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After-Action Reviews for Emergency Response and Preparedness –
learnings from the 2009 Victorian bushfires

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1. Introduction:

During February 2009, bushfires ravaged Victoria, Australia, causing major destruction in rural areas, bushland and townships – directly affecting 78 towns and resulting in a tremendous loss of life and infrastructure. The scale and complexity of the response to the emergency was unprecedented, with government departments and agencies, private businesses and community organisations participating in the largest coordinated emergency response and recovery operation in Victoria's history.

Over recent years the Department of Primary Industries (DPI) Victoria has responded to many emergency situations, including fire, flood, equine influenza (horse flu), locust incursions, fruit-fly outbreaks and weed incursions. DPI undertakes a key role in emergency management preparedness, response and recovery activities.

Post-emergency event evaluations, or After-action reviews, have become a standard and critical component of DPI Victoria's holistic approach to emergency management.

This paper will reflect on DPI's approach to the February 2009 bushfire review and outline the recently-developed DPI After-action review guidelines – which were developed to assist in the planning of future post-emergency response reviews.

2. DPI's role in a bushfire emergency

DPI's role during the bushfires involved three emergency management roles:
1/ as a support agency to the Victorian Department of Sustainability & Environment (DSE) for fire suppression activities;
2/ as a lead agency in rural recovery – through the provision of animal welfare services, assessment of agricultural losses and a range of technical services, assistance programs and referral activities; and
3/ as the responsible agency for managing the Victorian Government's response to energy supply emergencies.

DPI emergencies are run according to the Australasian Inter-service Incident Management System (AIIMS), which is a chain-of-command management framework with defined roles. AIIMS "*provides a single management structure that facilitates the bringing together of all resources, from one or several organisations, to work co-operatively and cohesively in resolving an incident*" (afac, online). This framework can be applied to any incident, and can be scaled up or down, depending on the level and complexity of an emergency or incident.

The complexity and scale of the bushfires placed “*greater emphasis on the need for statewide coordination, higher than usual levels of central decision-making (for rural recovery and fire suppression) and a greater requirement for inter-organisation liaison. Many corporate functions became heavily engaged in supporting the extensive rural recovery operations*” (DPI, 2009).

3. Objectives of the After-Action Review

The review was conducted internally to review DPI's response to the February 2009 bushfires by:

- describing the performance story of DPI's response to the 2009 fires;
- evaluating the effectiveness of the plans, processes, management structures, systems, and policies and strategies used in the response;
- identifying key learnings and develop recommendations to improve DPI's emergency response preparedness; and
- providing an opportunity for DPI staff directly or indirectly involved in the response to provide input into the review.

4. Scoping the review

The review included a number of emergency management phases, namely: preparedness/standby, emergency response activities, emergency recovery activities, and the transition from the emergency recovery phase to the longer-term priority response.

The scoping of the review took considerable time to negotiate with the commissioners. Initially, the review planned to focus on the processes used during DPI's response, however as the purpose of the review 'grew' to include DPI's performance, policy and strategy implications and an opportunity for feedback from all DPI staff – it was apparent to the review team that rigorous scoping was essential to manage expectations, evaluation effort and allow a mechanism for the review team to 'push back' against further requests by the commissioners. Also, by this time the Bushfire Royal Commission was established to “*investigate the causes and responses to the bushfires*” (2009 Bushfire Royal Commission, online), so DPI needed to be sensitive to the Commission's purpose and ensure we did not duplicate or 'over-step' the mark with our internal review. The review team was also aware that the Royal Commission would be made aware of our internal review objectives, and would receive updates and a copy of DPI's review report.

There was also the expectation that review findings would be reported in a timely manner to allow recommendations and improvements to be implemented in preparation for the 2009/10 bushfire season.

Reflection 1: Negotiation and commissioner agreement on the scope of the review was critically important to:

- manage expectations
- focus our evaluation efforts
- push back on further requests to expand scope
- define our scope and ensure it didn't overlap with the Bushfire Royal Commission

5. The review team

The bushfire review was run as a project, with dedicated resources internally sourced from a variety of DPI businesses. The project was managed by a DPI veterinary surgeon (vet) with previous experience conducting the 2008 review of DPI's response to the equine influenza outbreak. Team members included an emergency management coordinator (part of a group responsible for coordinating DPI input into regional and municipal emergency planning, response & recovery processes), and two evaluation practitioners with technical evaluation expertise in program evaluation and emergency response reviews. At various stages, other support staff were employed to assist with specific tasks, such as electronic data management and quantitative data analysis.

The different relationships, networks and technical expertise of each team member enabled the development and implementation of a sound and realistic review plan. In developing the recommendations, the knowledge of the emergency management coordinator from a preparedness and planning view (including the relevant DPI and Victorian Emergency Management Strategies and obligations), and the vet (from an animal health & welfare view), were essential to ensure that recommendations were feasible and likely to be adopted and implemented. Furthermore, the team members were able to discuss the findings with their respective teams as the review progressed – which emerged as a critical factor when ensuring that the findings and recommendations were implemented. What transpired during this review was that the final report wasn't really a catalyst for change – this was due largely to the use of an internal, multi-disciplinary team who actively communicated the findings during the review process.

Reflection 2: A multi-disciplinary team was beneficial for:

- conducting the review
- analysing the data
- providing different relationships and networks
- providing technical expertise in relevant disciplines
- implementing recommendations

6. The approach

The review focussed on five key data gathering methods: document review, online survey, focussed group discussions, semi-structured interviews and submissions.

While the review was interested in how the community perceived DPI's response, it was inappropriate to ask affected communities to provide feedback on our performance when they were still grappling with the after-effects of a major disaster. Given the number of agencies and community organisations assisting affected communities, it was also unlikely that any community member would delineate DPI's support from that of other agencies or groups. During the scoping of the review, the review team was very explicit regarding the limitations of data collection, and why we weren't sourcing data from affected communities – which was understood and supported by the review commissioners.

Furthermore, the establishment of the Bushfire Royal Commission supported the need for DPI to ensure its data-gathering activities did not impinge on the work being undertaken by the Commission.

However, the review team did still want to gather some 'external' views – particularly as the review team was internally based and all members had undertaken roles during the emergency. It was decided to source data from agencies or individuals that were close to the community and had been involved 'at the coal-face' while also working with DPI – such as the Victorian Farmers Federation in the coordination of fodder, and interstate vets who assisted DPI with animal welfare activities.

Reflection 3: Attentiveness to data-collection sensitivities in affected communities was a key consideration during the review.

- being explicit in review plans and reports about the limitations of data collection defined the scope of data collection activities, and ensured these limitations were understood and supported by the review commissioners
- in multi-agency responses, contribution can be difficult to qualify
- alternative or secondary data sources may provide essential data when data collection from affected communities isn't possible

Reflection 4: Review teams need to be adaptable and responsive to changes in political sensitivities.

6.1 Document review:

During any emergency, a number of documents are developed, including daily Incident Action Plans and Situation Reports, and regular memos, emails, news articles and debrief notes. Processes and procedures may also be developed before and during a response.

In DPI, documents relating to an emergency event are stored on a central computer drive accessible by all staff. A document review was conducted on over 500 documents sourced from the central drive. The documents were coded using thematic coding in NVivo – a qualitative data analysis software package. The themes were initially structured based on topical areas that have typically emerged during other DPI emergency management reviews, however these were refined as topics emerged that were particular to this review.

The review team found that a lot of learnings and insights could be gained from the situation reports and debriefing documents, particularly in relation to DPI's approach to the emergency, health & safety concerns, management structures and approaches, and (particularly in debriefing documents) what was working well, what could be improved and suggestions for improvement. The quality and capturing of debrief information was variable, and dependent on the level of importance that those responsible for debriefing placed on the capture and storage of debrief information.

During the review, the team formed the opinion that debriefing information was not utilised well during the response to make real-time changes or decisions; and that the need for extensive post-emergency consultation and data-gathering exercises could be reduced if debriefs were conducted and captured in a robust way.

Reflection 5: During emergency responses, debriefing documents can provide critical, real-time data that can be used for immediate decision making and improvements, as well as post-emergency reviews.

Robust capture of debriefings can minimise the need for large-scale data collection activities for after-action reviews.

6.2 Online Survey

An online survey was chosen as the most appropriate method to gather individual feedback on the organisational and emergency systems, processes and management; as well as the welfare and support of staff. The survey was open to all DPI staff and was the key method used by the review team to meet the commissioner's expectation that all staff would have a chance to provide feedback. A skip-logic was used to define staff roles as those deployed to DPI or DSE emergency roles, staff who were not deployed but provided specific support, as a supervisor of deployed staff, and those that were not involved – but were required to take on extra duties or maintain core business activities.

Depending on the different roles or support activities staff performed, the survey automatically guided respondents to the relevant sections to be completed. All staff had the opportunity to comment on the overall DPI response, provision of welfare and support services for staff, and provide further comment on specific concerns or topics of interest.

The fire review project team spent considerable time ensuring that the questions would gather the required information for the review, and ensuring the survey was well designed and included only essential questions. The survey was tested and refined by a number of DPI staff in various management and emergency roles before being sent out to all staff.

In order to add credibility, maximise return rates and ensure that all staff felt they'd had a chance to respond, it was negotiated with the commissioners that an email with the survey link would be sent to all staff by the DPI Emergency Management Standing Committee. However, for a variety of reasons, the link was posted on the weekly online news bulletin instead. The review team was concerned with this as it was known that not all staff read the news bulletin regularly, and felt it didn't give the survey the prominence it needed to meet the commissioner's objective of giving all staff members an opportunity to be involved in the review. Negotiation with the communications team and the commissioners continued over a few weeks and the email as originally planned was sent a few weeks later - a good outcome for the review but it impacted on already tight timelines. The survey was sent to all of DPI's 2500 staff, and completed by 624 participants (25% response rate) – with a mix of deployed, direct-support, supervisor and those that were not directly involved.

Reflection 6: Relationship management is critically important when you need to test the authorising environment.

6.3 Focussed Group Discussions

Selected DPI staff were invited to participate in group discussions or semi-structured interviews to further investigate subject areas where the review team identified that additional data was required. The selection was based on the criteria that:

1. The group or individual is known to have been involved in a particular aspect of DPI's fire response
2. The nature of the roles of members of the group or of the individual is of interest to the review
3. The selection of groups and individuals provides coverage of the different levels of management, coordination and operational aspects in preparedness, emergency response activities, emergency recovery activities and the transitional phase.
4. The person or issue is of specific interest to the review and/or of importance to the Department's reputation

Eight group discussions were held with staff from human resources, marketing and communications, information systems management, Incident Management Team leaders, liaison officers in the incident control centres and the municipal emergency control centres (local government), liaison officers in the state emergency control centres, community relationships managers and resource officers.

A facilitation guide was developed, which outlined the processes used to guide the discussions – and was refined through an iterative process. The process involved a mixture of full and break-out group work which focussed on what worked well, what didn't, opportunities for improvement and next steps. The discussions were designed to be fully participative as the participants would, in most cases, be the ones responsible for developing and implementing the action plans to address the issues identified. In many cases, the discussions led to immediate action while the review was still being conducted. This was essential in ensuring DPI had implemented improvements in preparation for the 2009/10 fire season, and was not dependent on the final review report & recommendations.

Reflection 7: The review process itself has an impact immediately, and longer-term after actioning of recommendations has occurred.

6.4 Semi-Structured Interviews

Semi-structured interviews were held with 24 DPI senior managers and external providers who were critical to DPI fulfilling its response and recovery obligations, or who possessed particular information and insights relating to DPI's response activities. In some cases, interviews were scheduled for both issues management and relationship management reasons. The interviews followed a structure, but allowed lines of enquiry to be pursued. All interviews were conducted by the review team, and either taped and transcribed, or key points noted (depending on the willingness of participants to be taped).

The steering committee required that senior managers obtain external participants' consent to be interviewed. In some cases, this took far more time than anticipated, and impacted on the review team's timelines. The review team also found that the interview was sometimes the first chance participants had had to debrief, and elicited

responses that went beyond the questioning of the review. The high level of experience and sensitivity of the interviewers were paramount in ensuring positive and appropriate interviews were conducted.

Reflection 8: In emergency management reviews, interviewers need to be prepared to allow participants to ‘debrief’ while also seeking the evaluation data.

You can’t de-couple this without damaging the integrity of the data collection process.

6.5 Submissions

The opportunity for submissions was offered to local government authorities affected by the bushfires, and to DPI offices where Incident Control Centres were established (recognising the impacts on ‘local’ staff at those offices). The submission process enabled the affected councils or DPI sites to offer their insights if they chose to do so, without any pressure.

7. Analysis

All data collected during the review was sorted using NVivo into thematic areas. The themes were initially based on topical areas that had emerged during previous emergency management reviews, but was flexible to the inclusion of emergent themes. Print-outs of the themes were supplied to review team members as a basis for discussion.

Data ‘sense-making’ occurred through several review team discussions. In effect, these discussions served to analyse the data, drew on the technical expertise of the review team, and allowed the development of recommendations that were reasonable, viable and supported by the evidence.

Due to the extended time it took for data-gathering activities, the time allowed for analysis and report writing was substantially reduced. While the review team felt it had uncovered the pertinent themes and issues, there was some concern that the level of data analysis was not as robust as desired. The tension between robust analysis and realistic analysis was questioned. The review team reflected that the experience of several DPI emergency reviews suggests that implicit analysis occurs during the data-gathering phase, and through review team discussions. The team felt that this was reasonable and sufficiently rigorous, and any findings would be able to be supported with evidence. On reflection, the use of an internal, multi-disciplinary review team was beneficial for this approach to analysis.

Reflection 9: Analysis and ‘sense-making’ of the data occurred through a number of discussions in the review team.

Data is analysed implicitly during data collection. An internal review team is beneficial for understanding findings in context, and developing appropriate recommendations.

8. Reporting

A report was prepared for the commissioners, focussing on two key aspects - DPI's emergency response activities, and the management and coordination of DPI's response. The former included energy supply and continuity, support of fire suppression, and rural relief and recovery; while the latter included DPI state-wide management and coordination, rural recovery control centre management, processes and systems, organisational culture, and the transition from the emergency to a priority response project. Sixty-one recommendations were tabled.

The report was submitted to the commissioners in October 2009, and made available to the Royal Commission. For a number of reasons, the DPI report was not released until after the Royal Commission published its findings in August 2010. To date, distribution has been limited.

Despite the report not being fully released, the recommendations have all been implemented to varying degrees, with 41 recommendations completed, 8 completed-ongoing, and 12 in progress. The internal, multi-disciplinary review team, with representatives from the work areas expected to implement changes, was essential for ensuring changes were made. In some ways, the report has become a secondary product rather than a driver for change.

Reflection 10: Meeting the need of DPI to implement changes while the review was occurring was achieved through an internal, multi-disciplinary team.

Reflection 11: Managing the political sensitivities and the associated dissemination issues was based largely on relationship management, management of expectations and ongoing advocacy and communication.

9. After-Action Review Guide

After-action reviews (AARs) first emerged in the US Military Service as a debriefing, performance and improvement tool, where intended and actual results were compared. 'Informal' after-action reviews were held directly after a training exercise with training participants through a debriefing process. Formal After-action reviews were usually held with higher-levels and focussed on a few key issues. DPI tends to refer to the informal AARs as 'debriefs', and uses the term After-action reviews for those 'formal' reviews that are more highly focussed and less-immediate. DPI's approach differs from the usual AAR approach in that DPI AARs also focus on strategy and policy, and develop recommendations.

The review team reflected on its experiences while undertaking the fire response review, and used these to develop an After-action review guide to assist future reviews.

The DPI After-action review guide suggests six key reasons why an After-action review may be undertaken:

- Support continuous improvement of emergency management practices

- Identify the need to modify or develop new policies, strategies, plans and procedures
- Evaluate application of emergency management procedures and identify training needs
- Describe key learnings to improve emergency response planning
- Describe activities and impacts of the emergency and the response
- Provide an opportunity for staff to debrief

The guide suggests that planning for an After-action review should commence early in the emergency response, coordinate with other post-emergency activities, and consider planning of AAR as part of overall emergency response plan.

It outlines key considerations such as time to negotiate scope; time to engage senior staff & external stakeholders; planning to enable clearer understanding of resources required; and identification of opportunities to collect review data during the incident in order to minimise follow-up.

It covers the key components of a review plan, beginning with a clear scoping of the review objectives. Key questions to consider are listed as:

- a/ Who authorised/commissioned the review?
- b/ Determine whether the review should be conducted using internal or external resources.
- c/ Identify which part/s of the response are under review: eg. Policy, process, systems, capacity or capability
- d/ Who will use the findings of the review?
- e/ What questions are being asked? (Key Evaluation Questions, development of recommendations, sensitivities)
- f/ To whom will the review findings be communicated?

As a minimum, the guide recommends the following areas should be outlined in the review plan:

- Introduction/Background
- Review objectives/scope
- Audience for the review
- Review project team – roles and responsibilities
- Key review areas/Key evaluation questions
- Methods
- Analysis
- Identify the resources needed
- Code of Conduct
- Review Limitations
- Review Utilisation
- Work plan

The guide also suggests a final report format, actions for decommissioning of the review, and the use of reflective practice as a means to suggest future improvements of the After-action review process.

10. Final Reflections

Emergency Management evaluation, in an intra-agency context, is very similar to program evaluation in terms of planning, implementing, reporting, disseminating and utilising findings. While emergencies are unpredictable, there are noticeable similarities between emergency responses which allow some consistency in application of review planning, scoping, key evaluation questions and approaches.

Response processes are implemented using a nationally-agreed incident management system (AIIMS), which allows a basic common framework for reviewing processes during an emergency response to be applied. Many of the insights from one emergency management evaluation will resonate in other situations.

Better integration of data gathering during emergency responses (through improved end-of-tour debriefs) will lessen the need for high participation, high cost After-action reviews. Planning for a review during the emergency response event would serve to articulate the data needs for real-time change as well as a robust data source for After-action reviews.

We do not fully utilise our evaluations to learn collectively, as many of the learnings, particularly in terms of issues regarding emergency management structures and processes, are similar throughout emergency review reports. This supports Lipsey's (2000, p208) reflection that very few of our evaluations make reference to learnings from similar evaluations. Concurrent or summative meta-evaluation and meta-analysis would be beneficial for organisational learning from emergency reviews.

Borell and Eriksson (2008) suggest that "*It is of great interest to use the full potential for learning from evaluations of emergencies*" as it will improve an organisation's ability to manage future emergencies, and strengthen individuals and the organisations capability to apply either knowledge and/or skills to future emergency responses (p325).

It has been noted that those staff associated with the teams responsible for actioning recommendations are pleased with the outcomes of the DPI bushfire review. However, staff who were not directly involved with actioning have not been informed how their input has been used, or what has occurred since. This has resulted in a small amount of cynicism and an unwillingness to be involved in future emergency reviews.

A key action to enhance the '*full potential for learning*' is to ensure that staff are able to access emergency response review reports, and receive regular communication regarding how the recommendations or findings of a review have been used to improve processes and preparedness for future emergencies. To not do so will quickly erode staff's trust that their views have been heard and acted on- particularly where the same staff are regularly deployed to a variety of emergency incidents, with the expectation that they participate in debriefs and post-review data gathering activities.

Lastly, the process of undertaking an After-action review needs to be undertaken in good faith by the commissioner's, participants and the wider community. Due to their very nature, emergencies are often unpredictable and sudden – a flawless emergency response is most unlikely. Exploration of what was done well, what

wasn't and opportunities for improvement need to be embraced as an opportunity to learn, and not abused in order to lay blame. This positive approach to emergency management reviews will be pivotal to the continuing exploration of After-action reviews within organisations.

11. References

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