This is an important concern in the bushfire-fighting sector, since governments around Australia generally have not sought to exclude the fighting of bushfires from the application of OH&S legislation. Although the ACT Act allows the relevant Minister to exempt all or some provisions of the Act from application to a class of workplace, none have been so exempted.

How then should the 'reasonably practicable' provision be applied? If too stringent an interpretation is applied to perceived safety matters there is a risk that bushfire-fighting capacity may be weakened by safety-related decisions that are risk averse, with possibly serious consequences for the community. On the other hand, no one would condone a reckless disregard for procedures and safeguards that are designed to minimise the risk of harm to bushfire fighters.

The Industry Commission dealt with this dilemma in the report of its 1995 Inquiry into Occupational Health and Safety:

> Ultimately, the issue of 'reasonably practicable' involves a value judgement. The correct standard is that of the reasonable and prudent employer. There is no objective and abstract definition of how such an employer will act. That must be determined on the particular facts of each case.
>
> Faced with this difficulty, the law has turned to 'the safety of numbers'. It will generally be assumed that if a certain method of work is a common practice in the industry, then to follow that practice is not unreasonable or imprudent. This is not an incontrovertible presumption, but an inference which can be displaced.
>
> Where employers can show they have complied with common practice, employees will find themselves making their claim 'in the teeth of the evidence' *(Paris v Stephney Borough Council* [1951] AC 383). It is possible, although difficult, to show that common practice is unreasonable, that the industry is dominated by unreasonable employers, and that the reasonable employer would have acted differently ...
>
> If there is a risk in a particular job against which no precaution can be devised, then there can be no liability on an employer if a worker suffers an injury. This is the only remaining area of risk which a worker may be said to have voluntarily accepted. A risk which is unpreventable must be a necessary one. If it could be eliminated only by discontinuing the operation, this is something the common law does not require of employers.[1]

On this basis, it seems reasonably clear that practices that are consistent with a general industry approach would comply with the 'reasonably practicable' test.

All Australian coroners are able to hold inquests into fire deaths and, with the exception of the Northern Territory and Western Australia, into fires where deaths have not resulted. In the past decade or so firefighting personnel have increasingly been subject to investigation in broad-ranging coronial inquests. This has placed a growing burden on volunteer and salaried firefighters to attend inquests as witnesses; on occasions the experience has been a difficult one for them since they are often called on to justify or defend their actions. The increasing burden of accountability may itself sometimes encourage fire controllers to err on the side of caution, possibly to the detriment of the effectiveness of the fire-suppression effort.

In this connection, the role of incident controller, as applied in the ACT, deserves mention. Incident controllers mostly operate on or near the fire ground, far from their headquarters. They are usually in the best position to assess the actual situation, and the Incident Control System adopted by all bushfire organisations, places emphasis on the vital role they play. On matters that require judgments about safety factors that can have significant operational implications, an incident controller should have the opportunity to consult with more senior personnel on the scene, such as a group officer, or with operational directors back at headquarters before decisions that are not clear-cut are reached.

The Lynton coronial inquiry's recommendations refer to the appointment of a 'safety officer' who could fulfil this function. The Inquiry also received a proposal for an 'operational mentor' to assist with command development and succession planning. Liaison with such a person would not only require that the hazards be clearly enunciated, and independently tested; it would also broaden the experience applied to the matter in hand, as well as increase the firefighting organisation's accountability for the decision ultimately taken.

The Inquiry considers that on 8 January 2003, the decision about whether or not to stay and tackle the fires overnight at Bendora was influenced to some degree, at least in the mind of some of the individuals involved in the decision-making chain, by concerns about occupational health and safety. Despite what was said, the Inquiry was of the view that there was no real examination or probing by Bushfire Service headquarters of this critical decision. Had that occurred, the relevance and weight to be attached to any safety issues present, their significance in operational terms, were they judged to be decisive factors and the level of the organisation at which responsibility for a decision was borne, would have been much clearer.

Several matters relating to the application of the ACT OH&S Act to volunteers were raised with the Inquiry. Volunteers, as distinct from employees, can be extended coverage under the Act through a ministerial instrument. This has not occurred. By virtue of another provision in the Act, however, employers have a duty to protect people from risks at or near a workplace for which they have responsibility, and this had been relied on as the basis for extending OH&S coverage to bushfire volunteers. The Act seems to apply to volunteers, but the matter is not totally beyond doubt and has never been tested in the courts in the ACT. It is therefore highly desirable, in the Inquiry's view, that a ministerial directive be issued so that any legal uncertainty can be removed.

The Inquiry was advised that extension of the Act to volunteers in this manner, while clearly necessary, would have the effect of potentially exposing some volunteers to prosecution under the punitive provisions of the OH&S Act. The *Bushfire Act 1936* provides a protection against civil liability for damage, death or personal injury caused in the honest exercise of functions under that Act: obviously, this should continue. Any possible discouragement to volunteers on the ground that the risk of prosecution would be increased under the OH&S Act should be removed. A relatively simple legislative amendment should be made to ensure that upon issue of the Minister's directive the protections under the Bushfire Act against prosecution would prevail, thereby preserving the longstanding status of volunteers.

Recommendations

- A procedure should be adopted whereby important operational decisions affecting the safety of firefighters are discussed with a more senior officer before implementation, whenever this approach is feasible.

- The responsible Minister should clarify the application of the ACT *Occupational Health and Safety Act 1989* to volunteers by issuing a ministerial directive.

- Upon the Minister's directive coming into force, a legislative amendment should be made to continue the application of the protections against prosecution afforded under the *Bushfire Act 1936*.

The relationship between the fire management and land management agencies

A number of submissions the Inquiry received referred to the relationship between the ACT Bushfire Service and the public land managers. In Victoria, fires on public lands are the responsibility of a fire service established within the Department of Sustainability and Environment specifically for this purpose. Such an arrangement offers several important benefits. First, it helps to reinforce the message that fire prevention and suppression are an integral part of land managers' role in protecting the land they control. This can have considerable psychological value in helping to shape the ethos of an organisation and in providing a balance between fire-prevention activities and environment protection and other socially desirable objectives.

Second, an arrangement of this nature can have practical value, in that the people who work in public parks and forests gain an intimate knowledge and understanding of the land they supervise. This is of inestimable value in a fire emergency when local knowledge and an understanding of the terrain and what it contains are at a premium. There are also practical spin-offs such as being able to draw on equipment, vehicles, plant, aerial support and so on, that are otherwise used for normal, day-to-day activities.

The ACT is far too small to contemplate the establishment of a dedicated bushfire service for the forests and parks agencies. The formation of the two Bushfire Service brigades staffed by personnel from the forests and parks agencies is an attempt to achieve a similar objective, but unfortunately the organisational separation between ESB and the Bushfire Service on one hand and the land managers in the Department of Urban Services on the other, has contributed to the relationship not being as close as it might be. A degree of tension between the two sides, while not necessarily marked, was apparent to the Inquiry.

The Department of Urban Services submission drew attention to the fact that, while each land management agency is responsible for specific areas of land, an agency has no control over fire suppression on that land. Nor is there any legislative mandate for land management agencies to undertake suppression or provide fire-suppression resources. The Inquiry supports the current practice of the Bushfire Service attempting to allocate incident controllers consistent with land management responsibilities; for example, officers from ACT Parks were initially appointed as incident controllers for the Bendora and Stockyard Spur fires. The Inquiry believes this practice should be reinforced through the

provision of additional seasonal staff to support the land managers' initial response to fires in parks and forests. This is further discussed in Chapter 6. With these resources in place, the initial-response responsibilities proposed for land management agencies in relation to fires on land they manage, should be reflected in ACT Bushfire Service Standard Operating Procedures.

The Department of Urban Services also suggested that there is potential for fire-suppression planning and operations to occur without reference to identified land management objectives and policies. It referred to an ambiguity in reporting and structural arrangements for land management agencies during suppression operations directed by the ACT Bushfire Service. Further, the Department claimed that during the fires in January 2003 the legislative arrangements did not afford the land managers the opportunity to participate fully in the decision-making processes associated with managing the event.

For its part, the ACT Bushfire Service advised the Inquiry that at times it felt it had no control over the availability of forests and parks brigade personnel it was required to manage. There had been some difficulty with the release of the more senior personnel in these brigades—who are members of a small, highly qualified management cadre of the Bushfire Service—for bushfire duties not associated with forests and parks. The land managers' lack of sensitivity to the Bushfire Service's need for maintained track access was also mentioned, as was the disposal of assets not needed by the forests and parks authorities for their own purposes but that represented a loss of facilities for the Bushfire Service.

A number of the propositions by both parties are arguable, and it was not for the Inquiry to seek to arbitrate. Nevertheless, the existence of these views suggests that steps need to be taken to bring the two areas closer together.

The genesis of the problem may have been a series of decisions made since 1989, when the ACT gained self-government, that had the effect of dividing the management of public land in the ACT between various groups, each with its own management charters—for example, commercial plantations, conservation reserves, recreational nature parks, and urban open space—whereas before 1989 all public land was managed by a single entity.

In addition, when the Bushfire Service was merged with the other emergency services upon the formation of the Emergency Services Group (the forerunner to ESB) most of the bushfire expertise within the land management agencies was lost to the Bushfire Service. The land management agencies have only just begun to rebuild this expertise. A decision to introduce a full-time fire

coordination policy officer in the Department of Urban Services, to assist with managing the portfolio's fire-related responsibilities is a move in the right direction and is supported by the Inquiry.

Various recommendations in this report—concerned with the number of fire-related personnel the ACT land managers should employ during the summer season, increased funding for training, the allocation to the forests and parks brigades of formal responsibility for being the first responders to fires that break out on their land, better access to plant and equipment, and a firmer responsibility for working with the ACT Bushfire Service in establishing and maintaining a better network of fire tracks and trails—are designed to strengthen the sense of obligation the land managers should have for protecting the land in their care from the damaging effects of wildfires.

The other difficulties between the two parties will be resolved only through better communication and an understanding that both portfolios need to work very closely, in a spirit of mutual trust. This will happen only with the right lead from the top of the two organisations concerned.

Recommendations

- The Chief Executives of the Department of Urban Services and the Department of Justice and Community Safety should work together to develop the means by which the public land managers and the ACT Bushfire Service can achieve a stronger, mutually supportive relationship.

- Operational procedures should be amended once additional land management resources are in place, to reflect the responsibility of land managers to initiate the first response to fires on land that they manage—within the overall operational response of the ACT Bushfire Service.

The December 2001 fires

The Inquiry examined the 2001 fires and the subsequent response to them in order to gain an insight into how active the Emergency Services Bureau was in analysing the firefighting experience and what steps were taken to learn from the event. The Inquiry considered it would have been reasonable for ESB to draw on the experience and lessons of the 2001 event when responding to the January 2003 fires. To inform itself about the 2001 event, the Inquiry reviewed the ACT Bushfire Service 'Report to the ACT Chief Coroner on the Bushfire Events of December 2001' and another ESB document entitled 'Strategic Debrief Action Status Summary'.

On Christmas Eve 2001 a series of fires threatened central Canberra. In all, six outbreaks occurred, at Huntly, Stromlo, Bruce Ridge, Red Hill, Oaks Estate and Wanniassa Hills.

It became a multi-agency event, involving 77 firefighting appliances from the ACT, Victoria and New South Wales, together with aircraft and earth-moving equipment. These were the most recent significant fires to have occurred before the January 2003 event and, in the context of that event, the 2001 fires are significant for several reasons:

- They too threatened suburban Canberra.
- Weaknesses in the response were exposed before the 2003 fire season.
- The nature of fire impact in parts of the Stromlo pine plantation was experienced during a serious fire event.

Dry conditions and high fuel loads also characterised December 2001. 'Forecasts for the Christmas period indicated that the ACT was likely to experience some of the worst fire danger levels seen so far this [2001] bushfire season ...'[1] 'The strong westerly winds experienced on the afternoon of Christmas Eve were forecast to continue for Christmas Day.'[2] The ACT Bushfire Service witnessed a powerful demonstration of severe fire behaviour under extreme conditions. The fuel loads varied at the different fire sites, but the forest fuel loads were consistent with those in January 2003.

Command and incident management

The ACT Bushfire Service report stated that incident management was 'in accord' with the national Australian Inter-Agency Incident Management System Incident Control System. As discussed in the section entitled 'Incident command and control' in this chapter, the Inquiry considers that the

ACT has developed a distinctive application of the Incident Control System, with a headquarters management team at ESB and an incident controller for each particular fire. This approach is not replicated in other jurisdictions: elsewhere, when a number of fire events occur in close proximity to each other or threaten a single location, there are likely to be sector, and possibly divisional commanders appointed in the field and one incident controller for the overall event. As ESB described it, 'The incident controller has the responsibility for developing the incident control objectives and for managing the resources assigned to their incident'.[3]

For the December 2001 fires in the ACT the Chief Fire Control Officer 'took control of all bushfire operations'[4] and established a 'headquarters management team'. Nevertheless, individual ACT Bushfire Service incident controllers were appointed to five of the six outbreaks (the Oaks Estate fire being controlled by a NSW Rural Fire Service officer), although separate supporting incident management teams were not necessarily established. In 2003 the Chief Fire Control Officer did not take control until Thursday 16 January, although the headquarters (now known as the service) management team was established on 9 January.

A state of emergency

No state of emergency was declared in 2001. The matter was discussed by the Chief Fire Control Officer's team and members of the Emergency Management Committee, but '... it was felt by all concerned that the coordination of the fires and supporting agencies was not beyond the provisions of the Bushfire Act ... It was also felt that there would not have been any command, control or coordination advantage in declaring a state of emergency'.[5] Despite this, both the ACT Bushfire Service and ACT Policing initiated road closures and ACT Policing initiated evacuations. The ACT Bushfire Service report states that all actions required to respond to the fire and protect the community did occur. Subsequently, further action (largely centred on ACT Emergency Services) was taken to improve the coordination of road closures. The view about the merits of declaring a state of emergency has changed in the light of the 2003 event, even though the fundamental elements have not changed, the only difference being the bigger scale of the 2003 emergency.

Public warnings

The December 2001 fires are thought to have been deliberately lit, so there was no opportunity to warn the public before the event. Once the event developed, however, the Standard Emergency Warning Signal was used on public radio over a two-hour period before advice and warnings about the nature and location of the fires were issued. Periodic media interviews were also conducted. A total fire ban was declared for 24 to 27 December. The ACT Ambulance Service and the Department of Health issued public health information and advice.

Following the fires the ACT Media Sub-Plan was to be reviewed. In May 2002, a meeting was called involving representatives from ACT Policing, ESB's Community Education and Public Relations section and the Public Relations area of the Chief Minister's Department to review the Plan and coordination of the media within the ACT and Commonwealth. It was intended that a working group involving ACT Policing would be established to consider public communication aspects including the use of Canberra Connect. By late June 2002 the working group had developed a project outline and discussions had commenced with the Chief Minister's Department. The group was also to assist ESB request media organisations to regularly broadcast Standard Emergency Warning Signal community service announcements. Revised media arrangements for an emergency were practised as part of Exercise Minotaur, a national foot-and-mouth disease exercise held in September 2002. Review of the Media Sub-Plan was still ongoing when the January 2003 fire emergency occurred.

Evacuation

Police and emergency services had differing views about evacuation procedures in 2001, a situation that was never satisfactorily resolved. The ACT Bushfire Service report notes, 'Each circumstance was dependent on the situation and the judgement of the officer providing the advice ... While there were no safety issues arising as a result of the evacuation decisions and processes, improvements could be made to the ACT's bushfire evacuation procedures ...'[6] A working party of police and ESB personnel had been working on this through a review of the Community Recovery Sub-Plan, although the work was incomplete at the time of the January 2003 fires.

Night firefighting did occur

On the night of 24–25 December firefighting activity took place, with the aim of 'constructing control lines around the fire edge'.[7] As expected, fire activity overnight was 'relatively calm'. Although the Inquiry accepts that there was less hazard associated with the topography of the 2001 fires compared with the 2003 fires, it points out that night firefighting did occur in 2001 and was effective.

Operational communications

The ACT Bushfire Service report notes that the existing ACT Bushfire Service VHF communication system was stretched on 24–25 December 2001 but did not appear to fail: 'The ACT Bushfire Service radio system provides fairly reliable, clear communications, particularly in rural areas'.[8] The Inquiry found that, although the ACT Fire Brigade uses an incompatible UHF system, all ACT Fire Brigade vehicles are fitted with VHF radios in order to communicate with ACT Bushfire Service vehicles and personnel. No specific changes to communications resulted from the 2001 fire event. Continuing concern that the ACT Fire Brigade failed to switch to ACT Bushfire Service radios when required by Standard Operating Procedures was reported, but this was considered a procedural weakness not requiring systemic change. ESB has since commissioned and received an independent consultant's report on radio infrastructure requirements, and the Government has allocated initial funding for 2003–04, with an express intention to spend substantially more over the next three years to substantially upgrade communications for all emergency service agencies.

Communicating with interstate firefighters

The ACT Bushfire Service report highlights communication limitations with visiting New South Wales and Victorian firefighters. The report states that communication with New South Wales firefighters 'relied on face-to-face conversation and a limited number of portable radios that could be deployed with the NSW Rural Fire Service commanders'.[9] Relying on face-to-face communication is flawed: it greatly endangers firefighters. This highlights the difficulties resulting from each jurisdiction developing its own radio system independent of adjacent jurisdictions, as is discussed in the section headed 'Communications and computer-aided dispatch' in this chapter. The Inquiry noted the 'unified command approach' adopted by Country Fire Authority firefighters from Victoria and considers that any future communications system established in the ACT should include the capability for visiting firefighters to be 'fitted out' with compatible portable communications or be accompanied by ACT firefighters with portable radios.

This matter is of sufficient importance for the Inquiry to consider interim measures or procedures should be put in place prior to the 2003–04 fire season to ensure that visiting fire crews retain a capability to communicate with ACT firefighters on the fire ground.

Communication centre difficulties

ESB operates a single communication centre for ambulance and fire calls; it is manned by the respective services. ACT Fire Brigade personnel answer rural fire calls. The report of the 2001 fires highlights deficiencies with the communication centre's procedures once the number of calls had increased, which resulted in inadequate logging of calls and events. This occurred again in 2003—to a more serious degree. The Inquiry notes that the computer—aided dispatch project is now well advanced and is funded in the 2003–04 Budget. While the new system will overcome many of the concerns identified, it is incumbent on ESB management to ensure that until the system's introduction, other measures are taken to overcome known deficiencies.

Conclusion

Having reviewed the 2001 fires and subsequent actions, the Inquiry concluded as follows:

- The 2001 fires provided ESB with a significant opportunity to trial its arrangements and responses some 13 months before the January 2003 fires. Although the scale of the 2001 event was much less dramatic, ESB entered the 2003 event with recent experience in dealing with a very serious fire that involved a major threat to suburban Canberra.

- The 2001 event occurred during similar—albeit less severe—drought conditions, providing the ACT Bushfire Service with first-hand experience of fire behaviour in very dry conditions.

- The declaration of a state of emergency was not seen to be necessary in 2001. ACT Policing initiated evacuations without the assistance of special powers, and yet this was the prime reason why a state of emergency was sought in 2003. The difference in view on evacuation between ACT Policing and ESB should have been resolved following the 2001 experience.

- Opportunities existed—and in many instances were taken—to review and improve ESB performance before the 2002–03 fire season, although it is of note that the question of disparate views in relation to evacuation remained unresolved when the 2003 fires broke out, and some difficulties still existed in relation to communicating with interstate fire crews.

The 2001 fires did not bring to attention some difficulties that emerged with the Incident Control System during the 2003 fires (see the section headed 'Incident command and control' in this chapter). The smaller scale and shorter duration of the 2001 fires probably masked the difficulties. Despite the 2001 event stretching ESB agencies and threatening the public, the fire did not destroy any houses in Canberra, which may have served to reinforce the Canberra experience of 50 years—that urban housing was most unlikely to be lost during summer fire events. In summary, ESB identified a number of lessons from 2001 and had a follow-up process in place to monitor implementation of changes that flowed from the experience. Although a number of the lessons led to changes, some significant problems remained unresolved. These should continue to be pursued.

Notes

1 ACT Bushfire Service report to the Chief Coroner, p. 4.
2 ibid., p. 16.
3 ibid., p. 6.
4 ibid.
5 ibid., p. 19.
6 ibid., p. 21.
7 ibid., p. 16.
8 ibid., p. 24.
9 ibid., p. 26.

Commonwealth and interstate contributions

Commonwealth assistance

The national emergency management system is a partnership arrangement between the Commonwealth, state and territory and local governments and the community itself. The Commonwealth provides guidance and support to the state and territory governments, helping them develop and supporting their capacity to deal with emergencies within their boundaries. The Commonwealth also provides financial and physical assistance when the response to a disaster is beyond the capabilities of the state or territory concerned.

Emergency Management Australia is the primary Commonwealth agency for coordinating the provision of physical assistance when Commonwealth help is sought. The Executive Director of the ACT Emergency Services Bureau is the designated ACT person authorised to request Commonwealth assistance. During the January 2003 bushfires, Emergency Management Australia and ESB maintained close contact from an early stage.

Defence support at an assembly point prior to deployment. Photo printed with permission of the *Canberra Times*.

The first request for Commonwealth assistance was made on 12 January—for four military helicopters to help with aerial bombing and reconnaissance and four Army bulldozers to help with the construction of firebreaks. This assistance was provided. During the ensuing three weeks considerable Defence Force resources were made available for both the firefighting effort and the recovery activities. This assistance included use of Navy helicopters

and Army bulldozers, together with graders, water tankers, an RAAF fuel tanker, and a number of experienced logistics and operations personnel. Appendix D lists the different forms of Defence support.

Liaison between the ACT Government and Commonwealth authorities—through the established mechanisms involving ESB and Emergency Management Australia—worked very smoothly and reflected a sound working relationship between both bodies. The process was aided by Emergency Management Australia having liaison officers on duty at ESB during the peak of the crisis to facilitate any requests for Commonwealth assistance.

The Director General of Emergency Management Australia advised the Inquiry that the Prime Minister had directed him to provide all the support the ACT asked for. He also commented that the ACT had a well-developed, well-thought-through set of emergency management arrangements that, despite not being tested with an event of the size of the 2003 bushfires, had nevertheless been tested during the 2001 bushfires and several other emergencies. It had also been tested with local and national incident scenarios. The Director General's impression was that, although some of the arrangements might be modified in the light of the recent fires, the overall structure was sound and the personnel involved appeared to be well trained and competent.

The Commonwealth Bureau of Meterorology provided substantive and important support to ESB throughout the emergency and the entire fire season. Its submission to the Inquiry provides insight into the particular features of the fire and is an important record of events. The Bureau of Meterorology brought on additional staff to assist in giving regular and special briefings that contributed to ESB's planning of its operational response. While not raised as a specific imediment, it was brought to the Inquiry's attention that there was no automatic weather station in the Brindabellas and the next automatic weather station west of Canberra is at Young in NSW. The location of an automatic weather station at for example, Bulls Head, would provide the Bureau of Meteorlogy and ESB with a more accurate measure of the weather conditions in the mountains. It would also assist Canberra weather forecasting throughout the year. The cost of an automatic facility would be about $40 000. The value would be considerable.

Interstate contributions

New South Wales was involved in the 2003 bushfires in two ways. It dealt with the bushfires caused by lightning within its own borders (but adjoining the ACT),

which had arisen from the same dry storm that affected the Territory. It also provided support to the ACT by supplementing the local firefighting and ambulance resources.

Apart from fighting the McIntyre Hut fire (see Chapter 2), New South Wales also provided support in the ACT in the following ways:

- A liaison officer from NSW Rural Fire Service was stationed at Queanbeyan for extended periods during the emergency and on 18 January, the NSW Rural Fire Commissioner dispatched an Assistant Commissioner who visited ESB.

- On 18 January, as a result of liaison between staff at Queanbeyan and Curtin, a number of aircraft operated out of the Yarrowlumla Fire Control District as the McIntyre Hut fire spread into the ACT. The Rural Fire Service Commissioner diverted an Erickson air crane from Jindabyne to Canberra, which was directed at property protection.

- Extensive GIS support in the form of line scans from aircraft, mapping products, and fire plots, was provided by the NSW Rural Fire Service, both during and after the fire. This sophisticated specialist support was of great benefit.

- The ACT Bushfire Service and the NSW Parks and Wildlife Service have a cross-border agreement on fire management and suppression (dated December 1998). There is no similar documented agreement between the ACT Bushfire Service and the NSW Rural Fire Service; cross-border support between the two organisations has been arranged on the basis of personal contacts and continuing relationships. Talks have been held, however, and the NSW Rural Fire Service has forwarded a range of proposals that could form the basis of a memorandum of understanding. The Inquiry supports the steps that are being taken.

- At the request of the ACT Fire Brigade, the NSW Fire Brigade provided a task force comprising four urban pumpers, two support units carrying portable pumps, and two command vehicles. It arrived in Canberra during the evening of 18 January and provided substantial assistance with the mopping-up operations that had by then begun.

- On 16 January, the Ambulance Service of New South Wales was formally asked to provide assistance. Two crews arrived on 17 January and on 18 January a liaison officer and further crews arrived. A NSW aero-medical helicopter also provided support to the ACT, releasing the Snowy Hydro Southcare helicopter to continue firebombing.

The Inquiry became aware of comments that interstate crews travelling to Canberra to contribute to the firefighting effort on 18 January were turned back. There was some suggestion that ESB or the ACT Bushfire Service directed the crews to turn around. The Inquiry raised this specifically with ESB and the Chief Fire Control Officer. Because the crews referred to were not ACT crews and not in the ACT when this alleged direction was given, no ACT agencies or officer had jurisdictional authority to influence the crews. The Inquiry was given unequivocal assurances that at no stage did ACT officers direct any interstate crew not to arrive in Canberra or to turn around. The Inquiry was advised that if this direction was given, it most likely would have emanated from within the affected crew's organisation.

The Queensland Fire and Rescue Service made an offer, which was accepted, to assist with protecting the rural–urban interface at Belconnen. Two strike teams and support staff, totalling 56 people, arrived in Canberra on Tuesday 21 January; among them were ambulance officers, mechanics and communication staff.

Conclusion

Commonwealth and state government personnel and equipment provided invaluable assistance to their ACT colleagues and to the ACT community generally. Their contributions have been acknowledged by the Chief Minister. The ready assistance provided on this occasion and in the past is an important means whereby individual jurisdictions can deal with large emergencies, which are sometimes beyond their capacity to plan for, and handle, without external reinforcement.

The ACT reciprocates from time to time in providing assistance to other states. As a small jurisdiction it tends over time to provide a higher level of assistance than its size would suggest is reasonable. This is helpful to the ACT as it builds more expertise into its own ranks.

Recommendation

That an automatic weather station be located in the Brindabella Range to assist with fire weather forecasting.

Scaling-up

In small jurisdictions such as the ACT, where the resource base is limited, it is a constant challenge to meet the range and diversity of responsibilities governments are obliged to assume. Larger jurisdictions can more easily secure the economies that come with scale and they have more resources at their disposal.

The Chief Executive of the Chief Minister's Department commented on the approach of the ACT public sector in these terms: 'Appropriately managed structures are usually more effective than a wide range of smaller separate organisations, especially where these organisations are expected to combine in the achievement of complex and large scale tasks ...' Across the ACT public sector a range of innovative approaches have been adopted to compensate for the disadvantages that a lack of size brings. Planning for and responding to very large emergencies is a good case in point. Disasters and emergencies are not respecters of political or geographical boundaries. The consequence is that the benefits self-government brings are tempered by the need to protect the Territory's citizens and assets from the impacts of occasional, potentially very damaging events.

The national emergency management arrangements

The national emergency management system is an important safeguard, particularly for the smaller states and territories, in helping to mobilise outside resources to assist a state or territory in dealing with a crisis beyond the limits of its own resources. This ability to scale up is particularly important in the case of bushfires, when political and organisational boundaries are often breached. The procedures for seeking assistance are well understood and well tested and, as was confirmed during the January 2003 fires, the arrangements are very responsive and operate with a minimum of formality.

Cooperation with New South Wales

Ideally, the ACT and the surrounding regions of New South Wales should cooperate very closely during major events that have the potential to spill over the border. Over time, a good relationship has built up between the ACT Bushfire Service and the NSW Rural Fire Authority, and an atmosphere of mutual support exists. It has been common for one service to provide support and assistance to the other: the recent fires are a good example. However, the arrangements have never been formalised. Since the 2003 fires the services have begun discussions with a view to developing a

memorandum of understanding, to clarify and formalise mutual-support arrangements for the future. This initiative is strongly supported.

The facts that fires do not recognise political boundaries and that support is provided across borders, and the reality that the ACT is an island within NSW, point to opportunities for a broader management approach in the ACT and surrounding region.

The history of fires in the ACT and surrounding regions and the nature of the vegetation and terrain suggest that if political boundaries did not exist, at both the state and local government levels, the best arrangements for managing fire suppression and providing the necessary specialist support would be based on a larger regional approach. The Inquiry did not pursue the feasibility of this, and the political considerations are such that it may not have great appeal. From a purely practical fire-suppression viewpoint however, there is merit in keeping a regional concept in mind and then pursuing cooperative arrangements that, to the maximum extent possible, offer a seamless approach to strategic planning for and joint or shared management of, large bushfire events.

Among the initiatives that should be pursued are greater opportunities for joint exercises and training, closer cooperation in the coordination and planning of responses to major bushfire emergencies, a stronger sense of 'jointness' in managing large regional firefighting operations, greater cooperation in the deployment of equipment and personnel, closer links in the development of communication protocols, adoption of common incident control arrangements, and agreement on common operational terminology. Apart from the advantages these efforts would bring in terms of creating a more integrated, regionally focused bushfire capacity, the closer personal relationships and better understanding of each other's arrangements, that would ensue could only lead to an improvement in the effectiveness of the two services acting alone.

At a more general level, the Inquiry considers that a strengthening of the relationship between the ACT and New South Wales would be worth pursuing across government agencies generally, where there are common interests. During the Inquiry comments were made to the effect that, in NSW, many systems and administrative mechanisms as part of statewide arrangements were in operation and fully staffed in the adjoining areas of the state. With appropriate clearances, ACT authorities could have taken advantage of this, in both the response and recovery phases. It was asserted that the nature of the regional support potentially available needed to be better understood and reflected in the ACT's Emergency Plan and its subsidiary plans

or in mutual cooperation arrangements developed between kindred agencies. In this way the ACT could receive the benefit of making use of arrangements that are tried and proven, rather than having to independently spend effort designing unique arrangements to meet occasional eventualities.

A somewhat similar approach has already been adopted in regard to health care, with Canberra Hospital acting as a major regional health centre for southern NSW. The ACT and NSW jointly operate the Snowy Hydro Southcare helicopter medical retrieval service, which serves southern NSW as well as the ACT.

Volunteers

The use of volunteers to provide the operational personnel needed in bushfire and emergency service bodies is a longstanding tradition in Australia. It has been effective in giving opportunities to many public-spirited individuals from many walks of life to contribute to the provision of essential community services. Each year over a quarter of a million Australians contribute voluntarily to safeguarding the community and helping with the recovery from disasters. Because many emergencies are seasonal in nature or occur irregularly, reliance on volunteers is a particularly useful way of dealing with these threats to life and property. The volunteers are not paid for their contributions, so governments gain much advantage from this form of public service, as does the community itself.

ACT Emergency Services personnel providing storm damage support after the fires. Photo printed with permission of the *Canberra Times*.

If volunteerism waned, substantial additional costs would have to be borne by taxpayers. It is thus in the interests of all that the community continues to nurture and encourage volunteers by recognising and supporting the very valuable contribution they make to the wellbeing of Australian society. This is no less important in the ACT than elsewhere. Any changed arrangements in the organisation and provision of fire and emergency services in the ACT should therefore continue to include a significant role for volunteers, in acknowledgment of their importance to the health and viability of a comprehensive emergency services structure.

Although volunteers are not paid for their work, they do not come without cost: they need to be trained and equipped, and facilities need to be made available for housing their vehicles, their tools of trade and their basic amenities, which traditionally are fairly frugal. The Inquiry received submissions suggesting that money was sometimes tight for training and operational exercises. A modest additional injection of funds for these purposes would be welcomed, as a morale boost for volunteers, to help maintain their enthusiasm and commitment, and to develop their skills. It would also assist with steps being taken to increase volunteer retention rates.

Summer support staff

Some states' parks and forests authorities recruit paid summer casuals to supplement their full-time staff, so that adequate numbers of personnel are available for firefighting purposes. The people recruited are typically young and fit and well suited to the more arduous tasks associated with direct attack firefighting. They are particularly useful in a rapid-response role (as remote area firefighting teams), when fires are often tackled in difficult terrain and vehicle support is not immediately available or is limited in number. These people need to be suitably trained to meet the normal firefighting standards, and it would be expected that many would be re-engaged over successive seasons.

The ACT would benefit from the engagement of personnel for this purpose. When not employed on firefighting duties, they could be used to perform maintenance tasks to assist fire prevention and in doing so gain a familiarity with the environment that would be useful for their role as firefighters. In contrast with forest and parks staff, their primary focus would be on bushfire prevention and suppression.

The establishment of such a capacity within land management agencies will assist in developing a greater responsibility for land managers to be the first responders to fire outbreaks on land they manage even though such responses would remain within the ACT Bushfire Service operational structure.

Remote area firefighting teams

Remote area firefighting teams are referred to in the sections of this chapter dealing with aerial operations and fire access. RAFTs provide a degree of flexibility and timeliness that is not available from conventional vehicle-based firefighting crews.

They can be deployed by air into existing landing sites in remote areas or, with one member having a chain saw, be winched into the location of a fire to clear a landing zone for the helicopter. (Of course, this method of deployment is dependent on the availability of a suitable medium-sized or larger helicopter.) Once on the ground, RAFT crews use hand tools to develop containment lines around a fire. It is difficult, demanding work that is often carried out at night, when fire behaviour is most benign.

The ACT does have some RAFT-qualified personnel. They are volunteers and paid forests and parks staff who have volunteered for this work and attained the requisite level of fitness and acquired the necessary skills. The ESB submission made only one reference to RAFT crews[1] on 10 January, at the Bendora fire, although the Inquiry was advised that they were specifically used on a number of occasions. They were not used during the initial response to the fires.

Other fire services use personnel in this role to provide a rapid response in remote areas so that a fire can be attacked more rapidly—to improve the prospect of containing the spread of the fire while reinforcements are assembled and brought to the fire ground. If summer casuals were trained and used in this role to supplement other resources, the Inquiry considers this would be a valuable contribution to the ACT's bushfire readiness.

Army firefighters preparing to back-burn using McLeod tools and drip torches. Photo courtesy Australian Defence Force, Corporal Belinda Mepham.

Recommendations

- The current discussions aimed at developing a possible memorandum of understanding between the ACT Bushfire Service and the NSW Rural Fire Service should proceed as a matter of urgency.
- The ACT should initiate discussions with New South Wales authorities in relation to ways in which the current relationships could be developed at a regional level, with the aim of strengthening the linkages between kindred agencies and identifying how the resources available in the ACT and the surrounding regions could be more easily mobilised in serious emergency situations—to the advantage of both jurisdictions.
- The level of resources for the training and operational exercising of volunteer bushfire and emergency service personnel should be increased, to improve current skill and experience levels.
- Environment ACT and ACT Forests should employ additional summer personnel as firefighters and fire prevention workers to improve the ACT's firefighting capability, particularly in terms of rapid deployment to fires in remote areas.
- These staff should provide land management agencies with a capability to be first responders to fires on land they manage.

Notes

1 ESB submission, p.105.

> …my experience over many years has demonstrated to me that forestry firefighting crews are without equal. This is because the crews usually work in the area they are required to undertake fire suppression, so they know the fuels, terrain and tracks. They also work together, so they operate effectively as a team, and because other fire related duties such as hazard reduction and high intensity slash reduction burns are a normal part of their duties.
>
> — Canberra resident

Funding of emergency services in the ACT

Integral to any consideration of the adequacy of the response to the January 2003 bushfires is an analysis of the funding made available to emergency services.

From the Inquiry's perspective, publications and reports of the Commonwealth Grants Commission, an independent statutory authority, proved an extremely useful basis for making interjurisdictional comparisons. As might be expected, however, there are qualifications to this kind of interjurisdictional analysis, and it provides no more than the broadest of indications about the efficiency of the way funds are expended and the priorities of government. Nevertheless, the information does support a conclusion that for at least the last four years the ACT has been spending considerably more on public safety and emergency services than the average level of expenditure on such services elsewhere in Australia.

By way of background, when the Commonwealth Government introduced the Goods and Services Tax in July 2000, it decided to distribute to the states and territories all the revenue collected, in accordance with a policy of fiscal equalisation. The Commonwealth Grants Commission advises the Government (Treasury) on the per capita relativities[1] used for distribution of the pool of general revenue assistance to the states and territories; that is, it determines the relative share of the pool for each jurisdiction, not the size of the pool.

Importantly, the Commission is required to formulate recommendations based on the principle of horizontal fiscal equalisation; that is, a state or territory should have the financial capacity to provide a comparable range and standard of government services, provided that it makes an average effort to raise revenue and conducts its affairs at an average level of operational efficiency.

The Grants Commission's latest available annual analysis—*Report on State Revenue Sharing Relativities: 2003 update*—is based on data for the financial years 1997–98 to 2001–02. It shows that in the category of Public Safety and Emergency Services (which excludes the law and order–related categories of police, administration of justice, and corrective services) estimated expenditure across Australia was $63.87 per head of population in 2001–02. The individual figures for the states and territories are then standardised by the Commission to take account of a range of identified disabilities that do not fall equally across all governments. In this way the Commission determines the amount each state and territory is required to spend in order to provide an average level of service.

The standardised expenditure figure for the ACT in 2001–02 was calculated to be $67.14 per head, whereas the Territory's actual expenditure was $82.43 per head: that is, the ACT was assessed as being required to spend $67.14 per head in order to provide an average public safety and emergency service. The ACT's actual expenditure was 22.8 per cent greater than the standardised national figure, reflecting a policy decision by the ACT Government to spend more. The relatively higher actual expenditure in the ACT is evident for the majority of the years of the 2003 update—and certainly for the five-year average.

The Inquiry had access to extracts from the ACT Government's submissions to an inquiry the Grants Commission is conducting into its current methodology. The ACT has submitted that the Commission is not adequately taking account of the Territory's disabilities; it is also seeking a change to the Commission's approach to the Public Safety and Emergency Services category.

The submissions draw attention to the fact that the Territory, excluding the city of Canberra and its immediate surrounds, takes in a significant geographic area, two-thirds of which is publicly managed land. In the main, this land is economically unproductive, largely because of planning and environmental constraints: 53 per cent of the ACT's land area is taken up Namadgi National Park, which was gazetted by the Commonwealth, and various protected lands that are defined by the Commonwealth under the National Capital Plan.

It is emphasised that much of the ACT is difficult, bushfire-prone country. As part of the alpine mountain ranges it does, however, have high tourism, cultural and recreational values and is an important part of our national estate. The ACT asserts that the full cost of land management activities associated with this wilderness area, conservation of the biodiversity it contains, and protection of the national capital from the inherent risks (including bushfire) should not continue to be solely borne by the relatively small ACT population.

According to the submissions, the per capita cost of the management of public lands in the ACT is at present higher than anywhere else in Australia. The cost is high because the Territory has more than twice the national average area of sportsgrounds and urban open space to manage: urban open space amounts to 19.7 hectares per 1000 people compared with the national average of 9.5 hectares.

The ACT also argues that the Grants Commission's current methodology disadvantages the Territory in another way. The submissions call for the removal of the Public Safety and Emergency Services economic environment

factor, which is based on per capita residential and commercial fire insurance claims and the unimproved value of land. The ACT considers that this approach fails to recognise the determinants of the cost of, and demand for, fire protection and emergency services.

The ACT's submissions are being considered by the Commission; the results will be released in February 2004.

On a separate but related matter, the Inquiry was informed that during the past three years the ACT and Commonwealth Governments have been in dispute about a revised formula for the Commonwealth's annual contribution to the cost of fire services in the Territory, in recognition that the significant Commonwealth presence in the ACT benefits from these services. The Commonwealth has withheld three years' payments, to the value of $9.22 million, and the ACT Government has had to fund this shortfall from its own resources. During the course of the Inquiry publicity was given to an exchange between the Chief Minister and the Prime Minister, to the effect that the Commonwealth would be agreeing to reopen negotiations to try to find a new funding formula. The Chief Minister responded favourably to this development.

The Inquiry does not have a view on the matters raised by the ACT with the Commonwealth Grants Commission; nor does it have a view on the deliberations with the Commonwealth over the funding of fire services in the ACT, other than to note that the bushfires in January 2003 exposed a range of shortcomings whose remediation in a number of cases will involve additional expenditure.

The cost to the ACT Government of managing the extensive open space, parklands and forests in the Territory represents a continuing financial commitment—from the environmental, recreational, asset protection and human safety perspectives as well as in terms of suppressing bushfires, which will remain a feature of the landscape.

Conclusion

Any change to the way the ACT is funded on a continuing basis would have implications for the Territory's ability to deal with the recommendations flowing from this Inquiry—and other steps the ACT Government may wish to take. The Inquiry hopes that agreement on future funding arrangements can be reached quickly, so that the Territory's capacity to provide the funds necessary to adequately protect the national capital, and the surrounding ACT countryside, is not compromised.

Notes

1 A relativity is a numerical expression of a state's disability relative to the Australian average. It shows whether a state's funding needs will be positive or negative.

> …on Friday 17 January, I arrived into Sydney airport from New Zealand…I rented a car…I stopped at a rest stop on the Federal Highway and slept for a few hours… I saw dozens if not hundreds of kangaroos. Eventually and inevitably I hit one, damaging the car quite badly… only a few weeks ago I realised the possible significance of seeing so many 'roos to the North and East of Canberra, when fires were raging to the South and West. Should the animals' movements have given us a forewarning of what was coming?
>
> – Captains Flat resident

Large numbers of residents taking material to the dump after cleaning up around their gardens in the week following 18 January. Photo printed with permission of the *Canberra Times.*