

Emergency Management

Core Body of Knowledge for the Generalist OHS Professional

Second Edition, 2019

36



AIHS

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Consultative Focus Group
Perth
Western Australia

Peter Nissen, Special Inspector of Mines,
Rowley Fletcher, Special Inspector Mines
Department of Mines, Industry, Regulation and Safety,
Western Australia

Bibliography

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Author

Neville Betts, Consultant in OHS and emergency management

Peer reviewer

John Salter, Director Emergency Preparedness Capacity Builders

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Author

Andrew Stanbury, Special Inspector of Mines, Department of Mines, Industry Regulation and Safety, Western Australia

Peer reviewers

Helen Keen Dyer, Senior Lecturer and Discipline Lead, Emergency & Disaster Management, Department of Transport, Emergency and Safety Sciences, CQ University

James Heffernan, Senior Security, Emergency and Continuity Manager, Origin Energy

Danny Spadaccini, EHS Director – Alumina, Alcoa

Leanne Treadwell, Lecturer, University of Wollongong

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Emergency Management

Andrew Stanbury DipWHS, DipPubSafety(Emerg Manag)

andrew-stanbury@outlook.com

Special Inspector of Mines, Department of Mines, Industry Regulation and Safety, Western Australia

Andrew is a health, safety and emergency management professional with more than 25 years' experience across many industry sectors in Australia. Early in his career, Andrew was employed by the State Emergency Service in Western Australia and, more recently, has provided emergency management consulting services to a range of Australian and global resource organisations, and organised crisis and emergency management exercises both locally and overseas. He has worked with regulators to develop national standards and codes of practice as a result of incidents and investigations to drive continual improvement in OHS and emergency management. Currently, Andrew works for the Western Australian Department of Mines, Industry Regulation and Safety as a Special Inspector of Mines and Emergency Management SME

Peer reviewers

Helen Keen Dyer

Senior Lecturer and Discipline Lead, Emergency & Disaster Management,
Department of Transport, Emergency and Safety Sciences, CQ University

James Heffernan MCom, DipTeach, AdvDip Public Safety (EM), Dip Security and RM, MBCI
Senior Security, Emergency and Continuity Manager, Origin Energy

Danny Spadaccini CFSIA

EHS Director – Alumina, Alcoa

Leanne Treadwell, BE (Chem)(Hons)
Lecturer, University of Wollongong

Core Body of Knowledge for the Generalist OHS Professional

Emergency Management

Abstract

All organisations are vulnerable to emergencies and, consequently, must plan for them as part of their health and safety framework and systems. While expert advice may be required, the generalist Occupational Health and Safety (OHS) professional has a pivotal role in facilitating and managing an organisation's emergency management, preparedness and response capability. Australian Emergency Management arrangements are based on partnerships across governments, emergency response services, businesses, industry and the community with the approach being both comprehensive and integrated. This chapter facilitates such a broad approach by introducing the OHS professional to the principles and concepts underpinning two commonly used emergency management frameworks, the Australasian Inter-service Incident Management System (AIIMS) and the US National Incident Management System (NIMS). It should also be recognised that while these are the primary systems used by both industry and hazard management agencies in Australia, there are any number of hybrid systems and systems developed by industry for specific applications. The chapter examines the four components of an emergency management system: understanding threats; planning; response and recovery and their underpinning elements of an all hazards approach, risk assessment, vulnerability, competency, interoperability, flexibility; minimising impacts, management by objectives and incident action planning. The chapter concludes with a role statement for OHS professionals in emergency management.

Keywords

emergency, planning, threat, preparedness, response, recovery, mitigation

Contextual reading

Readers should refer to 1 *Preliminaries* for a full list of chapters and authors and a synopsis of the OHS Body of Knowledge. Chapter 2, *Introduction* describes the background and development process while Chapter 3, *The OHS Professional* provides a context by describing the role and professional environment.

Terminology

Depending on the jurisdiction and the organisation, Australian terminology refers to 'Occupational Health and Safety' (OHS), 'Occupational Safety and Health (OSH) or 'Work Health and Safety' (WHS). In line with international practice this publication uses OHS with the exception of specific reference to the Work Health and Safety (WHS) Act and related legislation.

Jurisdictional application

This chapter includes a short section referring to the Australian model work health and safety legislation. This is in line with the Australian national application of the *OHS Body of Knowledge*. Readers working in other legal jurisdictions should consider these references as examples and refer to the relevant legislation in their jurisdiction of operations examples and refer to the relevant legislation in their jurisdiction of operation.

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1 Introduction

Organisations across all industries are vulnerable to the potential impacts of emergencies. Ranging from serious ‘first-aid’ incidents to events resulting in death, property damage and business interruption, emergencies can have an impact far beyond the organisation where they originated and span significant periods of time. A defining characteristic of emergencies is that they are outside the scope of day-to-day ‘business as usual’ occupational health and safety (OHS) processes.

The possibility of emergencies occurring increases as industrial processes become more complex, as infrastructure ages, as new products and processes are introduced, and as political and social events causing major community disruption become more frequent. While emergency incidents are usually related to the scale and nature of an organisation’s activities, they can result from internal operations or from external sources over which the organisation has little or no control, including naturally occurring events. Emergencies can require diversion of OHS resources, thus, compromising their effectiveness in reducing risk in the ongoing day-to-day activities of an organisation.

Employers have a legal, ethical and moral obligation to prepare for emergencies. Generalist OHS professionals have a vital role in facilitating and supporting the planning and execution of such preparedness. This role is summarised in the Global OHS Capability Framework as “Develop, evaluate and manage emergency and disaster preparedness” (INSHPO, 2017, p. 25). This facilitation requires OHS professionals to gain senior management commitment to planning and preparation for emergencies, including the development of systems and structures and the allocation of resources. They also have to ensure that identification and assessment of hazards and vulnerabilities that may lead to, or impact, emergencies are considered in routine activities as well as in the planning and implementation of new initiatives.

While acknowledging that emergency management is a specialist area that requires collaboration with expertise beyond generalist OHS competencies, the chapter focuses on the role of the generalist OHS professional in preparing for and managing emergency incidents. It explores the knowledge required by generalist OHS professionals to assist organisations in identifying the type and magnitude of emergencies they may face, and to develop an emergency plan, structure and processes for responding to such situations. Australian standards for emergency planning have been developed for facilities including workplaces (SA, 2010a) and healthcare facilities (SA, 2010b). This chapter takes a more strategic approach by emphasising the importance of interoperability and a shared understanding between the organisation and the responding emergency service(s) that encompasses prioritised objectives, strategies and tactics for managing an emergency.

While most important for larger, more complex, sites, this strategic approach to emergency management can be applied to all workplaces.

It is acknowledged that organisations across different industries in Australia use a range of systems, processes and frameworks to manage emergencies. The most commonly used systems are:

- The Australasian Inter-service Incident Management System (AIIMS) (AFAC, 2017a)
- The Incident Command System (ICS) developed under the US-based National Incident Management System (NIMS) (FEMA, 2019).

While drawing on the commonalities of these systems and embracing key elements, this chapter is not specifically aligned to any particular emergency management system.

The chapter begins by clarifying some terminology, providing a brief historical review of the Australian approach to emergency management, and summarising relevant Australian legislation and the policy context. This is followed by a discussion of key components of an emergency management system – understanding threats, planning, response and recovery and the underpinning principles. Finally, implications for OHS practice are considered.

1.1 Definitions

Confusion can arise from the various definitions and uses of the terms ‘disaster’ and ‘emergency.’ The Australian Institute for Disaster Resilience (AIDR, 2019) Knowledge Hub glossary lists three different definitions of **disaster**, including its own:

A serious disruption to community life which threatens or causes death or injury in that community and/or damage to property which is beyond the day-to-day capacity of the prescribed statutory authorities and which requires special mobilisation and organisation of resources other than those normally available to those authorities.

Also, the AIDR glossary lists three definitions of emergency, including one that presents ‘emergency’ as interchangeable with ‘disaster.’ This chapter adopts the AIDR (2019) definition of **emergency** as:

An event, actual or imminent, which endangers or threatens to endanger life, property or the environment, and which requires a significant and coordinated response.

Disaster terminology is most commonly used to refer to events impacting at the community level while emergency is more commonly used in industry. Thus, this chapter refers to

emergencies within the scope of the AIDR definition. The following additional definitions are relevant to the content of this chapter.¹

All-hazards approach – A planning approach that considers all possible hazards or threats. This does not mean that all hazards are planned for, which is an impossibility but rather that all hazards are considered as part of the risk assessment and a risk-based approach is used to prioritise planning to optimise resources. (Canton, 2013).

Emergency – “An event, actual or imminent, which endangers or threatens to endanger life, property or the environment, and which requires a significant and coordinated response”. (AIDR, 2019).

Emergency management – “A range of measures to manage risks to [people, organisations,] communities and the environment [including] the organisation and management of resources for dealing with all aspects of emergencies” (AIDR, 2019).

Emergency response – “Measures taken in anticipation of, during and immediately after an emergency to ensure its effects are minimised” (AIDR, 2019).

Incident Action Plan (IAP) – “The plan used to describe the incident objectives, strategies, resources and other information relevant to the control of an incident.” (AIIMS, 2017 in AIDR, 2019)

Incident management – “Those processes, decisions and actions taken to resolve an emergency incident and support recovery that will enable the [organisation and the] community to return to normality” (AIIMS as cited in AIDR, 2019).

Incident management team (IMT) – A group of competent personnel charged with responding to and managing an emergency event within a defined scope; generally comprises an incident controller or commander, and staff with specific areas of responsibility such as operations, planning, logistics and other key areas defined by the organisation’s emergency management structure (e.g. AIIMS as cited in AIDR, 2019).

Interoperability – “The ability of systems, personnel, and equipment to provide and receive functionality, data, information and/or services to and from other systems, personnel, and equipment, between both public and private agencies, departments, and other organizations, in a manner enabling them to operate effectively together” (FEMA, 2017a, p. 65).

Recovery – The function of restoring organisations and communities, assets or anything adversely affected by an emergency event to their former or better state. (e.g. UNISDR, 2017).

¹ Some of these definitions are reproduced from existing sources, and some have been adapted for the purposes of this chapter. AIDR (2019) includes an extensive glossary of terms used in emergency management and is a useful resource.

Resilience – The quality or ability of an organisation, community or individual through planning and preparation to resist the negative impacts of an emergency event and to recover from an unplanned emergency event (e.g. UNISDR, 2017).

Vulnerability – The conditions determined by physical, social, economic and environmental factors or processes which increase the susceptibility of an individual, [an organisation], a community, assets or systems to the impacts of hazards (UNISDR in AIDR, 2019).

2 Historical perspective

According to Smith (2006), “In the early 1900s, the Australian approach to disasters was focused on response, with the most visible ‘disaster management’ agency being the Red Cross. The Red Cross led the way in developing a focus on disaster ‘preparedness’ in addition to response (Smith, 2006). Following World War II, with the protection of Australian shores being a priority, the Australian government established the Australian Civil Defense School at Mount Macedon which later became the Australian Emergency Management Institute with a broad remit of disaster preparedness and management capability (Attorney-General’s Department, 2015). Subsequently, most state and territory governments addressed the need for communities to prepare for disasters, both natural and otherwise, by establishing Civil Defence Organisations and state disaster plans. For example, the Victorian State Disaster Response Plan, later known as DISPLAN, was developed following bushfires in 1962 with the objective of improving emergency agency coordination. Initially these organisations and disaster plans had no legislative backing, but gradually the various states and territories promulgated disaster management legislation. In Victoria, for example, the disaster management arrangements were contained within the *Emergency Management Act 1986* (EMV, 2018).

However, during this period of the latter half of the 20th century there was little evidence of planning to meet potential emergency situations in industry or in specific organisations. One notable exception was the aviation industry’s requirement for the preparation of emergency procedures for all approved airports and flying bases. Generally, these procedures followed the military model developed during World War II, and involved coordination of response preparation with local hospitals, fire services and police should a runway incident occur.

A comprehensive approach to emergency management encompassing prevention, preparedness, response and recovery (PPRR) was introduced in the USA in 1978, and subsequently imported into the Australian emergency management framework (Cronstedt, 2002). (Figure 1.) From the late 1990s through the 2000s, the Australian Government promoted this model, which is still embedded in some areas of emergency management practice. However, a developing focus on community involvement and a risk-management

approach to emergency management saw a shift away from PPRR as a guiding principle (Cronstedt, 2002). Limitations of PPRR were identified by Cronstedt (2002):

- PPRR set up artificial barriers between the four elements implying a clear delineation between them with discussion about categorising actions tending to distract from the objective of effective emergency planning
- The four elements present as equally important in all circumstances whereas a risk management approach may indicate that certain actions (and categories of action) may be more justifiable than others
- The four elements are often presented as a linear process which implies that emergency planning comprises consideration and implementation of these elements in the same order all the time.

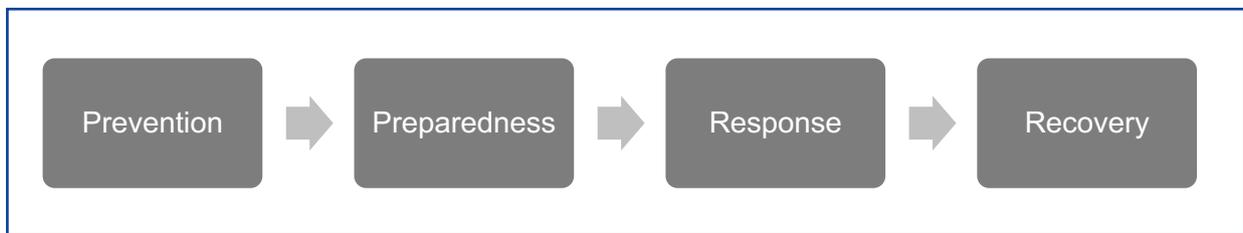


Figure 1. PPRR as a linear process (Cronstedt, 2002)

While the PPRR approach is used less as an overarching framework in Australian contemporary emergency and disaster management, the individual elements are still relevant and are discussed in section 6.

Australia's approach to a coordinated emergency response has its origins in California, where in 1970, a series of 773 fires resulted in the death of 16 people, many injuries and destruction of 700 structures (FEMA, 2004; Rowley, 2007). Numerous studies found that these catastrophic outcomes were largely attributable to management issues such as poor communication, and lack of coordination and interoperability (FEMA, 2004). As a consequence, the Incident Command System (ICS) was developed and progressively implemented in California. In 1980, the ICS became part of the then National Inter-agency Incident Management System (NIIMS) and, in response to lessons learned following the September 11 terrorist attacks, became a cornerstone of the National Incident Management System (NIMS) (EMSI, 2018). Implemented from the 1990s, the Australian Inter-service Incident Management System (AIIMS), was developed by Australian emergency services as a derivative of NIMS. The core principles and concepts of AIIMS and NIMS are summarised in section 4.

3 Legislation and standards

The national model *Work Health and Safety Act* (WHS Act; WHSA, 2016) requires a person conducting a business or undertaking (PCBU):

- (a) to eliminate risks to health and safety, so far as is reasonably practicable; and
- (b) if it is not reasonably practicable to eliminate risks to health and safety, to minimise those risks so far as is reasonably practicable (WHS Act s.17).

Emergency preparedness may be considered part of such risk-minimisation strategies. In addition to this general duty, the *Model Work Health and Safety Regulations* (WHSR; WHSA, 2019) specify the requirement to prepare, test, maintain and implement emergency plans (WHSR s. 43). In developing emergency plans, the organisation or PCBU is required to consider:

- (a) the nature of the work being carried out at the workplace;
- (b) the nature of the hazards at the workplace;
- (c) the size, location and nature of the workplace;
- (d) the number and composition of the workers at the workplace (WHSR s. 43)

In addition to knowledge of the requirement for emergency planning under the Act, OHS professionals involved in emergency management should be cognisant of the relevant state disaster management legislation and arrangements, and a range of other legislative instruments.

Australian and international standards are a valuable source of practical advice on emergency preparedness and emergency management within organisations. The key standards for emergency management and related processes are:

AS 3745–2010 Planning for emergencies in facilities (SA, 2010a)

AS 4083–2010 Planning for emergencies – Health care facilities (SA, 2010b)

AS/NZS 5050:2010 Business continuity – Managing business disruption-related risk (SA/SNZ, 2010c)

ISO 22301:2017, Societal security – Business continuity management systems – Requirements (ISO, 2017).

In applying the principles of these standards to the establishment of an Emergency Planning Committee (EPC) or the Emergency Control Organisation (ECO), and in developing an emergency plan, OHS professionals should ensure that the key components detailed in section 6 are addressed.

4 The Australian context

4.1 Key agencies

Australia has a proactive emergency management sector. While various organisations and tiers of government are involved in emergency management, the three major Australian emergency management policy agencies are:

Emergency Management Australia (EMA) is the Australian Government's lead agency for disaster and emergency management. A division of the Department of Home Affairs, EMA is responsible for preparing for emergencies and disasters through the development and maintenance of national plans, and coordinating the Australian Government crisis response and recovery efforts (Department of Home Affairs, 2018).

Australasian Fire and Emergency Service Authorities Council (AFAC) "is the Australian and New Zealand National Council for fire, emergency services and land management, creating synergies across the emergency management sector" (AFAC, 2017b).

Australian Institute for Disaster Resilience (AIDR), established by the Australian Government in 2015,

...develops, maintains and shares knowledge and learning to support a disaster resilient Australia. Building on extensive knowledge and experience in Australia and internationally, [AIDR] work[s] with government, communities, NGOs, not-for-profits, research organisations, education partners and the private sector to enhance disaster resilience...AIDR is supported by its partners: the Australian Government Department of Home Affairs, AFAC, the Australian Red Cross and the Bushfire & Natural Hazards Cooperative Research Centre" (AIDR, n.d.).

AIDR is the custodian of the Australian Disaster Resilience Handbook Collection, which has informed the development of this chapter.

4.2 Incident management systems

As noted in section 2, management of emergencies in Australia is influenced by both the Australasian Inter-service Incident Management System (AIIMS) and National Incident Management System (NIMS) which originated in the USA.

While AIIMS and ICS are both used in Australian industry, ICS predominantly by international organisations and AIIMS by response agencies and Australian based organisations, there are numerous emergency management systems and frameworks that are a hybrid of the two used in Australia. There are also countless bespoke systems, often

based on the “business as usual” organisational structures used by industry. While the preference would be to have a single National emergency management framework and common systems used by all, the most important principle to ensure is maintained is that of interoperability. This concept is discussed further in section 6.2.3

NIMS is managed by the US Federal Emergency Management Agency (FEMA) under the auspices of the US Department of Homeland Security while AFAC is the custodian of AIIMS).

Both systems cite their scope of application as being across “the full range of incidents, from small and brief responses to large, complex and protracted incidents impacting at organisational jurisdictional or national level (AFAC, 2017a; p. 2); with NIMS citing government, nongovernmental organisations (NGOs) and the private sector (FEMA, 2017a).

While the expression, and the operational detail of implementation may vary, comparison of the guiding principles for NIMS and AIIMS demonstrates their similarity in conceptual basis. (Tables 1 and 2.) These principles are integrated into the discussion of key components of an emergency management system in section 5.

Table 1: Guiding principles for the National Incident Management System (NIMS) (FEMA, 2017a)

| Guiding Principle | | Major component |
|-------------------|--|--|
| Flexibility | <ul style="list-style-type: none"> • Adaptable to any situation from routine events to those requiring Federal assistance • Scalable and so applicable to incidents varying in size, hazards, geography, demographics, climate cultural and organisational authorities | <ul style="list-style-type: none"> • Resource management • Command and coordination • Communications and Information Management |
| Standardisation | <ul style="list-style-type: none"> • Supports interoperability across multiple organisations • Organisational structures • Practices • Common terminology | |
| Unity of effort | <ul style="list-style-type: none"> • Coordination of activities to achieve common objectives • Enables cross agency support while maintaining jurisdictional authority | |

Table 2: Summary of core principles and concepts of AIIMS (AFAC, 2017b)

| All hazards / All agencies | | | | | |
|------------------------------------|--|---|---|--|---|
| Principles | | Underpinning concepts | | | |
| | | Uniform terminology ² | Adaptability & scalability | Common operating picture | Management structure |
| 1. Flexibility | Adaptable to an all-hazards, all-agency environment; able to respond to changes that occur during the escalation and resolution of an incident | Supports effective communication between agencies and between members of the incident management team (IMT) | Size and structure of the IMT reflects the size and complexity of the incident and stage of response and recovery | | |
| 2. Management by objectives | A process of management where the Incident Controller, consulting as appropriate with the IMT and supporting agencies, determines the desired outcomes of the incident | Supports effective communication between agencies, and between IMT members | | Based on information gathered from a range of sources to enable a shared understanding and so avoid confusion and inconsistent decision-making | |
| 3. Functional management | The process of structuring an organisation's emergency response into sections or units based on the type of work to be performed; AIIMS identifies a number of critical functions that must be undertaken to effectively manage an emergency | Planning Operations Logistics Safety Intelligence Public - information Investigation Finance | Composition of the IMT reflects size and complexity of the incident and stage of response and recovery | A common understanding of scope and purpose ensures tasks are not omitted or overlapping | Clearly defined: <ul style="list-style-type: none"> . management structure . roles and responsibilities . reporting relationships and information flow . adaptability and scalability |
| 4. Span of control | Relates to the number of groups or | | Depends on factors such as: | | Defines the management structure |

² The AIDR (2019) Knowledge Hub Glossary is useful in ensuring a common terminology.

| All hazards / All agencies | | | | | |
|----------------------------|---|---|---|--------------------------|--|
| Principles | | Underpinning concepts | | | |
| | | Uniform terminology ² | Adaptability & scalability | Common operating picture | Management structure |
| | individuals that can be successfully supervised by one person | | level of complexity, nature of threat and stage of response; the span of control may vary from 1:3 to 1:7 | | |
| 5. Unity of command | <p>One Incident Controller and one set of common objectives for all those involved in the response to an incident, leading to one consolidated plan for all responders</p> <p>Each subordinate should report to only one supervisor</p> | Uniform terminology supports clear command structure, avoiding confusion about roles and function | | | <p>Clearly defined and agreed:</p> <ul style="list-style-type: none"> . roles and responsibilities . reporting relationships |

While originally targeted emergency response agencies, the application of both NIMS and AIIMS in training, exercising and incident response has enabled people from fire and emergency services, government, not-for-profit agencies and industry to build trust and confidence in each other's ability to work together effectively to manage the most challenging of incidents.

5 A tiered management structure

Under AIIMS, incident management arrangements are based on a tiered structure (see AFAC, 2017a, pp. 43-47) usually consisting of a local response function (Level 1), an incident management function for more complex incidents requiring a response beyond that of local resources (Level 2), and a strategic crisis management function (Level 3) (Figure 2). The Level 2 and Level 3 functions may be located away from the scene of the emergency,

which can be advantageous in ensuring the incident management and crisis teams act as supports and do not interfere with the operation of the response teams.



Figure 2: A tiered incident management structure

5.1 Level 1 – Local emergency response

The size and complexity of the local response function will be determined by the scale, nature and activities of the organisation and the potential threats to which it might be exposed. It may include operational personnel trained to deal with a variety of threats or, in larger organisations or isolated and remote sites, specialist responders such as paramedics, firefighters and rescuers. It may also incorporate resources available through mutual aid and other local agreements. Depending on the potential threats, specialist emergency management equipment may need to be acquired and maintained. Such equipment may range from fire extinguishers in an office to specialist firefighting appliances and associated infrastructure at a mine or airport.

Generally, OHS professionals undertake a planning, support and liaison role³ in a Level 1 incident response; however, those OHS practitioners with appropriate expertise may be more directly engaged with response personnel.

³ AS3745 *Planning for emergencies in facilities* (SA, 2010, section 4) provides information useful in planning for the initial emergency response.

5.2 Level 2 – Incident management

As an incident develops, potentially requiring the involvement of a more complex emergency response and / or a range of response agencies, the Incident Controller may establish an Incident Management Team (IMT). The structure of the IMT will reflect the circumstances, complexity and scale of the incident. (AFAC, 2017a.)

Under AIIMS, the Incident Controller is the leader of the Incident Management Team with overall responsibility for managing emergency response activities but may delegate authority to designated roles. While the structure of the team and the extent of delegation will vary depending on the scale and nature of the incident, the specific hazards identified in its emergency plans, the overall function of teams will be similar. Figure 3 provides an example of a Level 2 incident management team. The colour scheme for the roles reflects the colour of the tabards worn by the functional officers acting in those roles during an incident.

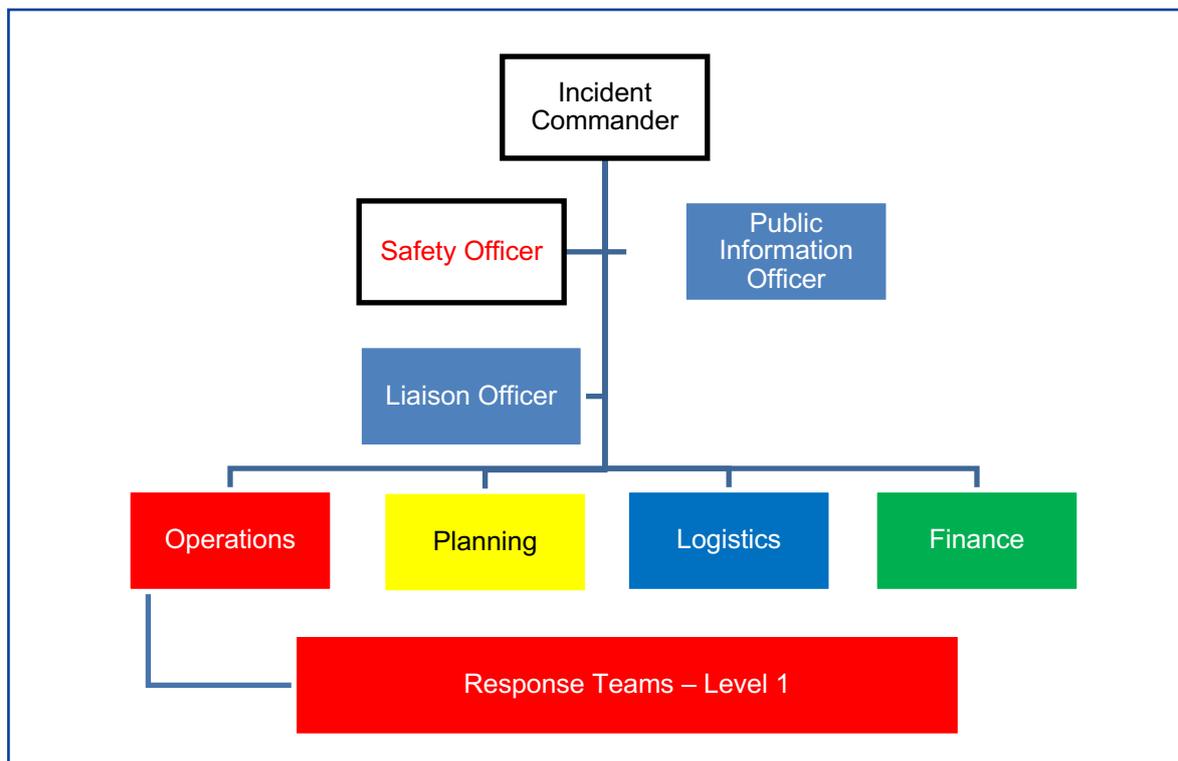


Figure 3: A Level 2 simple incident management structure (modified from FEMA, 2017, p. 25)

Employing the principles of standardisation and functional management, it is useful for organisations to develop an internal incident response structure that mimics and interacts with that of the controlling emergency response service. In a small business, the structure might consist of only two people, each with several functional responsibilities, and a heavy reliance on external resources. A big multinational organisation, on the other hand, might have a large incident management structure with specialists in all functional areas and redundancy in each function. Geographic location and availability of external resources and support will also have a bearing on an organisation's need to be self-sufficient, particularly in the early stages of an emergency event.

The importance of all agencies – including business, non-government organisations and response agencies – working collaboratively to manage large complex emergencies cannot be overstated. Common operating systems and structures provide the foundation for effective and efficient interaction. Where incident management teams from different organisations and agencies are required to work together and do not have comparable structures, frameworks and processes, it is important to establish operational interfaces, communication protocols and processes as part of incident management planning. Such integrated plans are necessary, for example, in large industrial parks where multiple major hazard facilities might coexist and need to interface with each other as well response agencies in the event of an incident.

Where the role of Safety Officer is part of the incident management structure, and the OHS professional has the required knowledge and skills, they may be nominated by the emergency service to act in that role. Alternatively, they may liaise directly with the emergency service Safety Officer and Incident Controller.

Overall, the OHS professional's role is as a 'process support' for the IMT, ensuring that the Incident Controller, responding agencies and other stakeholders are provided with information to minimise exposure to local hazards. The scope of the OHS professional's authority and influence will be defined through the organisation's emergency planning process. This authorisation is usually influenced by factors such as legislative or regulatory requirements and agreements in mutual aid arrangements. Basic areas of responsibility for the OHS professional in an incident response and may include:

- Identifying hazardous situations for the specific incident and developing mitigation strategies for both worst-case and most-likely scenarios
- Ensuring safety messages and briefings are made
- Exercising emergency authority to stop and prevent unsafe acts by their internal organisational emergency responders
- Contributing to the development and review of the incident action plan (IAP) (for safety implications (see section 6.3.3)
- Contributing to reviewing and approving the Medical Plan, which forms part of the IAP

- Ensuring qualified personnel are assigned to evaluate special hazards.

While the OHS professional is likely to act in a strategic role, the role of an OHS practitioner in incident response may be more 'hands-on' including being part of the internal incident response where they have the appropriate skills. As an example of the difference between these two OHS roles, consider a response to an oil spill on a shoreline. The OHS professional might occupy a role in the incident management team, providing support and guidance to the development and implementation of incident-specific health and safety plans for the various operational locations. The OHS practitioner/advisor might assist specialised emergency management personnel by providing volunteer workers with induction training and ensuring they are supplied with, and wearing, correct PPE. The practitioner might also guide or coach them to ensure the workers are not exposed to hazards associated with their work.

5.3 Level 3 – Crisis management

Should an emergency incident escalate in complexity with consequences impacting on the broader community and requiring multiple response agencies a Level 3 or crisis management response structure is likely to be implemented (AFAC, 2017a). An OHS professional has a role in providing specialist advice to such a management team. That advice may extend beyond the ongoing strategic planning function of the team. For example, the OHS professional might advise the crisis team on longer-term health or safety issues that may result from exposure to or involvement in an incident, such as residual contamination, mental health issues or impact on the organisation's business-as-usual OHS functions. The OHS professional also has a key role in facilitating investigation processes following an emergency or crisis.

6 Components of an emergency management system

To facilitate and promote a collaborative approach to emergency management, and to incorporate an emergency management framework within their organisations' OHS and business systems, OHS professionals require an integrated understanding of:

- Overarching principles and concepts of an emergency management system (e.g. AIIMS, NIMS)
- Components of an emergency management system (understanding threats, planning, recovery and response)
- Risk management as applied in emergency management.

From section 4, the foundation principles common across AIIMS and NIMS can be summarised as:

- Flexibility - applying to any situation and scalable to the circumstances of the incident
- Standardisation - of management structures, practices and terminology
- Unity of effort and command – with clear roles and reporting structures.

These principles and concepts are applied within a risk-management context,⁴ and aligned to emergency management system components: understanding threats; planning; response; and recovery (Figure 4). This section focuses on these components of an emergency management system

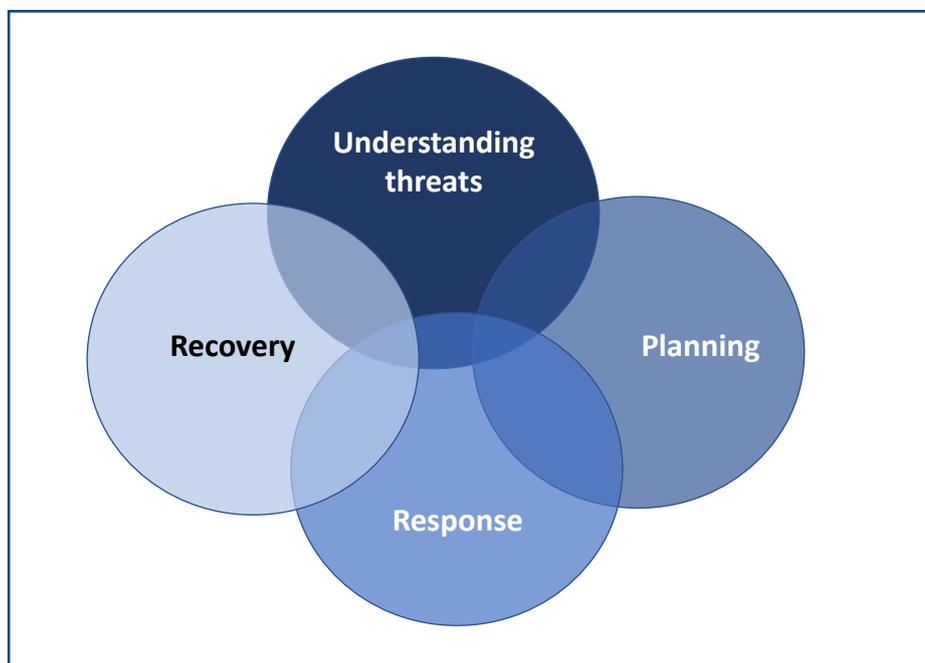


Figure 4: Components of an emergency management system (Modified from Queensland Government, 2018)

⁴ See *OHS BoK 31.1 Risk* for an outline of the risk assessment and risk management principles, processes and standards which together with the National Emergency Risk Assessment Guidelines (NERAG; see section 6.1.2 of this chapter) are applied when assessing and managing risk associated with emergencies.

6.1 Understanding threats

Appropriate hazard and threat identification, risk analysis and reducing the organisation's vulnerability to threats are the foundation of effective emergency management. The scale and nature of the threats to which the organisation is potentially exposed will determine the response and recovery strategies and tactics, the required resources, and whether the organisation will require external aid to deal with a particular emergency.

6.1.1 All-hazards approach

Effective emergency planning for all hazards is a key element of the Australian and international emergency management arrangements. (See AIDR, 2014; NFPA, 2019.) An *all hazards* approach does not mean that specific plans should be made for all possible eventualities but rather that the range of credible hazards should be identified as part of the *risk assessment* and monitored over time (NFPA, 2019). The NFPA lists 9 categories of hazards, the most relevant to OHS professionals being:

- Geological
- Meteorological
- Accidental human caused
- Intentional human caused, and
- Technological. (NFPA, 2019, p.11)

Considering hazards under such category headings not only provides a check that all categories of hazards have been considered but is useful in that, within each category, a range of hazards can cause similar problems, thus enabling development of common principles or responses and can ensure that the competencies required by the attending personnel can be generic in nature. According to Rogers (2011, p. 56), an all hazards approach:

...suggests that plans across the disaster cycle should recognise the commonalities in situational response mechanisms, and that these commonalities across all emergencies can be translated into operational standards and best-practice used across all-hazards.

While the emergency management structure should be designed with an all-hazards approach in mind, many hazards will require specific response and recovery measures together with specific prevention and mitigation measures. Where specialist technical response personnel or teams are required due to the nature of the emergency, the required competencies can be defined as part of the risk-identification and planning process.

6.1.2 Risk assessment

Regular review of emergency risks as well as reviews prompted by changes within the organisation should be part of emergency planning integrated within normal OHS processes. Such risk reviews will consider ‘all hazards’, and assess the risk with a view to minimising vulnerability and actions to mitigate the risk. (See section 9 for a bowtie diagram that summarises the threats and consequences and the opportunity for prevention and mitigation strategies.)

The OHS professional has a vital role in both the selection and application of appropriate hazard- and threat-identification tools, and in ensuring that the hazard-identification and risk-assessment processes are informed by input by stakeholders from a broad range of disciplines. The National Emergency Risk Assessment Guidelines (NERAG) provide “a contextualised, emergency-related risk assessment method consistent with the Australian Standard *AS/NZS ISO 31000:2009...*” (AIDR, 2015, p. 15) and the more recent International Standard *ISO 31000:2018 Risk management* (ISO, 2018). “NERAG is not intended to address all aspects of the risk management framework or processes outlined in [the standards and]...is not intended to support or replace operational emergency-related risk assessment tools” (AIDR, 2015, pp. 4, 5). For example, in an earthquake a risk-assessment and treatment plan to assess and mitigate effects would be developed (perhaps using NERAG), and a separate risk-management plan would be developed and implemented to ensure the safety of responders.

“[B]ecause NERAG focuses on the assessment of risks relating to emergency incidents, it directs the management of emergency-related risks in line with international standards for risk management” (AIDR, 2015, p. 4). A combination of mainstream OHS risk-assessment processes as well as the NERAG guidelines are required to assess and manage both the risk resulting from the response operation and the risks associated with the actual emergency incident.⁵ The crucial requirement is that the risk-management processes for emergency incidents are embedded in the organisation’s overall OHS management processes.

6.1.3 Minimising vulnerability

As identified in section 1.1, vulnerability is determined by physical, social, economic and environmental factors or processes which increase the susceptibility of an individual, [an organisation], a community, assets or systems to the impacts of hazard. Vulnerability can explain why two organisations experience different consequences from similar events. For

⁵ A practice guide related to AIDR (2015), outlining a structured approach for applying NERAG risk-assessment guidelines with worked examples, is available at <https://knowledge.aidr.org.au/media/1061/practice-guide-10-1-national-emergency-risk-assessment-guidelines.pdf> Also, NERAG Online offers training in use of the risk-assessment guidelines: <https://www.aidr.org.au/programs/national-risk-guidelines/>

example, vulnerability may be impacted by location (e.g. next to a hazardous substances site or a river), the nature of personnel on site (e.g. workshop for disabled workers), the nature of the work and associated hazards (e.g. major hazard facility) or the business environment (e.g. highly competitive and based on just-in-time delivery of supplies).

In the risk-assessment process, it is important to include identification of any exacerbating factors that may increase vulnerability and consequential level of risk, and so ensure that treatment of hazards is appropriately prioritised to reduce the organisation's vulnerability and overall risk levels.

6.2 Planning

Effective planning is central to the effectiveness of an organisation's emergency management arrangements. Planning starts well before any emergency event and continues during and after an event through the incident action planning process (section 6.3.3) to the end of recovery. Planning should focus on managing predictable outcomes or impacts while being based on credible worst-case scenarios. It commences with prevention and mitigation. While elimination of the hazard resulting in the emergency may not be possible, a similar approach to that of the hierarchy of controls should be adopted in planning to minimise the impacts of emergency incidents.

This section addresses planning as part of preparedness. After consideration of the role of OHS professionals in emergency planning activities, this section briefly discusses competency, the role of emergency exercises in organisational capability, interoperability and flexibility.

The OHS professional has a vital role in contributing to emergency planning activities. The extent of the OHS professional's contribution to the planning process will be determined by the organisation's size and other emergency management resources available. The nature of the organisation may also require specialist emergency management skills and knowledge. The activities the OHS professional may contribute to include:

- Identifying potential threats to people, assets and the organisation as a consequence of an emergency incident
- Reducing vulnerability by planning the mitigation of potential impacts of foreseeable threats by applying the hierarchy of controls
- Prioritising potential emergency incidents based on potential impacts
- Clarifying the scope of the organisation's planned response taking account of organisational capability and external resources
- Establishing an incident management structure to deal with identified potential

threats

- Identifying the skills required within the incident management structure, and planning to ensure availability and currency of trained personnel
- Identifying and establishing resources for responding to emergencies, including competent people, equipment and external resources
- Ensuring currency of key documents such as chemical manifests, contact lists, procedures and training records
- Identifying business continuity requirements, and planning for recovery and business continuity.

Effectively conducted, these activities will result in:

- People in the organisation with designated responsibilities to plan for, and respond to, emergencies
- An organisational emergency management and incident response structure, including suitably trained personnel
- A plan detailing prevention and mitigation arrangements for preparing for emergencies (e.g. training and maintenance), overall control and coordination arrangements for the emergency response, and roles and responsibilities of key personnel and others in preparation for, during, and after an emergency
- Response procedures, including duties and actions of key personnel and others
- Appropriate physical resources (e.g. communication equipment, spill containment, emergency lighting, evacuation equipment for those with disabilities, and first-aid supplies).

In facilitating emergency preparedness, the OHS professional will be mindful that emergencies are usually dynamic situations, and that a single procedural document will not cover the multitude of emergency events that can impact an organisation. Also, emergency response in the current environment is widening in scope to include off-site impacts and events with potential to disrupt business continuity. Planning for business continuity is also coming within the realm of activity for OHS professionals. (See ISO, 2017; NFPA, 2019; SA/SNZ 2012c;)

The Australian Standard *AS 3745: Planning for emergencies in facilities* (SA, 2010a) provides detailed information on the planning component of emergency management. All arrangements for emergency preparedness should be appropriate to the scale and nature of the organisation and the nature of potential emergencies. AS3745 advocates for the formation of an Emergency Planning Committee (EPC) to be responsible for the development, implementation and maintenance of the emergency plan, emergency-response procedures and related training. AS3745 also describes the requirements for an appropriate Emergency Control Organisation (ECO) which would comprise all of the personnel involved in the control of the emergency response effort including the Incident

Management Team members. The ECO might also include a chief warden, deputy wardens, communication officer wardens and other personnel. The OHS professional will usually form part of both the EPC and the ECO and play an active part in the functions of both of these groups as there are significant OHS considerations at all stages of the emergency management planning, response and recovery lifecycle.

6.2.1 Competency

Competencies required by key personnel at all levels of the organisation's incident management structure should be identified and reflected in functional training.⁶ Requirements for specialist skills pertaining to the organisation's operations (e.g. management of oil spills and remote area response) also need to be identified.

Section 6 Training of AS 3745:2010 provides broad guidance on training for both the EPC and ECO as well as individual members of those groups. Other specific Australian competencies exist and are used as competencies for incident management teams and their members as well as individuals charged with managing emergencies and crisis. These include:

PMAOMIR320: Manage incident response information

PMAOMIR418: Coordinate incident response

PMAOMIR512: Establish incident response preparedness and response systems

PMAOMIR650: Manage a crisis.⁷

NIMS ICS provides a range of role specific training, core competencies and team training.⁸

The training specified by the organisation should be determined through a training needs analysis process and should be specifically based on the scale and nature of the organisation and the specific role of the individuals to be trained. It is also important that the response teams (IMTs) also undergo training as a team prior to working in an operational role or taking part in emergency management exercises.

⁶ Specific training is available for all functional areas within AIIMS as well as system overview training through a number of AFAC-endorsed registered training organisations. Functional training is also available for personnel operating in an ICS environment.

⁷ These competencies form part of the Chemical, Hydrocarbon and Refining Training Package. See training.gov.au.

⁸ See <https://www.fema.gov/nims-training>.

Management of an emergency incident requires decision-making, leadership and communication skills that may not align with the organisation's corporate structure under 'normal' operations. It is important that the organisation is flexible enough to place decision-making capability with those most knowledgeable and skilled in the situation.⁹ Simply transposing the organisation's business-as-usual management structure over the structure and roles required in the event of an emergency may negatively impact management of the emergency.

6.2.2 Organisational capability

Maintaining currency of skills is a major challenge in emergency management. Unlike other disciplines where skills are used, tested and improved on a day-to-day basis, unless there is an actual emergency event, emergency management skills are generally only practised during training or exercises. Consequently, while other emergency management arrangements may be fit for purpose, key personnel may not be competent to carry out their critical roles under the pressure of an emergency. This challenge can be managed by ensuring redundancy of trained personnel in the emergency organisation structure, and that skills for both primary nominee and alternatives are maintained through a regime of ongoing training and exercising. These competency assurance processes should be integrated with the organisation's OHS and operational competency management systems.

Exercises

The AIDR's (2012) *Handbook 3: Managing exercises* identifies emergency exercises as a critical component of emergency preparedness and planning that should be used to test capability and contribute to continual improvement.

An exercise is a controlled, objective-driven activity used for testing, practising or evaluating processes or capabilities.

An exercise can be as simple as a planning group discussing an emergency plan or as complex as a major multi-agency event involving several organisations and participants. (AIDR, 2012, p. 1)

As indicated by AIDR (2012), exercises can be used to:

- Evaluate plans
- Explore issues
- Promote awareness
- Develop or assess competence
- Demonstrate organisational capability
- Evaluate equipment, techniques and processes

⁹ OHS professionals may be familiar with 'flexible culture' as described by Reason (1997).

- Test and demonstrate organisational capability
- Practise interoperability with emergency response agencies and across organisations
- Validate training
- Identify operational gaps
- Resolve operational issues.

Generally, the more realistic the exercise, the more value the organisation will derive from it. However, the hazards and risks associated with conducting an exercise must remain within the acceptable risk thresholds established by the organisation.

Exercise scenarios should be directly linked to the most significant hazards and potential emergency incidents identified by the organisation. Once a scenario has been established, firm objectives need to be defined and performance indicators agreed on by various parties to ensure that the organisation gets value from the exercise and, importantly, that the organisation's emergency management arrangements are continually improved (AIDR, 2012). An after-action analysis and report should be developed after any exercise to drive the continual improvement process of the organisation using the normal OHS processes. A 'hot,' immediate debrief should be held for exercise participants while the experience and lessons learned¹⁰ are fresh, including questions such as:

- What went well?
- What did not work so well / could be improved?
- Were there resource issues (people or equipment)?
- What learnings can be shared with other teams/groups? (AIDR, 2012).

6.2.3 Interoperability

As defined in section 1.1, interoperability is achieved where systems, personnel, and equipment enable exchange of functionality, data, information and/or services between public and private agencies, departments, and other organisations, in a manner enabling them to operate effectively together. Thus, interoperability is about efficient and effective coordination. Interoperability has been identified as an area for potential improvement in many after-action reviews, inquests and investigations into emergency incidents (e.g. Victorian 2009 bushfires, State of Victoria, 2010, p. 11).

Interoperability is critical when the hazards identified as part of the organisation's threat analysis process indicate the potential for significant reliance on external resources and/or interaction with neighbouring organisations. Effective integration and liaison plans for emergency incidents together with a common terminology allow all incident management

¹⁰ See AIDR's (2013) *Handbook 8: Lessons management*.

personnel and responders to understand the roles, responsibilities, capability and capacity of other organisations, and how their organisation will interface with them. The OHS professional has a key role in ensuring that interoperability with emergency services, the community and support groups is considered in the organisation's emergency plans and response procedures.

As indicated in section 4, Australian emergency response agencies generally use the AIIMS system; however, some organisations in industry sectors such as oil and gas, with roots overseas, use the NIMS ISC or hybrid incident management systems. This difference in underpinning incident management frameworks may impact the shared understanding, particularly when, due to a remote locality, an organisation may have to manage the initial response then transfer control of the incident to a response service.

The most effective way to ensure interoperability between agencies and industry is to practice or exercise various credible emergency scenarios based on the organisation's identified risks and involve the appropriate agencies and stakeholders. Such exercises enhance relationship building and understanding between key personnel in the organisation(s) and the emergency response services (AIDR, 2014). While the organisation and the various response agencies will have different areas of focus and responsibility, all parties should be focused on common objectives.

Interoperability arrangements may be formalised as a memorandum of understanding (MoU) within all parties' emergency management arrangements. Generally, MoUs describe operational and other functional details of the arrangement, specify responsibilities and authorities in the event of an emergency, and define the role, responsibility and authority of individuals (such as OHS professionals) and any local response teams. Also, MoUs may include arrangements for the escalation of an organisation's incident management arrangements (e.g. a mine in a remote area may call on a neighbouring mine for assistance in a serious emergency). MoUs can be a permanent part of an organisation's incident management arrangements, such as in the case of major hazard facilities located close to each other and sharing common access roads.

6.2.4 Flexibility

An organisation's incident management arrangements must be scalable, flexible and adaptable (FEMA 2017a, p. 3), "able to respond to changes that occur with the evolution of the incident both during escalation and resolution, and from a focus on [organisational] recovery" (AFAC 2017, p. 16). This escalation in management of an emergency may extend from minor emergency events that can be easily handled using site resources to large events that extend well beyond the site boundaries and require extensive external aid and resources (Figure 5).

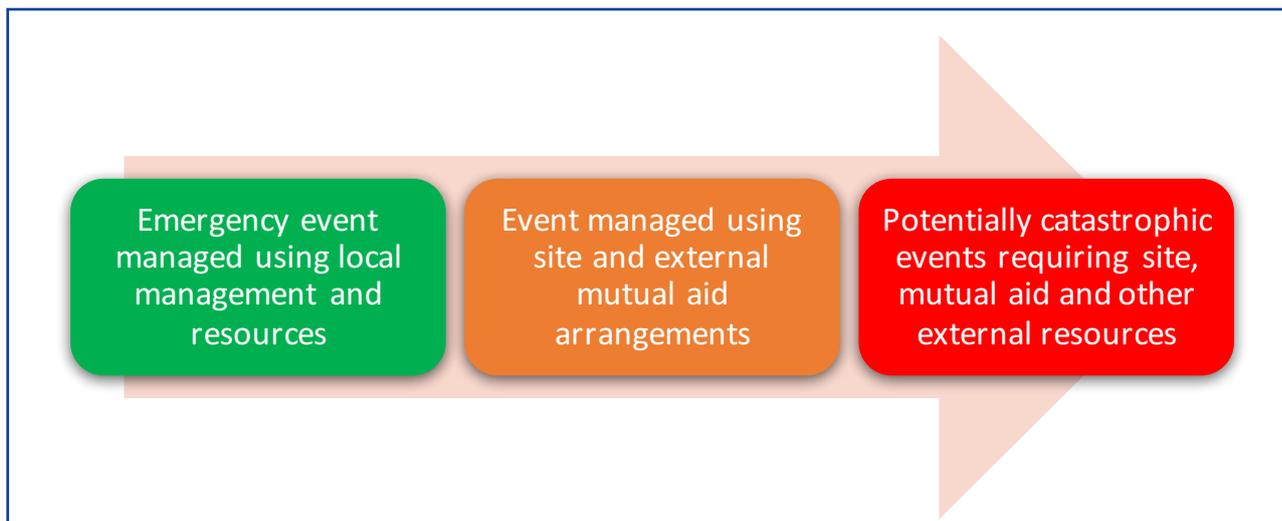


Figure 5: Typical emergency event escalation

Two situations that may result in escalation of the management of an emergency event are, firstly, when an organisation's resources can no longer cope with the event and require external assistance and, secondly, when an organisation relinquishes management of the event through a transfer of command process to an external agency. Emergency management plans should incorporate detailed processes for such escalation or de-escalation, including:

- Increasing on-site resource requirements and planning for resource replacement for longer events
- Increasing emergency management requirements on site as the incident escalates, e.g. support and replacement for functional roles in the IMT
- Activating mutual aid agreements with neighbouring organisations
- Accessing and requesting external resources
- Ensuring the incident commander has access to local information
- Transferring command to successive incident commanders should the emergency continue beyond the initial operational period.

6.3 Response

The role of the OHS professional during the initial emergency response is twofold: firstly, to provide direct support to on-scene responders and, secondly, to stand-up the internal Emergency Control Organisation (ECO) in anticipation of an ongoing need for support. The initial response is often based on limited information, particularly if the emergency is at a remote site with exacerbating issues such as language barriers or time differences. It is

better to anticipate a potential higher-severity event and de-escalate the response than it is to underestimate the magnitude of an event and have to escalate the response during the critical initial phases.

This section considers response from three perspectives: minimising impacts of the emergency, management by objectives, and action planning as the incident evolves.

6.3.1 Minimising impacts

The first step in minimising impacts is to identify potential impacts associated with the emergency scenarios outlined in the threat analysis. Typical outcomes may include fires, explosions, and loss of containment of chemicals or harmful substances. These in turn may impact personnel, the environment, assets and production. Some events can lead to a range of impacts (e.g. spillages of certain substances can result in ill health, fire and damage to the environment), and the vulnerability of the organisation may affect the severity and range of impacts (section 6.1.3). Detailed consequence analysis may be required in some circumstances, especially where there are complex risk factors, a high potential severity and a range of groups and environments that may be impacted.

As an example, considering fire; strategies to limit the impact of fire are utilised in all buildings and workplaces. Because it is impossible to completely eliminate the potential for fire in the workplace, considerable effort is focused on preventing the spread of fire and harm to people. Fire mitigation measures may be structural or non-structural: structural measures include building design features (e.g. compartmentation, and access and egress arrangements) and technological solutions (e.g. fire detection and suppression systems), and non-structural measures include procedures to minimise the impact of an emergency (e.g. limiting the quantities of flammable substances held on site).

As with threat analysis, an all hazards approach should be applied in minimising impacts. Such an approach can be facilitated by considering the categories of hazards identified in section 6.1.1 (i.e. geological, meteorological, accidental human caused, intentional human caused, and technological) and the strategies for minimising the impacts arising from the most credible eventualities within those hazard categories.

6.3.2 Management by objectives

The principle of management by objectives reinforces the need for effective interoperability, information flow and coordination between stakeholders. Management by objectives is a process whereby the incident management team determine the desired outcome of the incident.

These outcomes, or incident objectives, are then communicated to everyone involved so that they know and understand the direction being taken during the operation. Objectives are reviewed regularly against the Common Operating Picture and against progress towards resolving the incident. At any point in time, each incident can only have one set of objectives and one Incident Action Plan for achieving these. (AFAC, 2017a, p. 13)

Incident objectives need to:

- Be specific and measurable
- Identify strategies, tactics, tasks and activities to achieve the objectives
- Address assignments, plans, procedures, and protocols for various incident management functional elements to accomplish identified tasks
- Document results against the objectives to measure performance, facilitate corrective actions, and inform development of incident objectives for the subsequent operational period. (FEMA 2017, p. 21)

The mnemonic PEAR is often used as a guide to prioritising objectives, with some organisations extending the mnemonic to PEARLBC:

People

Environment

Assets

Reputation

Legal Liability

Business Continuity.

Response agencies, the organisation and others involved in the response or impacted by the emergency must have a clear understanding of the objectives.

6.3.3 Incident action planning

An Incident Action Plan (IAP) is an incident management tool to support communication about the incident. An IAP represents “a concise, coherent means of capturing and communicating incident objective, tactics and assignments for operational and support activities (FEMA, 2017, p. 21). The IAP is vital to development of the concept of a common operating picture. Although an IAP may be verbal, it will be written when the emergency situation is complex, involves external agencies and/or continues over an extended period. (AFAC, 2017, pp. 51-52).

The emergency response services will have predetermined systematic processes for developing IAPs. Supporting interoperability and integration, there will only be one IAP for the responding emergency services. Such an IAP may include:

- the current situation
- predictions of the incident's likely development (including risk exposures)
- the incident objectives
- strategies to achieve the incident objectives
- alternate strategies if they are likely to be applied
- risks (including to the health and safety of the responders) and actions to mitigate the risks
- an organisational structure identifying the personnel in the Incident Management Team.
- management arrangements, including the establishment of any Divisions and Sectors
- identification of the tasks and resources to be allocated to Divisions and Sectors
- maps or site plans of the incident locations showing Divisions and Sectors and areas affected
- a Medical Plan (consideration of occupational health and safety issues)
- a Communications Plan, including information on all agencies involved and appropriate contact details
- timing of meetings and changeovers. (AFAC, 2017, p. 54)

An IAP may also include:

- Evacuation plans
- Traffic management plans
- Changeover plans to ensure continuity of management strategies and resources
- De-escalation and recovery plans
- Hand back of response management from external agency to organisation
- Restart of operations (modified from SACFS, 2018).

The OHS professional has an important role in providing information for, and input to, the IAP. This may be facilitated through the collation of relevant information as part of emergency planning. The OHS professional may also have an ongoing role in reviewing all aspects of the IAP, not only to address the health and safety of people directly involved in the response efforts, but also to ensure that risks to other stakeholders are identified and addressed in the planning and actions. This will include:

- Facilitating liaison between the responding service, the organisation and the community
- Providing site-specific information, especially on hazards that may impact the safety and health of responders or members of the community.

As part of supporting interoperability and a common operating picture, the OHS professional should facilitate the development of an organisational Incident Planning Process that mimics the structure of the emergency services' IAPs, but addresses specific areas for which the organisation is responsible.

6.4 Recovery

As indicated in section 1.1, recovery is the function of restoring everything affected by the incident to original or, preferably, better state. The Australian/New Zealand and ISO standards on business continuity provide guidance in this phase.

- *AS/NZS 5050:2010 Business continuity – Managing disruption-related risk (SA/SNZ, 2010)*
- *ISO 22301:2017, Societal security – Business continuity management systems – Requirements (ISO, 2017).*

The recovery process actually occurs concurrently with the response effort as response plans should consider the impact of the response on recovery (e.g. the impact of firewater on the environment, and containment of a chemical spill to prevent impact on the future health of people or the environment). The role of the OHS professional in recovery may include:

- Gathering information to support preliminary investigation of accidents within the incident area when safe to do so
- Providing advice on safe start-up as appropriate
- Participating in recovery meetings.

Recovery efforts often create a window of opportunity for a step-change in improved resilience as major incidents can be powerful change agents, driving improvements that might otherwise not be accepted by the stakeholders. (e.g. BCC, 2018) Thus, recovery should include a 'lessons learned' approach (outlined in AIDR, 2013), with the lessons shared across industry to reduce vulnerability in similar environments or circumstances. The lessons may be identified through local debriefing and investigation or comprehensive inquests following major disasters (AIDR, 2013). The OHS professional has a vital role in facilitating 'lessons learned' and sharing with other organisations.

7 Working with emergency response agencies

The key to working effectively with emergency response agencies is to have a common understanding of each other's functional roles and operations. This requires that a relationship is established between the organisation and the responding emergency services. The relationship should be established prior to any emergency and create a shared understanding of the capabilities and limitations of the organisation in emergency response and of the responding emergency service; and also address any site-specific hazards and vulnerabilities. The relationship and response parameters may be formalised in a

memorandum of understanding. Formalising the relationships is especially important in remote areas or where the site has high risk hazards. A common understanding of functional roles will be facilitated where the organisation's emergency structure aligns with that of the responding agencies.

The extent of support that response services are able to provide to organisations is dependent on a number of factors including their need to prioritise responses to multiple fronts in an emergency. This should be considered during the organisation's emergency management planning process where a worst-case scenario should be assumed when considering external support.

In Australia, emergency response services generally use the AIIMS system while some organisations in industry sectors, such as oil and gas, which have roots overseas use the NIMS ISC or even hybrid incident management systems. As demonstrated in this chapter the underpinning principles are similar in both AIIMS and NIMS but steps should be taken to ensure a common operating picture when there may be differences in emergency management frameworks. This is particularly important where, due to a remote locality, the organisation may have to manage the initial response but ultimately transfer control of the incident to a response agency. The most effective way to ensure interoperability between agencies and industry is to practice or exercise various credible emergency scenarios based on the organisation's identified risks and involve the appropriate agencies and stakeholders.

8 Implications for OHS practice

While emergency management and response to emergency incidents are a specialist area, generalist OHS professionals have an important role. This role will depend on the size and complexity of the organisation, the nature of the hazards and risks, the geographic location and the availability of specialist resources.

The OHS professional's role should focus on planning – engaging key stakeholders in identifying hazards that may lead to emergencies, considering the associated risks and vulnerabilities and identifying mitigation strategies. The OHS professional will also work with senior management to ensure appropriate funding and resources where there may be some reluctance if the organisation or its decision makers have never experienced a significant emergency event. This has been evident in numerous major incidents in Australia and overseas where lack of preparedness has been a significant factor in the organisation's inability to respond adequately (for example, see Royal Commission on the Pike River Coal Mine Tragedy, 2012).

The OHS professional also has a key role in ensuring that the organisational emergency management arrangements consider interoperability with emergency services and other organisations in the locale where there is a potential interaction during emergencies. In doing this, the OHS professional should ensure that the organisational emergency management arrangements take an all-hazards approach, a shared understanding of objectives and functional management across the organisation and with emergency services. Especially in larger organisations this may require some familiarity with AAIMS and/or NIMS.

From an internal perspective, the OHS professional should also be aware of the structures and processes recommended under relevant Australian standards including

AS 3745–2010 *Planning for emergencies in facilities* (SA, 2010a)

AS 4083–2010 *Planning for emergencies – Health care facilities* (SA, 2010b)

AS/NZS 5050:2010 *Business continuity – Managing business disruption-related risk* (SA/SNZ, 2010).

The international standard, ISO 22301:2017, *Societal security – Business continuity management systems – Requirements* (ISO, 2017) provides more up to date guidance on business disruption.

8.1 Strategic role of OHS professional

The generalist OHS professional has a role in facilitating and supporting the emergency preparedness of an organisation by:

- Gaining commitment from senior executives and organisational leadership to prioritise emergency planning and preparation, including establishment of an Emergency Planning Committee (EPC) and Emergency Control Organisation (ECO), and allocation of resources
- Ensuring that senior management and those involved in planning for and managing emergencies understand the concepts of an all-hazards approach, interoperability, flexibility and shared understanding of management by objectives and functional management in emergency response
- Integrating identification of hazards, risks and vulnerabilities into the normal planning and business processes (rather than developing stand-alone systems), and so reinforcing consideration of emergency management as a routine part of the assessment of any new initiative
- Advising on appropriate quantitative consequence analysis when required
- Establishing systems and structures that deliver the necessary planning and preparedness; this will include an EPC, preferably led by a senior manager, and the appointment of a key resource person (appropriately trained in emergency-

management techniques) to lead the ECO

- Ensuring currency of key documents including contact details, procedures, manifests and other relevant records
- Supporting training and development activities to ensure appropriate competency of key personnel
- Ensuring availability of appropriate resources (e.g. personnel and emergency response and communication equipment)
- Identifying facilities that can be used as a control centre in an emergency
- Engaging key stakeholders (e.g. workers, customers, professional associations, unions, regulators and other external agencies) in identification, risk assessment and preparedness processes
- Ensuring that the emergency plan and response procedures are regularly tested, at least through appropriate exercises, to ensure they remain applicable to the changing organisational environment
- Ensuring planning for recovery and business continuity.

8.2 Operational role of OHS professional

The role of the OHS professional during an emergency incident may include:

- Identifying hazardous situations for the specific incident and developing mitigation strategies for both worst-case and most-likely scenarios
- Contributing to the development and review of the incident action plan (IAP) (for safety implications (see section 6.3.3)
- Ensuring safety messages and briefings are made
- Exercising emergency authority to stop and prevent unsafe acts by their internal organisational emergency responders
- Contributing to reviewing and approving the Medical Plan, which forms part of the IAP
- Ensuring qualified personnel are assigned to evaluate special hazards
- Advising on safe shut-down and start up .

9 Summary

This chapter began by clarifying some terminology related to emergency management including distinguishing between an emergency and a disaster and establishing that the chapter focuses on emergencies in the industrial context and the role of generalist OHS professionals in managing such emergencies. The legal obligation under Australian work health and safety to address emergency management as part of risk minimisation strategies was identified. The Australian Inter-service Incident Management System was introduced as

the overarching framework for emergency management in Australia and the influence and commonalities of the US National Incident Management System recognised. A tiered approach to incident management structures described.

Moving from a linear view of prevention, preparedness, response and recovery, a model was introduced where the components of an emergency management system overlapped, with the development and implementation of the system being circular and sometimes iterative. Under this model, the principles and concepts of an all hazards, risk management approach to mitigation and minimising vulnerability with planning including competency of personnel, organisational capability developed and assured through structured exercises were explained. The principles of interoperability and flexibility were identified as central to this planning. In the response phase management by objectives and incident action planning were directed to minimising impacts with the aim of recovery being to restore everything affected by the incident to original or, preferably, better state

The importance of integrating emergency management arrangements into the organisational strategic and operational risk management and OHS management arrangements has been emphasised throughout the chapter. The opportunity for such integration can be illustrated in the bow-tie diagram (Figure 6) which visualises prevention and mitigation in emergency management. The emergency incident is seen as the Critical or Top Event. The left-hand side of the bow-tie lists threats (natural events such as bushfire, storm and flood; external events such as site incursion and civil unrest; and internal threats such as flammable chemical fire and medical emergency), potential escalation factors and prevention controls. The application of the hierarchy of control to prevent or minimise the risk of the emergency incident is identified. The right-hand side covers mitigation with recovery controls and impacts, including consideration of people (physical, health and psychological injury), environment, building infrastructure and production continuity.

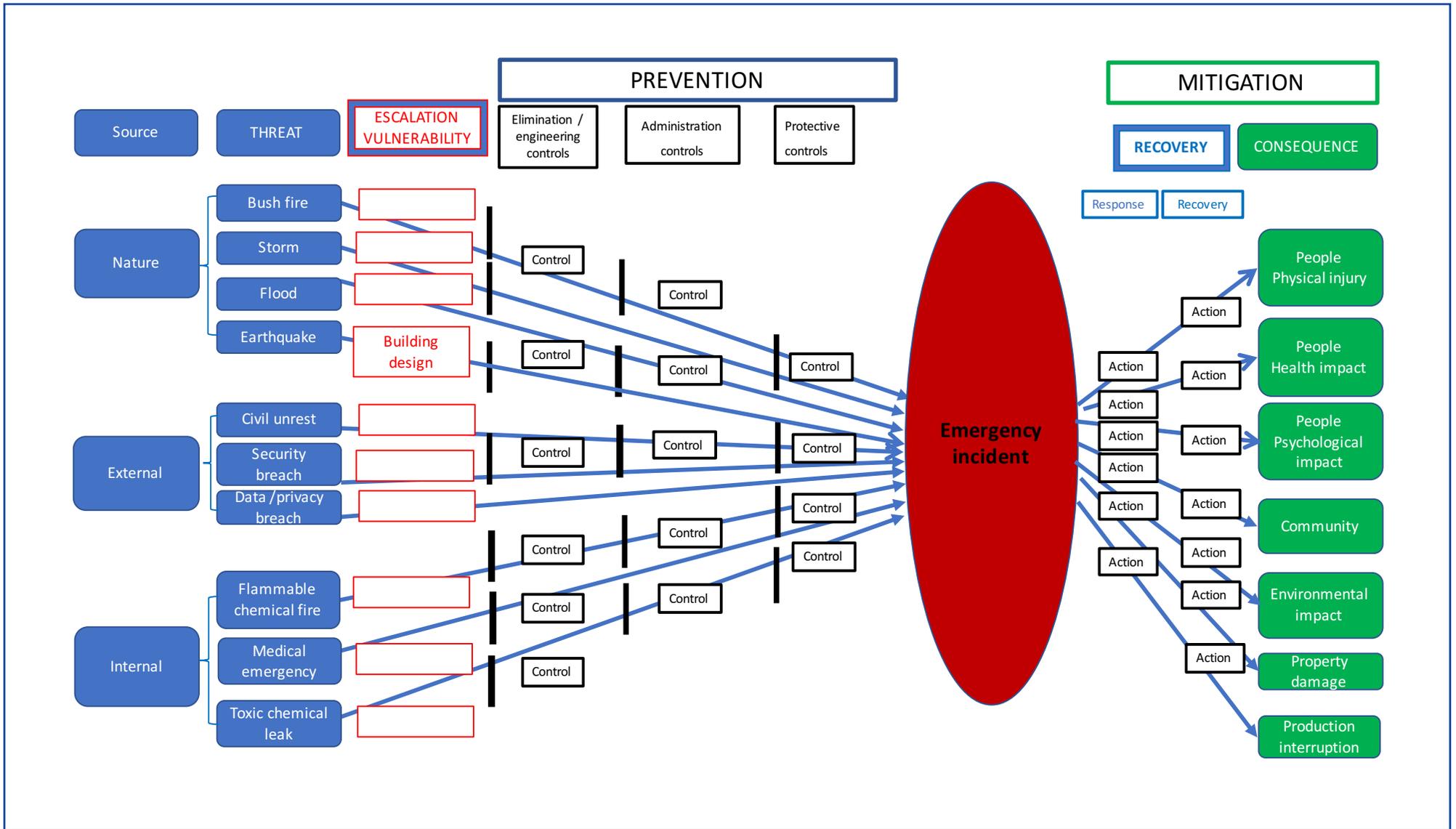


Figure 6: Example bow-tie model applied to emergency management

Useful websites and resources

- Safe Work Australia: <https://www.safeworkaustralia.gov.au/>
- Australasian Fire and Emergency Service Authorities Council (AFAC): <https://www.afac.com.au/>
- Australian Institute for Disaster Resilience (AIDR): <https://knowledge.aidr.org.au/>
- Bushfire and Natural Hazards CRC: <https://www.bnhcrc.com.au/research/theme/policy-economics-hazards>
- Standards Australia: <http://www.standards.org.au/Pages/default.aspx>
- Australian Journal of Emergency Management (AJEM): <https://knowledge.aidr.org.au/collections/australian-journal-of-emergency-management/>
- ICS Resource Centre: <https://training.fema.gov/emiweb/is/icsresource/>

AIDR is the custodian of the Australian Disaster Resilience Handbook Collection, which can be accessed through the AIDR website: <https://www.aidr.org.au>

- *Handbook 1: Disaster health*
- *Handbook 2: Community recovery*
- *Handbook 3: Managing exercises*
- *Handbook 4: Evacuation planning*
- *Handbook 5: Communicating with people with a disability: National guidelines for emergency managers*
- *Handbook 6: National strategy for disaster resilience: Community engagement framework*
- *Handbook 7: Managing the floodplain: A guide to best practice in flood risk management in Australia*
- *Handbook 8: Lessons management*
- *Handbook 9: Australian emergency management arrangements*
- *Handbook 10: National emergency risk assessment guidelines*

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