A CASE STUDY COMPARING ASPECTS OF STATE LEVEL INCIDENT MANAGEMENT APPROACHES

Roshan Bhandari and Steven Curnin

Bushfire Cooperative Research Centre and the University of Tasmania

Contents

List of Tables

A Case Study Comparing Aspects of State level Incident Management Approaches

Roshan Bhakta Bhandari and Steven Curnin

State Level Emergency Management Arrangements

This section provides an overview of the types of state level arrangements typically in place during emergency events. The case examples are from the states of Victoria, New South Wales, Tasmania and Queensland.

In the event of a significant emergency (either predicted or in play), a State Emergency Management Team or Committee is formed comprising of multiple agencies for both the response and recovery phases. The fire service agencies are a member of State Emergency Management Team and take the role of the combat agency during major bushfires. State emergency management plans in different jurisdictions describe the arrangements for multi-agency coordination to support combat agency response. State arrangements also make provision for rescue, recovery and the relief of communities affected by emergency events.

The Victorian State Emergency Management Team formulates a multi-agency response strategy to manage an emergency. It provides the coordination so that agencies can develop and maintain a consistent situation awareness of the emergency events. The State Emergency Management Team also outlines a response plan and involves agencies for high level action to manage the risks and consequences. In Victoria, the Office of Fire Services Commissioner is an overarching body coordinating the fire agencies responsible for combat operations during major fire events. According to the Fire Services Commissioner Act 2010, the Fire Services Commissioner assumes the role of State Fire Controller and forms the State Emergency Management Team. This team comprises of State Level representatives from response, recovery and support agencies (shown in Table 1). The State Control Centre located in Melbourne is a hub of 8 regional and approximately 40 local incident control centres and provides an operating space and systems that supports the functions for the State Controller during major emergencies.

The Victorian Fire Services which include the DSE, CFA and MFB undertake their state level command functions during major fires.

The composition of the **State Emergency Management Team** in Victoria is illustrated in the following table:

Table 1: State Emergency Management Team in Victoria

Victoria - State Emergency Management Team, Fire Team composition	
Function	***Agency***
State Fire Control	Fire Service Commissioner – Victoria (FSC)
State emergency response coordination	Victoria Police
State emergency recovery coordination	Department of Human Services (DHS)
Emergency relief	Red Cross / DHS
Fire command	Country Fire Authority (CFA), Department of Environment and Primary Industries (DEPI), Metropolitan Fire Brigade (MFB)
Pre hospital response	Ambulance Victoria

Victoria - State Emergency Management Team, Fire Team composition	
Function	***Agency***
Media / Community Information	Emergency Management Joint Public Information Committee
Others: Victoria State Emergency Services (VICSES), Department of Transport, Department of Primary Industries, Department of Education, Bureau of Meteorology, Australian Defence Force, Emergency Services Telecommunication, Commonwealth Crisis Centre Liaison Officer, Parks Victoria, Tourism Victoria, Municipal Association Victoria.	
Legislation - Fire Services Commissioner Act 2010	

The New South Wales State Emergency Management Committee facilitates strategic state level emergency management capacity through multi-agency coordination and information sharing arrangements. It prepares and maintains a State Disaster Plan (Displan) which has arrangements for tasks to be performed by all agencies to support the combat agency during multi-agency coordination. According to the State Emergency and Rescue Management Act 1989, the committee utilizes risk management processes to develop risk reduction strategies including response, rescue, recovery and relief efforts.

In major bushfires, the New South Wales Rural Fire Service (RFS) Commissioner will assume overall control of response activities from any number of fire service agencies and is a lead agency for combat operations. The Committee also includes Fire and Rescue Services New South Wales which is a combat agency for urban fire. The NSW RFS represents the State Emergency Management Committee and the RFS Commissioner is responsible for managing and controlling the bushfire related emergency activities. According to the State Emergency and Rescue Management Act 1989, the State Emergency Operations Controller is responsible for the coordination of support to assist the lead combat agency. The State Emergency Operations Controller may provide a liaison officer to the NSW RFS State Operations Centre to ensure timely communication and coordination with other functional agencies (shown in Table 2). In severe weather conditions, the NSW RFS Commissioner can declare a section 44 under the Rural Fires Act 1997 which enables the RFS Commissioner to access any fire-fighting personnel or equipment from across the State. The State government incurs the cost in these situations.

The composition of the **State Emergency Management Team** in New South Wales is illustrated in the following table:

Table 2: State Emergency Management Committee (SEMC) in New South Wales

New South Wales - State Emergency Management Committee Team Composition	
Function	***Agency***
Chairperson	Appointed by Minister
State emergency operation controller (SEOCON)	NSW Police (current deputy police commissioner)
Emergency services	**Senior Representatives from**: NSW Police, Ambulance Service of NSW, NSW Fire and Rescue Services, NSW Rural Fire Service (RFS), NSW SES, NSW Volunteer Rescue Association
Functional Areas	**Coordinators from:** Communication Services (Department of Information Management and Technology), Environmental Services (Environmental Protection Agency), Health Services (Department of Health), Transport Service (Department of

New South Wales - State Emergency Management Committee Team Composition	
Function	***Agency***
	Transport), Engineering Services (Department of Public Works and Service), Agriculture & Animal Service (New South Wales Agriculture), Disaster Recovery and Human Services (Department of Community Services)
Advisers from: Premier's Department, The Treasury, Department of Local Government, Planning NSW	
Legislation - State Emergency and Rescue Management Act, 1989	

According to the Emergency Management Act 2006, the Commissioner of Police for Tasmania assumes the role of State Controller or Chairperson of State Emergency Management Committee in Tasmania and is supported by an executive officer who is the Director of the Tasmanian State Emergency Services. The main activities of the Tasmanian State Emergency Management Committee include coordination of emergency management activities at the State level and the development of strategies to manage emergencies that impact more than one region. The Tasmanian Fire Service (TFS) is the lead combat agency for major bushfires and is also supported by Forestry Tasmania and the Parks and Wildlife Service. The chief officer of the Tasmanian Fire Service represents the State Emergency Management Committee and is supported by other functional agencies in SEMAG (shown in Table 3) during combat operations.

The composition of the **State Emergency Management Team** in Tasmania is illustrated in the following table:

Table 3: State Emergency Management Committee in Tasmania

Tasmania - State Emergency Management Committee Team Composition	
Function	***Agency***
State Controller / Chairperson	Commissioner Tasmania Police
Executive officer	Director, Tasmanian State Emergency Services
Emergency services function provided by Security and Emergency Management Advisory Group (SEMAG) which includes deputy secretaries: Department of Infrastructure, Energy & Resources, Department of Primary Industries & Water, Department of Justice, Department of Education, Department of Environment, Parks, Heritage & Arts, Department of Treasury & Finance, Department of Health & Human Services, Department of Police & Emergency Management Chief Officer, Tasmanian Fire Service Head of Media, Government Communications Office	
Legislation - Emergency Management Act, 2006	

In Queensland, State Emergency Management arrangements are the task of the State Disaster Coordination Group (SDCG). This group acts as a working body for the State Disaster Management Group that is chaired by the Premier. The coordination of support to disaster stricken communities from the State level is managed by SDCG. According to the Disaster Management Act 2003, the Director of Disaster Operations, Counter Disaster and Rescue Services (CDRS) is the chairperson of the SDCG and is supported by the Manager, Operations CDRS as an executive officer. Queensland Fire and Rescue Service (QFRS) is the lead combat

agency in major bushfires and the QFRS Commissioner is responsible for state level operations. QFRS is a part of the Department of Emergency Service (DES) and establishes joint planning teams with Queensland Ambulance Service and Emergency Management Queensland. QFRS is also a member of State Disaster Coordination Group (SDCG) which includes other state agencies in core and support groups as shown in Table 4. The SDCG is activated when a whole-of-government focus is required.

The composition of the **State Emergency Management Team** in Queensland is illustrated in the following table:

Table 4: State Disaster Coordination Group in Queensland

Queensland - State Disaster Coordination Group (SDCG) Team Composition	
Function	***Agency***
Chairperson	Director, Disaster Operations, Counter Disaster and Rescue Services (CDRS)
Executive Officer	Manager operations, CDRS
Liaison Officers – Core Group Queensland Transport, Queensland Health, Department of Public Works, Queensland Police Service, Department of Communities, Community Safety & Sustainability Support, CDRS	
Liaison Officers – Support Group Department of Emergency Services which includes CDRS, Queensland Fire and Rescue Service, Queensland Ambulance Service, Department of Primary Industries & Fisheries, Queensland Transport, Department of Natural Resources and Mines, Bureau of Meteorology, Australian Defence Force	
Legislation - Disaster Management Act 2003	

Analysis

In terms of State Level Emergency Management arrangements, the tables illustrate the similarities and differences in the approaches taken to managing emergency events above the IMT level in the aforementioned jurisdictions. Some of the key findings are:

1. In general, the State Emergency Management Team or Committee comprises of emergency service agencies and functional agencies related to public services.
2. In some jurisdictions the role of the Chair of the State Emergency Management Committee is assumed by personnel from the lead combat agency, and in others it is assumed from different agencies, such as the Police Commissioner in Tasmania, the Director CDRS in Queensland.
3. Tasmania and Queensland operate with a single fire service agency that addresses both urban and rural fire unlike in Victoria and New South Wales.
4. In complex fire events, RFS Act 1997 makes a legal provision for the NSW RFS Commissioner to draw resources across the State without incurring any cost to the NSW RFS. It does not appear to be the case in other jurisdictions.

State Level Emergency Operations Centre (EOC)

The State Level EOCs for major fires are under the responsibility of State Controllers, or Chief Officers at State Operation Centres in the different jurisdictions. The major roles of personnel and functional arrangements inside the State level EOCs in Victoria, New South Wales, Tasmania and Queensland are illustrated in Table 5:

Table 5: Major Roles and Functional Arrangements inside State level EOCs

	Control	Planning	Operations	Logistics	Public Information
Victoria	State Controller (Fire Services Commissioner) supported by the State Control Centre Manager	State duty officer for planning	State duty officer for operations	State duty officer for logistics	Community information and warnings advisor
New South Wales	Commissioner, New South Wales Rural Fire Service	Strategic Overview Officer 4 Regional Situation Officers	NSW Rural Fire Service state operations controller 4 Major incident coordinators	4 Regional resource officers	Public warning officer
Tasmania	State Fire Controller (Chief Officer in the State Operations Centre, TFS)	State Planning Officer	State Operations Officer	State Logistics Officer	Director of Community Fire Safety
Queensland	Queensland Fire & Rescue Service (QFRS) State Operations Centre Coordinator	Planning Officer	Operations Officer	Logistics Officer	Director, Department of Community Safety

Additional Functions

Victoria	Dedicated space for a representative from MFB, CFA, DSE, Vic SES, Vic Police, Bureau of Meteorology, Aviation section and finance.
New South Wales	Space for representatives from Fire and Rescue NSW, NSW Police, NSW SES, Aviation, Intelligence support, GIS, Meteorology and Finance.
Tasmania	Space for representative from the Multi-agency Coordination Group (Tasmanian Parks and Wildlife Service, Forestry Tasmania) and finance.
Queensland	Air operations, Meteorology and finance.

The **State level EOCs** have various configurations to accommodate internal and external stakeholders within the centre (see Table 6).

Victoria has a rectangular room (see Figure 1) with main seating space arranged according to the AIIMS functions. These include: Control, Planning, Operations, Intelligence, Logistics and Public Information. The State Control Centre (SCC) Manager is responsible for overall management of the functions and reports to the State Controller. State Duty Officers related to planning, operations and logistics (see Table 5) liaise with multiple agencies involved in emergency management and provide a situation report to the SCC Manager. The Community Information and Warning Advisor are responsible for matters pertaining to public information.

The representatives from the numerous agencies involved in State level operations are allocated seating areas and meeting rooms within the SCC.

Figure 1: State Control Centre, Victoria
(Photo courtesy: FSC, Victoria)

NSW – The Rural Fire Service State Operations Centre has a concentric seating arrangement (Figure 2). It has personnel from both the State and the Regional levels seated in a circular design. The innermost circle has areas for the State Operations Controller managing state operations for the RFS Commissioner, the Strategic Overview Officer (who provides a situational picture to the State Operations Controller) and the Public Warning Officer. In the middle circle are the 4 Major Incident Coordinators (MIC) for the east, west, north and south regions. Within this section are the 4 Regional Situation Officers and 4 Regional Resource Officers. The Regional Situation Officers provide support for planning and operations and the Regional Resource Officers provide logistical support. Other agencies working in coordination roles within the State Operations Centre are located in the outermost circle.

Figure 2: State Operations Centre, NSW Rural Fire Service
(Photo Courtesy: NSW RFS)

The State Fire Operation Centre in the **Tasmanian Fire Service** has personnel with roles for control, planning, operations and logistics. It is situated around a large table with which has seating areas allocated for representatives from the Multi-Agency Coordination Group (Figure 3).

Figure 3: State Fire Operations Centre, Tasmanian Fire Service
(Photo Courtesy: Steven Curnin)

Queensland Fire and Rescue Services State Operations Centre (Figure 4) have space allocated for functional roles in control, planning, operations and logistics. It is located adjacent to the State Disaster Coordination Centre and receives support from the State Disaster Coordination Group in major bushfires.

Figure 4: Queensland Fire and Rescue Services, State Operations Centre
(Photo Courtesy: AJEM, 2012)

Management of External Stakeholder Relationships

State Level EOCs manage their relationships with external stakeholders who assist in large scale fire events. These stakeholders include the community and external agencies that may be involved in the event. The following matrix (see Table 6) gives a brief overview of the location of external stakeholders in the State Operation Centres in Victoria, New South Wales, Tasmania and Queensland.

Table 6: Location of External Stakeholders in the State level EOCs

	Combat Support Agency	Land Management Agency	Police	Ambulance	Critical Infrastructure	Others
Victoria State Control Centre	MFB – IN (P) CFA – IN (P) SES – IN (P)	DSE – IN (P) Parks – IN (RQ)	IN (P)	IN (P)	Health – IN (P) Water – IN (RQ) Communications [ESTA] – IN (P) [Telstra] – OUT (R) Transport – IN (RQ) Energy – IN (RQ)	ADF – IN (RQ) Red Cross – IN (RQ) St John – IN (RQ) BOM – IN (P)
Queensland QFRS State Operations Centre	QFRS – in (P)	Located in QLD State Disaster Coordination Centre (SDCC)	Located in SDCC (P)	IN (RQ)	All located in SDCC as follows: Health – IN (P) Water – IN (P) Communications – IN (P) Transport – IN (P) Energy – IN (P)	Located in SDCC as follows: ADF – ADJ (RQ) Red Cross – ADJ (RQ)
New South Wales RFS State Operations Centre	RFS – IN (P) FR – IN (P) SES – IN (P)	DAFF – IN (P) NPWS - IN (P)	IN (P)	IN (P)		ADF – IN (P) St John – IN (P) Department of Community Services – IN (P) BOM – IN (P)
Tasmania TFS State Fire Operation Centre	TFS – IN (P)	Parks – IN (P) Forestry – IN (P)	IN (RQ)	IN (ADJ or R)	Health – IN (ADJ) Water – IN (ADJ) Transport – IN (ADJ) Energy – IN (ADJ)	BOM – IN (ADJ)

NOTES:
P = Permanently located in main room of the EOC. Agency has a permanent location in the main room of the EOC.
RQ = Located in main room of the EOC as requested. Agency has a temporary location in the main room of the EOC.
ADJ = Located in an adjacent room within the EOC complex. Agency is not physically in the main room but can easily walk to the main room as required.
R = Remotely located in an alternate facility that is not part of EOC complex. Agency can be contacted via standard telecommunication portals.

In order to conduct a multi-agency response to a large scale emergency event, external stakeholders may be requested by the lead agency to provide physical representation at the EOC. The physical location of stakeholders in the EOCs differs depending on the jurisdiction. Some stakeholders may have a permanent location allocated in the main area of the EOC or may be located in an adjacent room but within the EOC complex. Alternatively, stakeholders may be located in a remote location outside of the EOC accessible by multiple forms of communication. Each EOC differs in its approach regarding the location of external stakeholders. One of the biggest constraints regarding the location of within the EOC is the physical limitations regarding the size of the room. This is undoubtedly a challenge for all state level EOCs.

Information Systems

Stakeholders operating in an EOC need timely information and knowledge about the emergency situation. This requires an information system that can efficiently and effectively support a myriad of complex data, information and knowledge processes. Information Systems consist of information technology and human resources to ensure the succinct flow of information within the State level EOC. This section will investigate the Information Systems used in the various state level EOCs in the previously identified 4 jurisdictions. It will identify the Information Technology platforms that enable the representatives of the EOC to fulfil their tasks of internal management, resource management, external management and the issuing of community warnings.

Table 7: Information Systems for Incident Management in different jurisdictions

	Internal Management Systems	Resource Management Systems	External Management Systems	Community Warning Systems
Victoria State Control Centre	Emergency Management "R" Drive Fireweb eMap EM webmail Incident Management System (IMS)	Incident Resource Information System (IRIS) [DSE] *NB: Both systems are available to other agencies via a link on the Fireweb system*	Whole of Government (WoVG) Reporting	One Source One Message (OSOM) Emergency Alert (EA)
Queensland State Operations Centre	DCS software system eIAP. eMap SCAD	DCS software system	DCS software system	EA
New South Wales RFS State Operations Centre	ICON	ICON	ICON	Web based warning EA
Tasmania TFS State Fire Operations Centre	Fire Incident Response Management (FIRM)System	FIRM	FIRM	Web based warning dissemination system that is linked to the media group EA

Brief explanation of the Information Platforms

Emergency Management "R" Drive is a shared network drive available state wide to CFA, DSE, SES and MFB. It is used for all operational documents including preparedness, activation, escalation or deactivation.

Fireweb is the Victorian DSE's primary source of fire management information. The Fireweb website has a wealth of information grouped under topics such as; Weather, Restrictions, Fires and Aircraft, Burns and Works.

eMap is a multi-agency interactive incident map that contains incident feeds from DSE, CFA, MFB and SES in Victoria. eMap contains a 'State Overview' theme which is designed to show current incident activity. It is also used by Queensland SDCC.

EM webmail is an internal email system that can be used by personnel from CFA, DSE, MFB, SES and where activated, associated Liaison Officers from other agencies in SCC Victoria.

IMS (incident management system) is an incident management tool used by agencies in Victoria such as CFA and VIC SES. IMS provides information for significant incidents and trends relating to information entered by Emergency Services Telecommunications Authority (ESTA).

IRIS (Incident Resource Information System) provides real time information of people and vehicles tracked to a particular incident. It is primarily used by DSE Victoria but other agencies in the DSE network can view this information which can be accessed through Fireweb.

WoVG (Whole of Government Reporting) provides senior government officials with a coordinated and concise report prepared by the SCC Victoria duty manager to inform them of the State's issues and how they are being dealt with.

OSOM (one source one message) is a community web based messaging system and used by CFA, DSE, SES and MFB in Victoria.

EA (Emergency Alert) is a telephone warning system used to send alerts to communities via landline telephones based on the location of the handset, and to mobile phones, based on the service address of the phone.

ICON (Incident Controller – online computer based incident management application system) is a multi-agency system used in State Operation Centre NSW RFS which incorporates incident action plans, incident warning levels and summary of resources attached to a particular bush fire incident. With relevant training, all stakeholders can access and enter data into the system.

eIAP (Incident Action Plan) is an incident planning and resource management application system used by incident commanders and managers of Queensland Fire and Rescue Services.

FIRM (Fire Incident Response Management) is a CAD operated system used by Tasmanian State Fire Operations Centre to manage incident response. It incorporates Firemap which uses mapping to identify potential location of incidents.

DCS (Department of Community Safety) **software system** is the Queensland Department of Community safety (DCS) software system that allows internal and external stakeholders to use a common Event Portal and email system for communication and provides a common platform for situation reporting pertaining to the event.

The SCC in Victoria uses a generic email system that all agencies can utilise if requested to work in the EOC. There is also a common IT platform shared between CFA and DSE known as FireWEB. The NSW RFS State Operation Centre has established the common operating IT platform named ICON. Agency representatives need to attend a course on the ICON operation system so that they can input and view information on the system at the State Operation Centre. This is a great resource for sharing knowledge from an inter-agency perspective. In Queensland the ability to share information simultaneously on screens in different operations centres is advantageous for any agency that wishes to gain a quick situational awareness of the event. Tasmania does not currently have an interoperable IT platform but a project is currently established that is investigating the feasibility of adopting a system such as WebEOC primarily for emergency services agencies with a view that it could be used by external stakeholders when required.

There are significant improvements in the Information Systems being used for emergency management in different jurisdictions. Such innovative IT systems should be taken as an opportunity to overcome the new challenges involved in achieving effective multi-agency emergency management coordination. One of the

biggest challenges with Information Systems in the emergency management domain is the lack of compatibility with IT systems between agencies. There is a lack of interoperability for a platform that can adequately track resources. Currently, different IT systems are used to track individual agency resources. There does not appear to be a multi-agency accessible common IT system between agencies for resource tracking. Nevertheless, Victoria does have a common IT system available between CFA and DSE that has the capability of offering resource requests between these agencies.

For community warnings, agencies may use their individual web based warning systems in different jurisdictions. The challenge associated with this is that if information provided by agencies may be contradictory and this can result in confusing messages in complex emergency events. A good practice in this regard is the common community information platform named OSOM (one source one message). CFA, DSE, MFB and VICSES can feed information which is verified for consistency by the SCC prior to releasing the information on the web sites for public use.

The challenges associated with operating multiple IT systems in an incident include the inability to access pertinent information and subsequent reliance on other information portals such as briefings. This could potentially lead to information insufficiency as agencies might not be able to access information in a timely fashion. However, the adoption of a compatible IT platform, accessible to multiple agencies can also present challenges. If a generic IT system is only used in the management of complex emergency events then the users may not be familiar with the system and its use. This may lead to multiple challenges during an incident when the temporality of the situation and subsequent flow of information is paramount. In these circumstances there is a need for all agencies to familiarise these systems in training and exercising, but more importantly, to use these systems in every day operations thus allowing familiarity with the system. IT platforms that are compatible in multi-agency environments are currently been used with some agencies in Western Australia. In the Northern Territory the majority of the emergency services and external stakeholders utilise an interoperable IT system called WebEOC.

Conclusion

This report has provided a brief synopsis of the various state level incident management approaches in Victoria, New South Wales, Tasmania and Queensland. The report has provided an overview of the similarities and differences of the state level emergency management arrangements in these jurisdictions and in particular has focused upon the variations of the four state level EOC's. The case study has identified that there are multiple differing configurations for state level EOC's and the actual physical size of the EOC can have its limitations, specifically regarding the location of external stakeholders within the centre. It is evident that there are a multiple and diverse selection of information systems available across all four EOC's. Not one of the EOC's in this report has a single and interoperable IT system that all agencies involved within the EOC can access for all their information sharing requirements. However, the interoperability of some specific IT systems is evident in all of the EOC's in this report. Understanding the variances in state level emergency management arrangements is important. As the complexity and ferocity of bushfires increases so will the requirements for a response involving multiple-jurisdictions and with the implications of requiring the deployment of interstate liaison teams. This illustrates the challenges that these personnel will face when operating at a state level that ultimately requires a different understanding beyond their own state emergency management arrangements. This knowledge will be critical and indispensable when operating in these complex and dynamic environments.