GOVERNMENT OF
WESTERN AUSTRALIA

State Emergency Management Committee
Western Australia

Emergency Preparedness Report 2012

October 2012

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Foreword

The members of the State Emergency Management Committee (SEMC) are pleased to present their inaugural report on Western Australia's preparedness for emergencies.

This is Western Australia's first annual Emergency Preparedness Report by SEMC. It is the Committee's intention to continue to build upon this first report, the development of future reports being an evolutionary process which takes into account future emergencies and trends.

SEMC is confident this year's Emergency Preparedness Report gives insight into the preparedness of the State for major emergencies. A number of the positive initiatives that have been undertaken have been mentioned and also areas which are part of future work have been identified.

A significant emerging theme is the importance of the adoption of a risk based approach to all aspects of emergency management. This is an issue that has been raised in previous major reviews.

This body of work has come together in a very condensed period. It is appropriate to acknowledge the work undertaken by dedicated officers in a range of emergency management and other agencies and particularly by a group in the SEMC Secretariat led by Michelle Reynolds in bringing it to fruition. SEMC expresses appreciation for this work.

Finally, I would like to formally recognise the cooperation of the group of chief executive officers and directors general of emergency management/emergency service and associated agencies who have supported this process. They provided information to inform the content of the final report, together with the contribution of other members of SEMC. Without their dedicated efforts and cooperation, this report would not have been possible.

Kerry Sanderson AO

Chair, State Emergency Management Committee
31 October 2012

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Executive Summary

This is Western Australia's first Emergency Preparedness Report compiled by the State Emergency Management Committee (SEMC).

To be prepared annually for the Minister for Emergency Services, the report will be a broad view of the State's capacity to deal with large-scale emergencies. It will report progress in the emergency management sector and highlight work underway to enhance capability.

In recent years, Western Australia has experienced a range of disasters, both from natural and man-made origin, resulting in loss of life and damage to private and public property. Since 2009, fifteen of these events, including flood, fire, cyclone, storm, human pandemic and marine emergency, have been on a scale requiring a State-level response. In addition there have been many district and local level emergencies.

The emergency management environment is diverse and involves a coordinated effort from volunteers, the community, local and State authorities and, on occasions, also mutual support from other states and at the national level. It has been illuminating to integrate the necessary components into an objective assessment of the State's preparedness and to see how much has been done as well as the need for continuing work. Against the backdrop of continuing exposure to potential hazards, SEMC is committed to analyse and report annually upon the State's capacity to deal with emergencies and to use the report as a basis for continual improvement.

The 2012 Emergency Preparedness Report has four parts:

- **Part 1** – presents an overview of the Western Australian environment, history of emergency management and the current management frameworks in place.
- **Part 2** – synthesises data captured from emergency management agencies under various *capabilities* to establish a 2012 State position and a starting point for year-to-year self-assessment and continuous improvement.
- **Part 3** – reviews seasonal hazards and focuses on bushfire preparedness for the coming 2012/13 South West bushfire season.
- **Part 4** – summarises recent reviews and work undertaken when developing the 2012 Emergency Preparedness Report, highlights key findings and themes and discusses ongoing implementation and future work.

Part 1 Overview

Preparedness concept

Preparedness is defined as the existence of necessary structures to ensure the community effectively **Prevents** or mitigates, **Prepares** for, **Responds** to and **Recovers** from large scale emergencies, commonly referred to as **PPRR**. It encompasses pre-, during, and post-emergency actions and involves a community approach including various levels of government, business, faith-based and support organisations, volunteers and individuals.

Western Australian environment

Western Australia covers nearly one third of the Australian continent, the size, remoteness and diversity of the setting presents a broad-range of challenges for emergency management.

By way of illustration sections of the Pilbara coastline are rated the most cyclone prone in the country, experiencing the highest percentage of intense category 4 and 5 events.

In addition to floods, earthquakes and tsunami which have been experienced to varying degrees, destructive storms and bushfire are significant seasonal hazards. Bushfire potential depends on a number of factors including climate and weather, fuel abundance and availability, and recent fire history. This risk is increased with the likelihood of climate change with research indicating a continuing drying trend through much of the State.

There is also a range of man-made hazards including potential for human epidemic, chemical and oil spills (on-shore and off-shore), major rail, road and air-crashes and energy supply disruption. The State's ongoing population expansion in the regional areas, in line with development in the mining and oil and gas sectors, also raises the level of risk.

Emergency management framework

To manage the hazard potential, the State possesses an integrated emergency management framework developed under the *Emergency Management Act 2005* (the Act), which includes the establishment of committees, groups and councils, such as the SEMC and the State Emergency Coordination Group (SECG) as well as the State Disaster Council.

The Act prescribes that the SEMC will develop policies to provide a strategic framework for emergency management in Western Australia and prepare emergency management plans. Hazards are defined both in the Act and the Emergency Management Regulations 2006 (the Regulations) to include specific events and to date 26 of natural and man-made origin have been included:

1. Collapse
2. Cyclone
3. Flood
4. Earthquake
5. Tsunami
6. Fire
7. Storm
8. Hazardous material – chemical
9. Hazardous material – radiation
10. Hazardous material – biological
11. Human epidemic
12. Animal and plant biosecurity
13. Air crash
14. Road crash
15. Land search and rescue
16. Marine search and rescue
17. Radiation
18. Space debris re-entry
19. Terrorism
20. Rail crash (passenger network)
21. Rail crash (freight network)
22. Marine transport emergency
23. Marine oil pollution
24. Energy supply disruption (gas)
25. Energy supply disruption (liquid)
26. Heatwave

The hazards are managed by eight designated Hazard Management Agencies (HMAs) with varying responsibility across the ***PPRR*** spectrum. They are:

- Fire and Emergency Services Authority of Western Australia (which will become the Department of Fire and Emergency Services from 1 November and references in this document to FESA should be read as references to the Department)
- Marine Safety General Manager (Department of Transport)
- Agriculture Director General (Department of Agriculture and Food WA)
- Coordinator of Energy (Public Utilities Office)
- Brookfield Rail Pty Limited
- State Health Coordinator and State Human Epidemic Controller (Department of Health)
- Public Transport Authority of Western Australia
- Commissioner of Police (WA Police)

For each of the prescribed hazards (with the exception of Heatwave)* there is a State emergency management plan (or Westplan) which contains detailed arrangements, responsibilities and procedures for the various agencies or support groups involved in preparation and response. There are also eight Support Westplans, which although not hazard specific, provide for essential functions during an emergency event such as welfare and health services.

For further effectiveness of emergency management, the State is divided into district and local areas. There are 14 emergency management districts State-wide (each with an emergency management committee) and 123 local emergency management committees largely aligned with their respective local government authority.

* *The hazard of 'heatwave' was prescribed in 2012 with the State Health Coordinator prescribed as the Hazard Management Agency. The Department of Health is currently developing a Hazard plan (Westplan) for heatwave.*
Dambreak was described as a hazard under Policy Statement No. 7, the policy which described the State's emergency management arrangements prior to the introduction of the Emergency Management Act *2005. Since the introduction of the Emergency Management Act 2005, a review into the status of Dambreak as a hazard has been commenced.*

Part 2 Overview

Capability assessment

Assessing existing capability against the identified capabilities required for emergency management is a methodology, applied world-wide, in emergency management review.

Similar capabilities are required to manage most if not all of the hazards. This first report has taken the approach of reporting on preparedness against the capabilities. Reporting separately on each of the 26 hazards would have required significant duplication if capabilities were reported against each hazard.

Sixteen capabilities deemed to be fundamental to the State's prevention, preparation, response, and recovery processes are captured. Based on the *Capability Assessment for Readiness* (CAR) protocol as developed in the United States, they include:

1. Hazard Identification and Risk Assessment
2. Hazard Mitigation
3. Laws and Authorities
4. Policy
5. Finance and Administration
6. Resource Management
7. Public Education
8. Training
9. Exercises, Evaluation, Corrective Actions and Post Incident Analysis
10. Public Information and Community Warnings
11. Operations and Procedures
12. Logistics and Facilities
13. Command, Control and Coordination
14. Volunteering and Community Engagement
15. Recovery
16. Support

The HMAs and supporting groups self-analysed and reported to SEMC on their level of preparedness for each hazard using a pro-forma table. From this, common themes across agencies and across hazards are captured under relevant capability headings, allowing areas of significant achievement or areas for improvement to be identified.

This synthesis of data helps focus critical attention for the coming year and serves as a starting benchmark for a continual, year-on-year improvement process. A similar approach has been adopted in other states of Australia and internationally. By way of example, Victoria has adopted a capabilities self-assessment system which is measured against Good Practice Indicators (GPIs) on a multi-year cycle.

Due to the relative short duration for collection and analysis of data for the first Western Australian Emergency Preparedness Report and the challenges of utilising, for the first time, a capability orientated approach, the input from agencies varied in the level of detail provided. Nonetheless many initiatives and areas for improvement are highlighted and the quality of reporting and analysis is expected to improve over coming years.

Key themes derived from the capabilities analysis are incorporated in **Part 4** 'Conclusions and Future Work'.

Several short case studies are presented in **Part 2**. These describe good initiatives underway in Western Australia including:

- the application of technology to provide better spatial data;
- preparing a community for self-responsibility and resilience after a disaster and through the recovery phase;
- a public education program for bushfire preparation directed towards school principals, staff, students and parents; and
- sharing of resources in response to emergencies amongst mining and oil and gas companies in Regional Western Australia.

Part 3 Overview

Key seasonal hazards

The Emergency Preparedness Report is geared toward a strategic, State-wide overview across all hazards and agencies. However, three types of events based on the likelihood of recurrence and risk to communities were considered to warrant, further discussion. They have pronounced seasonal characteristics – cyclone, flood and bushfire – and are further analysed in **Part 3**.

Of the three bushfire was considered to warrant detailed attention in view of recent incidents and is discussed in considerable detail in **Part 3**. The part also includes a case study of cyclone preparedness for a port facility in the Pilbara.

The outlook for the 2012/13 season is for an above average potential for bushfire in the South West, Mid West, Desert and Nullarbor regions. With dry conditions and high fuel loads, the bushfire season is expected to be long and challenging and the spring forecast may hinder the ability to undertake prescribed burning mitigation. A number of initiatives have been put in place to increase community awareness and increase the resources for response provided by the Government. A challenge is the age of the fuel loads in some parts of the State because prescribed burning has fallen behind targeted levels and that is one of the main strategies used for bushfire risk mitigation. This could mean an increase in bushfire size and intensity. The land managed by the Department of Environment and Conservation (DEC) in the South West has been mapped for fuel age and this is presented in **Part 3**.

In an effort to counter this increased risk, preparedness and response capabilities have been enhanced in the 2012/13 season following significant implementation of recommendations from the special inquiries on the Perth Hills and Margaret River bushfires.[1] These include:

- increased budgets in State agencies for fire management, prevention and mitigation programs;
- further equipment upgrades in State fire management agencies including increased focus and coordination of air operations;
- increased State agency staffing capacity dedicated to fire management;
- improved communication and public awareness systems;
- increased interagency communication and cooperation;
- advanced weather forecasting; and
- establishment of the Office of Bushfire Risk Management (OBRM) placing a focus on risk management strategies for prescribed burning, consistent with *ISO 31000:2009* risk management principles. OBRM reports directly to the Chief Executive Officer of FESA.

Part 4 Overview

Conclusions and future work

Recent major reviews were conducted by Mr Mick Keelty AO APM into the Perth and Margaret River bushfires of 2011. Of the 55 recommendations of the Perth Hills Special Inquiry, 43 have been signed off and 12 are still in progress. The Government accepted all 10 recommendations of the Margaret River Special Inquiry and they are being progressed (as of October 2012).

Those reviews and ongoing implementation process are driving change across the emergency management sector. In line with this is a need to maintain an emphasis on continual improvement and the development of tools required for yearly assessment and monitoring including the introduction of capabilities.

For the 2012 Emergency Preparedness Report following the capabilities analysis, four major themes identified by others previously have been re-confirmed:

- Promoting shared responsibility;
- Adoption of risk management practices;
- Improving coordination particularly in response; and
- Promotion of continuous improvement processes

The concept of shared responsibility identifies that emergency management relies on a synergy between agencies, industry, other levels of government and the community. The best outcomes in terms of community safety, asset preservation and recovery are likely to come from a self-reliant community with a high-level of preparedness. It is recognised that SEMC and emergency agencies should continue to work to enhance community engagement and volunteerism including strengthening information sharing, communication, training, exercises and facilitation of these groups.

The report identifies the importance of adopting risk assessment practices across the **PPRR** spectrum, including the incorporation of *AS/NZS ISO 31000:2009* risk management principles. Risk assessment practices lead to a proactive approach, with greater emphasis on preparation and prevention facilitating the appropriate allocation of resources based on objective measures. For example using legislation to make smoke alarms compulsory in houses and launching campaigns to encourage occupants to leave a burning house and then call emergency services has the potential to contribute more to the reduction of fatalities than quicker response times.

SEMC has commenced work on a State Risk Management Framework and this will be a strong focus in the coming 12 month period.

Coordinating response efforts is key to efficient and effective State preparedness. Interagency cooperation is enhanced by joint exercises, by developing common or consistent plans and field procedures and by timely testing and evaluation. The access to and interoperability of technology platforms for information sharing, communication and command and control, also augments a coordinated response. While this needs to be an area of further work, recent progress in terms of co-ordination has been encouraging as can be seen later in this report.

There is emphasis at a State and agency level on continuous improvement including the conduct of incident reviews, implementation of lessons learned and sharing of information and initiatives. Agency self-reporting against capabilities can facilitate the improvement cycle with opportunity to benchmark against Good Practice Indicators (GPIs) as well as to make continuous improvement a fundamental part of how we do business in Western Australia.

Further to the initiatives outlined above, the Government instituted a reconstitution of SEMC to assist in providing independent and objective oversight of emergency management including a change in status of the SEMC Secretariat (to sub-department) to provide more independence. A Strategic Plan based on the themes of this report is being used to set the agenda for future work including promoting shared responsibility for emergency management, the adoption of AS/NZS ISO *31000:2009* for risk management, the promotion of **PPRR** (preparedness) and coordination and a commitment to continuous improvement.

Part 1
Introduction

The Emergency Preparedness Report

This report is the first Annual Emergency Preparedness Report presented to the Minister for Emergency Services by the State Emergency Management Committee (SEMC). It is an assessment of Western Australia's capacity to deal with large scale emergencies.

The emergency management environment is diverse and involves the collective effort of many including State and local government agencies, non-government organisations, public utilities, the private sector, volunteers and other dedicated community members. Support can also be provided by other states and the Federal government depending on the scale of the emergency.

It is a challenging exercise to evaluate the combined work of these groups across the emergency management framework with a view to providing an objective assessment of the State's preparedness for emergencies.

Recent years have seen Western Australia experience some significant natural and man-made disasters. While they have not resulted in the same devastating loss of life as have been experienced in other parts of the nation there has been widespread damage to public and private property and damage to critical infrastructure. Figure 1.1 shows some of those events over the past four years.

Western Australian Emergency Event Timeline 2009-2012

(Incidents by activation of the State Emergency Coordination Group)

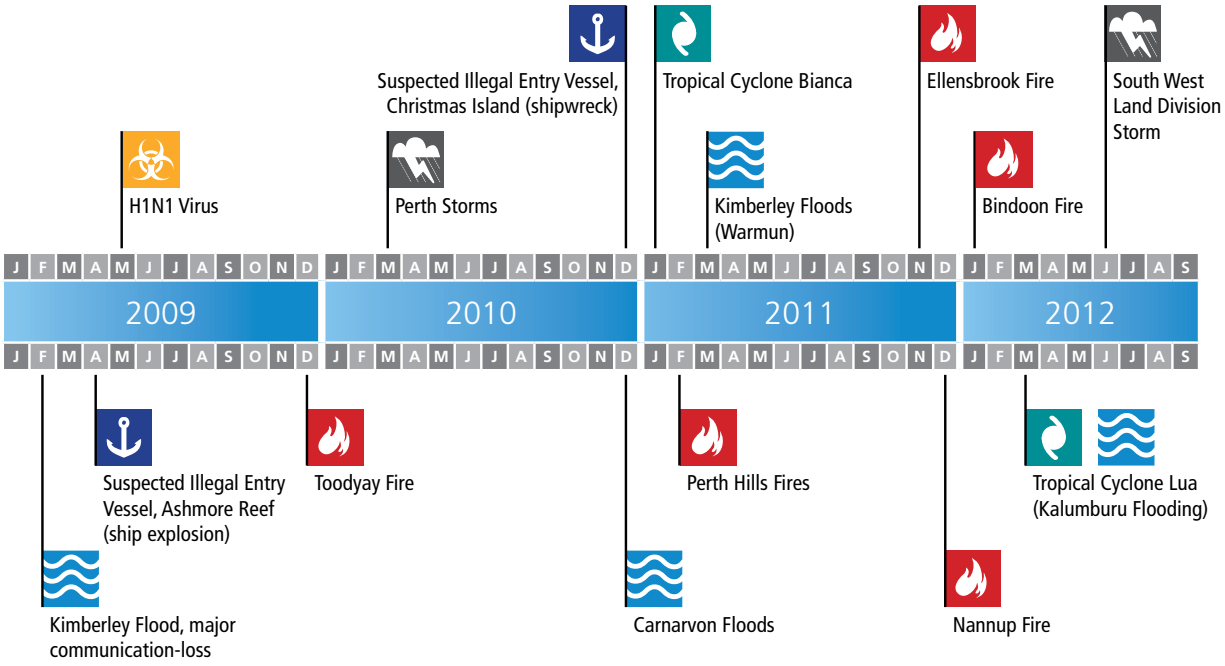

Figure 1.1. Emergency Event Timeline

The State Emergency Management Committee is established by the *Emergency Management Act* 2005 (the Act) to, amongst other things, advise the Minister for Emergency Services on the preparedness of the State to combat emergencies. SEMC will report by 31 October each year on the State's preparedness for emergencies.

This report is based upon information provided by hazard management and support agencies, local and district emergency management committees, along with information drawn from relevant independent inquiries and reviews.

Central to this report is the need to look beyond the resources required to manage an immediate response to emergencies. Consideration must also be given to:

- preventing or mitigating the effects of a major emergency
- how we prepare as a community for such events and mitigate the impacts
- the arrangements that are in place to ensure the community is able to recover well when an emergency occurs.

Indeed it is by all of these elements that preparedness can best be assessed.

Concept of preparedness

Preparedness in the State's context is:

"The existence of the necessary structures to ensure the community effectively prevents or mitigates, prepares for, responds to and recovers from large scale emergencies"

**adapted from the comprehensive approach to emergency management, introduced in the USA by Prof Dennis Mileti (1972), subsequently adopted by Australia*

Preparedness adopts a collective view which includes pre, during and post-emergency legislation, strategies, procedures and operations, involving all facets of society including the State government, local government, non-government

organisations, faith-based organisations, community groups, the business sector, volunteer groups and individuals.

The central theme of shared responsibility emphasises the need for an entire community and whole of government approach.

Practitioners involved in this area have for some years adopted four key pillars to describe the emergency management 'preparedness' continuum. They are that a community prevents, prepares, responds and recovers;

- **Prevents/mitigates** - to reduce the likelihood of the hazard occurring or to eliminate or reduce the effect of a hazard on the community should it occur.
- **Prepares** – arrangements, plans, education, training and information to prepare the community (including emergency responders) to deal effectively with large scale emergencies as may eventuate.
- **Responds** – activating the pre-developed arrangements and plans to put in place effective measures to deal with large scale emergencies if and when they occur and to help speed recovery.
- **Recovers** – activities to assist a community affected by an emergency in reconstruction of the physical infrastructure and restoration of emotional, social, economic and physical well-being.

Western Australian Environment

Western Australia covers nearly 2500 km from north to south, a distance spanning 22 degrees of latitude. This spread encompasses several climatic zones including tropical in the far north, moving through grassland, desert, subtropical and on to temperate regions in the South West. The broad climatic variation and associated ecological diversity are unique in the Australian context and rare from a single-state or single-country perspective on a world-wide scale.

Each Western Australian region, owing to its latitude and the influence of the continental landmass and the temperature and circulation patterns of adjacent oceans, can experience a range of intense meteorological events, some of which are capable of reaching destructive scales.

The warm tropical seas (>26.5 degrees) of the North and North West of Australia can drive strong atmospheric convection, particularly in the summer and early-autumn months, from which tropical cyclones develop. All categories of tropical cyclone (Category 1-5) can bring gales, significant rain, possible flooding and storm surge; the most destructive tropical cyclones being Category 4 and 5, the latter with recorded wind gusts in excess of 280 kmh. Records show that 75% of all severe cyclones crossing the Australian coast between 1970/71 and 2007/08 were in Western Australia with the chance of experiencing an intense Category 4 or 5 cyclone being highest in March and April[2].

The coastline between Broome and Exmouth is rated as the most cyclone-prone region of the Australian continent, having the highest frequency of coastal crossings. Coincidently within this region, and up to 250 km offshore and 500 km onshore, are some of the State's most valuable resources and infrastructure projects. In 2010, the North West contributed almost 80% of Western Australia's total resource production value, worth over A$80 billion, including significant contributions from oil and gas, iron ore, and from the industrial and precious minerals sectors[3]. On progressing inland tropical cyclones may become rain bearing depressions that can also lead to extensive flooding in the interior and Goldfields.

Although, tropical cyclones most commonly trend out to sea or cross the coast in the North West, they are also known to track down the coast affecting the mid- and South West of the state with damaging winds, storm surge and intense rainfall and flooding, as well as lightning strikes causing bushfires.

Other significant *storm* activity typically associated with either summer mid-level disturbances, or winter cold-fronts are frequent, particularly impacting the Perth metropolitan area, South West, Mid-West and Goldfields districts with localised intense damaging squalls, hail and flooding.

Western Australia has a series of major river systems and flooding is a realistic risk under heightened cyclonic and storm activity. Of recent note is the flooding of the Gascoyne river and delta region around Carnarvon in December 2010, damaging stock, crop and infrastructure and significantly affecting the State's agricultural production.

From a general climate perspective Bureau of Meteorology records between 1970 and 2011 show a general increased rainfall trend throughout the North, North West and interior and a general drying trend throughout the Mid West and South West districts, including particularly drier winters (although this may be partly offset by more summer rainfall).

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[2] *Bureau of Meteorology, 2012*
[3] *Chamber of Minerals and Energy, 2012*

In 2010 the South West experienced the driest year on record and the three to four year rainfall records to 2012 are also the driest.

Climate change may also play a role in the impact and frequency of natural hazards. Recent research by CSIRO on climate change has indicated that much of the climate change over the past half century is likely related to man-made increases in greenhouse gases and there is evidence already of changes in 'extreme' temperatures globally. Average Australian temperatures are projected to rise by 1° to 5° by 2070, with projected long-term drying over southern areas, although periods of heavy rainfall are still likely to occur. Projections suggest the proportion of intense cyclones is expected to increase.

The climate information is certainly noteworthy in assessing cyclone, flood, heatwave and storm risk and also potentially the impact of bushfire.

For much of the Western Australian environment, north to south, bushfire is a normal occurrence and would happen yearly in various locations. Bushfire potential depends on many factors including climate and weather, fuel abundance and availability, and recent fire history. Areas of particular concern include agricultural, industrial, residential or tourism locations, especially those that adjoin scrub or forested areas.

Climate change means that extreme heat events are likely to become more common in Western Australia. Associated with the warming is a forecast major increase in the frequency of hot days and warm nights. The increase in extreme heat events has the potential to increase heat related illness and deaths. An exceptional heatwave affected south-eastern Australia during late January and early February 2009. During the heat waves, there was a significant increase in hospital presentations, ambulance call-outs and, in Victoria, ambulance officers saw an increase from 10 to 60 cardiac arrests per day.

Apart from the climate and ecology based hazards, the State is also known to be geologically active. A series of earthquakes has been recorded throughout the State in recent decades, the most significant of which was the 1968 Meckering earthquake (magnitude 6.9), 130 km east of Perth, which destroyed the town. This earthquake was in a well-documented zone of seismic activity known as the South West Seismic Zone, approximately 60 km wide and extending over 500 km, from Yandanooka in the Mid West to Cape Riche on the south coast.

The Indian Ocean basin is susceptible to the influences of violent earthquake and volcanic activity. Sub-sea earthquakes and island volcanoes are the prime causes of major scale *tsunamis*. This was highlighted in the 2004 Indian Ocean, 'Boxing Day Tsunami' that was triggered by a magnitude 9.2 sub-sea earthquake along a plate-collision zone south of the Indonesian Island of Sumatra. This highly active region, to the north and north west of Western Australia, is responsible for volcanic activity throughout the Indonesian islands and the cause of frequent earthquakes. In the Western Australian context susceptible areas may include the north and north west facing coastlines, but the whole coastline has some degree of risk. At least four tsunamis are known to have affected Western Australia over the past 35 years, all resulting from large earthquakes in the Indonesian region, including a 6 metre wave at Cape Leveque in 1977[4].

Coastal areas are not only at risk of inundation from the sea but many also have geological characteristics that have propensity for subsurface erosion and undercutting. Much of the Mid and South Western coast is dominated by limestone and through continued wind, rain and wave action erosion can occur and caves and cliff overhangs develop. These environments can be susceptible to cave-in and collapse as was experienced in the tragic beachside cliff collapse near Gracetown in 1996.

Collapse is also a known hazard for man-made subsurface structures in the engineering and mining sectors of the State as well as for above ground buildings and infrastructure.

In this vein there are a number of other hazards in Western Australia that may be related exclusively or in part to human activity.

The State's population expansion and growth in regional areas in line with ongoing development in the mining and oil and gas sectors has raised the potential for a number of hazardous events. This includes the increasing frequency of transportation and handling of bulk and hazardous materials, and the higher density and frequency of road use and rail and shipping networks. Fly-in, fly-out work commuting has also expanded the frequency of air travel to remote areas of the State and thus the potential for incidents.

Oil and chemical spills are of significance for their environmental impact, both on-shore and off-shore. Notably the Montara Well-head oil and gas leak in the Timor Sea in 2009, and the Kirki and Sanko Harvest oil and chemical spills off the Geraldton and Esperance coasts in 1991 highlight the possibility and requirement for fast and effective response.

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[4] *http://www.seismicity.see.uwa.edu.au/ (The University of Western Australia, 2006)*

Human epidemics are of concern to the World Health Organization and local health departments and agencies. Of particular note was the Severe Acute Respiratory Syndrome (SARS) outbreak in Asia in 2002/03 and the H1N1 influenza virus pandemic in 2009. With an increasingly globalised world and ease of travel across borders, the potential spread of acute infection is heightened.

Crop and stock disease and pest infestation pose a biosecurity risk to the agricultural industry of Western Australia, and would present significant consequences to the rural sector as a whole; the industry also being one of the major contributors to the Western Australian economy.

The State clearly shows a range of hazards that integrate both man-made aspects and the natural setting. Overall the sheer size and remoteness of Western Australia and range of potential issues makes for a challenging emergency management environment.

History of Emergency Management

While the concept of emergency management has existed for a number of years, significant events throughout history have changed the focus on what the State's emergency management priorities are and how Western Australia and the nation deal with emergencies.

The period between 1961 and 1974 saw Australia experience a number of significant natural disasters including the Dwellingup fires, Black Tuesday in Tasmania, the 1974 Brisbane floods and Cyclone Tracey in Darwin. These events highlighted the need for a systemic manner in which to plan for, respond to and recover from natural disasters.

In 1972 the concept of prevention, preparedness, response and recovery was introduced in the US and was soon after adopted in Australia. This remains one of the underlying philosophies of emergency management today.

Emergency management continued to evolve and in 1976 the State Counter Disaster Committee was created under the then Minister for Works. In 1983 the State Counter Disaster Committee and the associated responsibilities was transferred to WA Police (including responsibility for the State Emergency Service).

In 1992 the State Counter Disaster Committee was changed to the State Emergency Management Advisory Committee.

In 1997 a comprehensive review of the State's emergency management arrangements (the Barchard Review) was undertaken. This review resulted in, amongst other things, the reflection of the State's emergency management arrangements into a policy document known as Policy Statement No 7.

Perhaps one of the most significant changes to emergency management in Western Australia was the implementation of the *Emergency Management Act 2005* (the Act). The Act establishes the current SEMC and the policy framework that supports all aspects of emergency management prevention, preparedness, response and recovery. The aim is for emergency management in Western Australia to be a coordinated operation, with multiple organisations and all levels of government working together with the community to limit injury and loss and to increase resilience.

There is also increased awareness of cross-border hazards and joint initiatives are in place across state and federal agencies, including development of the *National Emergency Risk Assessment Guidelines and the National Strategy for Disaster Resilience*.[5]

The latter strategy, to which the Western Australian Government is a signatory, calls for a new focus on resilience: an integrated, whole-of-nation effort encompassing enhanced partnerships, shared responsibility, a better understanding of the risk environment and disaster impacts, and an adaptive and empowered community that acts on this understanding. The strategy focuses on the following priorities:

1. Leading change and coordinating effort;
2. Understanding risk;
3. Communicating with and educating people about risks;
4. Partnering with those who effect change;
5. Empowering individuals and communities to exercise choice and take responsibility;
6. Reducing risks in the built environment; and
7. Supporting capabilities for disaster resilience.

[5] *Council of Australian Governments, National Strategy For Disaster Resilience (Commonwealth of Australia, 2011)*

This report contributes to the National Strategy, serving to provide information on the State's preparedness for extreme events.

Emergency Management Framework

The term 'emergency management framework' refers to the integrated arrangements in place from the provisions found in the Act to the strategic policy framework and the operational processes and procedures that stem from those policies. The emergency management framework provides a coordinated approach to emergency response and community safety.

These strategic and operational components of the emergency management framework facilitate Preparedness including the effective integration of agencies at multiple levels.

SEMC's primary focus is at the strategic level, organising and overseeing coordination and continuous improvement of emergency management in the State. Operational aspects are chiefly the responsibility of hazard management agencies (HMAs) and other support and lifeline agencies. The relationships and responsibilities are outlined below:

PREPAREDNESS (PPRR)					
STRATEGIC	SEMC	**Prevent/Mitigate**	**Prepare**	**Respond**	**Recover**
		• The existence and maintenance of robust, interoperable, legislative and policy frameworks • Engagement with HMAs, the whole of government, business sector and the wider community including volunteers and the promotion of shared understanding and responsibility and clarification of roles • Understanding of the appropriate logistics and facilities that are fit for purpose • Identification of gaps and recommendation to government on rectification • Continual policy improvement strategies and development of knowledge hub capabilities for emergency management practice			
		• Oversight of the identification and assessment of risk	• Overview of public warning and community information dissemination		
				• Oversight of integrated command and control structures • Identification of crisis communication tools and protocols between agencies	
STRATEGIC & OPERATIONAL	Agency	**Prevent/Mitigate**	**Prepare**	**Respond**	**Recover**
		• Provision of appropriate logistics and facilities that are fit for purpose and effective resource management • Establishment of operations and procedures • Training of key personnel to an appropriate standard • Public education and the integration of community involvement and volunteering			
		• Identification and assessment of risk	• Public warning and community information dissemination		
		• Concentrating efforts to prevent or mitigate events	• Exercising of plans and continual evaluation and learning	• Integrated command, control and coordination including activation of the State Emergency Coordination Group (SECG) • Effective crisis communication between agencies • Effective operational response and recovery	

Figure 1.2 The Emergency Management Framework

Strategic Framework

Legislative and policy framework

The Act establishes a legislative and policy framework for emergency management arrangements in the State of Western Australia.

The Act contains provision for:

- The establishment of various committees, groups and councils[6];
- Planning and preparation protocols for emergencies and hazards at State, district and local levels;
- The prompt and coordinated organisation of emergency management arrangements;
- The creation of a high level strategic policy framework;
- The declaration of emergency situations and state of emergency and special powers that may be invoked during emergency situations; and,
- Other miscellaneous and general provisions.

The Act, amongst other things, requires SEMC to arrange for the preparation of State emergency management policies. There are currently fourteen State level emergency management policies, categorised as either administrative, operational or training policies. These policies are applicable across State government agencies, districts and local governments and set out the operational and administrative emergency management policy for the State. The SEMC identifies the need for new or updated policies such as a risk management policy which is currently under development.

State Emergency Management Plans (Westplans)

The Act also requires SEMC to arrange for the preparation of State emergency management plans, known as Westplans. These plans contain detailed arrangements, responsibilities and procedures for the various agencies and support groups involved in preparation and response to a particular hazard.

Under the Western Australian emergency management arrangements there are 26 prescribed hazards each of which has a Westplan[7] attached setting out emergency management response arrangements should there be an occurrence of the hazard. The SEMC allocates responsibility for establishing, maintaining, implementing, and reviewing of Westplans to a specific HMA.

Plans also attach to a range of support functions which, while not hazard specific, are fundamental to emergency management arrangements. For example State level support plans attach to functions such as welfare and health. These are functions that are likely to be required regardless of the type of hazard that occurs. There are eight support plans in place. As with the hazard specific plans, the SEMC allocates responsibility for these support plans to an appropriate agency.

A complete list of hazard Westplans, including review dates is shown at Appendix 1.

District and local arrangements

Emergency management districts

There exist fourteen emergency management districts in Western Australia, each with its own District Emergency Management Committee (DEMC). The primary statutory function of the DEMCs is to assist in the establishment and maintenance of effective emergency arrangements in their districts.

DEMCs meet a minimum of two times per year and draw membership from the district's emergency management personnel and broader community representatives. The DEMCs are ordinarily, but not necessarily, chaired by the District Superintendent of Police, with agency representation from FESA, Department for Child Protection, Department of Environment and Conservation, Lifeline Services agencies, and other members as required.

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[6] State Emergency Management Committee, State Emergency Coordination Group, Local Emergency Management Committees, State Disaster Council, District Emergency Management Committees, etc.

[7] The hazard of 'heatwave' was prescribed in 2012 with the State Health Coordinator prescribed as the Hazard Management Agency. The Department of Health is currently developing a Hazard plan (Westplan) for heatwave.
Dambreak was described as a hazard under Policy Statement No. 7, the policy which described the State's emergency management arrangements prior to the introduction of the Emergency Management Act *2005. Since the introduction of the* Emergency Management Act *2005, a review into the status of Dambreak as a hazard has been commenced.*

DEMCs assist local emergency management committees (established at the local government level) to meet statutory and other responsibilities, and assess local emergency management arrangements within the district to ensure integrity and consistency.

Some six DEMCs in regional districts (South West, Great Southern, Mid West Gascoyne, Goldfields Esperance, Wheatbelt and the Kimberley) are supported by Community Emergency Management Officers (CEMOs) from the SEMC Secretariat.

Local government

Local government is a key participant in the State's emergency management arrangements and provides significant capability. Local governments are the closest level of government to their communities, with specialised knowledge about environmental and demographic features within their areas.

It is the role of a local government to ensure that effective local emergency management arrangements are prepared and maintained, and to manage recovery following an emergency affecting its community;

The Act requires each local government to establish one or more local emergency management committees (LEMCs) for the local government district. In Western Australia, there are 137 local government authorities, and 123 LEMCs established. Some local government authorities have combined to form one LEMC.

Membership of LEMCs has historically been drawn from the emergency services sector. However there has been acknowledgement of the benefits of a broader membership for LEMCs, including the role of the public sector, industry groups and special needs organisations. This reflects the concept of shared responsibility.

Local government authorities play a vital role in sustaining community recovery. In Western Australia 126 local governments have established recovery committees and 87 of those have finalised recovery arrangements.

Local emergency management planning is based upon the concept of the 'prepared community'. A prepared community is one which:

- is alert, informed and active, and supports its voluntary organisations;
- has an active and involved local government;
- has agreed and coordinated local emergency management arrangements for prevention, preparedness, response and recovery; and
- has an appropriate knowledge of emergency management arrangements.

In regional districts there has been a concerted effort made by DEMCs and the West Australian Local Government Association (WALGA) to promote local emergency management planning.

As at September 2012, 50 per cent of local governments have an emergency risk management plan and a further 18 per cent have undertaken an emergency risk identification process and drafted a plan which prioritises the risks and identifies treatment options to address risk.

LEMC and Western Australian Emergency Management Districts

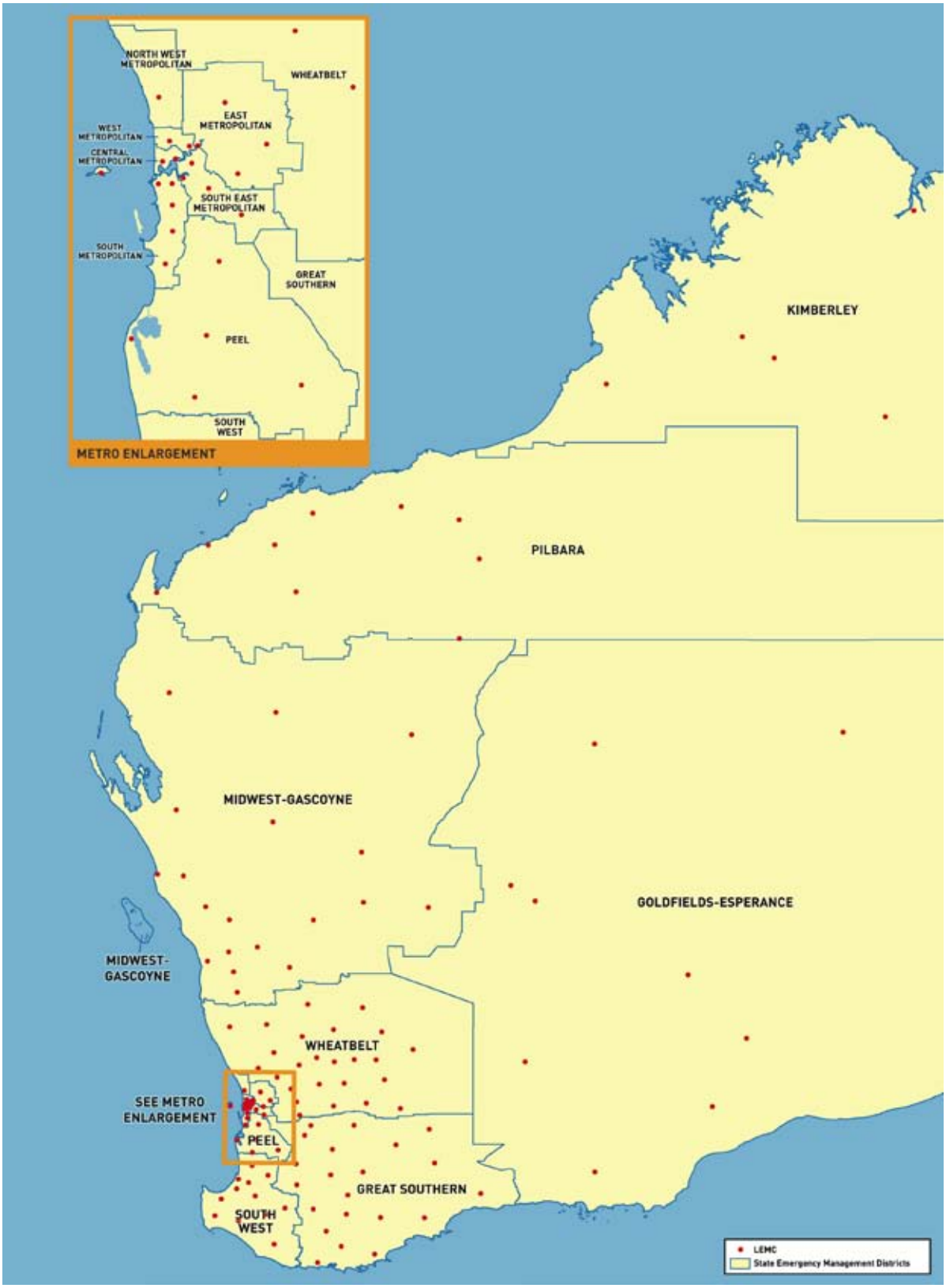

Figure 1.3. Map showing Western Australian emergency management districts and location of established local emergency management committees

Operational Framework

Hazards and hazard management agencies

There are 26 gazetted hazards under the State emergency management arrangements. These comprise:

1. Collapse
2. Cyclone
3. Flood
4. Earthquake
5. Tsunami
6. Fire
7. Storm
8. Hazardous material – chemical
9. Hazardous material – radiation
10. Hazardous material – biological
11. Human epidemic
12. Animal and plant biosecurity
13. Air crash
14. Road crash
15. Land search and rescue
16. Marine search and rescue
17. Radiation
18. Space debris re-entry
19. Terrorism
20. Rail crash (passenger network)
21. Rail crash (freight network)
22. Marine transport emergency
23. Marine oil pollution
24. Energy supply disruption (gas)
25. Energy supply disruption (liquid)
26. Heatwave

Seven State government agencies and one private entity have primary responsibility for the management of these hazards.

The HMAs prescribed by the Regulations are:

- Fire and Emergency Services Authority of Western Australia (FESA);
- State Health Coordinator (Department of Health);
- State Human Epidemic Controller (Department of Health);
- Commissioner of Police (Western Australia Police);
- Agriculture Director General (Department of Agriculture and Food WA);
- Marine Safety General Manager (Department of Transport);
- Public Transport Authority of Western Australia;
- Brookfield Rail Pty Limited; and
- Coordinator of Energy (Public Utilities Office)

The HMAs have responsibility across the prevention/mitigation, preparedness and response spectrum (PPR), in relation to the hazards under their purview, either covering one, two or all three of the PPR categories.

Additionally, a number of other combat and support organisations which possess specialised knowledge, expertise and resources may assist the HMAs in performing specific emergency management activities and functions.

HMA responsibilities include:

- Acquisition and management of the necessary resources required for the management of the specific hazard;
- Provision of public and community information in relation to the hazard, its effects and the methods of protecting against it;

- Establishment of the facilities and logistics required to manage the effects of the hazard;
- Appropriate training of personnel to allow them to effectively manage the effects of the hazard;
- Conducting State level exercises to test the plans in place and to evaluate those exercises and actual incidents to establish where lessons can be learned and improvement made;
- To ensure the formation and maintenance of established command, control and coordination practices in the event of an emergency;
- The issuing of public information and warnings at the time of the occurrence of an emergency.

An important responsibility of the HMAs is coordinating the development and maintenance of the Westplans for the hazards for which they are responsible.

Support functions

At times of major emergency large numbers of people can be displaced and/or injured. The effectiveness with which these groups are assisted is critical to the level of State preparedness. In this regard, there are a number of support functions that enable hazard management agencies to undertake their role effectively including the key areas of welfare, recovery and health.

Emergency welfare services
Under current Western Australia emergency management arrangements, the Department for Child Protection is assigned responsibility for the provision of emergency welfare support services. The Department's support role is detailed in the Act, SEMC policy statements and a range of Westplans. It includes the provision of services, including emergency food and clothing, counselling services and other personal support services.

The Department has a number of the key organisational, human and infrastructure capacities required to effectively deliver emergency welfare services. These include access to trained specialist staff, a number of regional offices able to draw on local human services community networks, and physical infrastructure such as vehicles and emergency response kits.

The Department coordinates agencies with the capacity to assist in delivering emergency welfare services through the State Welfare Emergency Management Committee (SWEC). The SWEC is convened by the Department and brings together government and non-government organisations, and non-statutory volunteer groups, to help meet the welfare needs arising from a disaster.

Standing members of SWEC include the Australian Red Cross, Salvation Army, St John Ambulance, Country Women's Association, Volunteering WA, Adventist Development and Relief Agency, West Australian Local Government Association, Council of Churches, and a number of State and Federal government agencies.

Health arrangements
The arrangements for health disaster response in Western Australia are set out in Act and Regulations, and Westplan – Health, which was developed by the Health Services Sub-committee (HSS) of SEMC.

In addition to its role in respect to the management of specific hazards, via the State Health Coordinator, (human epidemic, release of biological agents, heatwave), the Department of Health has a major emergency management role providing health support to a range of HMAs in dealing with the injuries and illnesses arising from any disasters, including mass casualties.

Australian health emergency management agencies are guided by principles of health disaster management agreed by the Australian Health Ministers' Advisory Council in 2010. These National Health Emergency Response Arrangements guide the governance, command and control and responses to a national health emergency, including the role of the Australian Health Protection Principal Committee, of which WA Health is a member.

Recovery arrangements
Recovery in the emergency management context is defined as the coordinated process of supporting disaster affected communities in the reconstruction of the physical infrastructure and the restoration of emotional, social, economic and physical well-being. Recovery activities should ordinarily commence during the response to an emergency and in some cases may continue for a number of years.

The arrangements for disaster recovery in Western Australia are set out in the Act, State Emergency Management Policy 4.4 – State Recovery Coordination and Westplan – Recovery Coordination. Key features of the arrangements are:

- local governments are responsible for developing a local recovery plan and managing recovery following an emergency affecting the community in their districts;
- controlling agencies are required to include initial recovery arrangements in emergency management response plans;
- State level recovery arrangements may be activated when required to ensure the provision of coordinated support to emergency affected communities. This operates only to ensure that the affected community has equitable and appropriate access to available resources. The management of recovery must still be determined at the local government level; and
- if extraordinary arrangements are required for a specific emergency, the Chair of the Recovery Services Subcommittee (a subcommittee of SEMC) may recommend to the Government the appointment of a specialist State Recovery Coordinator.

In the event of an emergency requiring a coordinated response across multiple jurisdictions, or where an affected jurisdiction relies on significant support from other jurisdictions and existing arrangements are insufficient, the National Crisis Committee may assist with the national coordination of recovery.

The State recovery arrangements were reviewed in 2010 and 2011 as a result of observations made during the recovery activities that followed the Toodyay bush fire in 2009.

Report Methodology

A major consideration for SEMC in formulating an approach to this report has been to develop a framework for future annual Emergency Preparedness Reports. This is to enable emergency management agencies to report information in a consistent manner over time, thus allowing objective assessment of capability and improvement.

The 2012 Emergency Preparedness Report is an assessment of current capabilities and provides a base for development of future reports.

The methodology draws upon the collective knowledge of those working and operating in the emergency management environment. This approach captures the range of positive initiatives either underway or in development and also identifies areas where further work is planned.

Information has been provided by HMAs, regarding their areas of operation and those of other agencies (government and non-government) that support them.

SEMC also sought information from a number of other relevant entities, including private and public utility providers, the Bureau of Meteorology and other government agencies and instrumentalities (State and local).

With regard to the State's preparedness for recovery, information has been sourced from agencies charged with responsibility to assist the community to recover from a major emergency. Local governments have prime responsibility for the coordination of recovery efforts but there are times when the effort required is overwhelming. In those instances State level assistance will be made available including through agencies such as the Department for Child Protection and the Department of Health.

The information provided to SEMC has been assessed against sixteen core capability areas (Figure 1.4):

NO	CAPABILITY	DEFINITION
1.	Hazard identification and risk assessment	There is a clear process for identifying existing and emerging risks, the elements of those risks and the threats they pose to the broader community.
2.	Hazard mitigation	Tangible steps that have been taken to prevent the occurrence of a hazard and/or reduce its impact should it occur.
3.	Laws and authorities	Appropriate legislative and associated structures exist which allow the effective management of a hazard including the response to its effects should it occur.
4.	Policy	A contemporary policy framework is in place that directs and informs those operating in the emergency management environment.
5.	Finance and administration	Appropriate finance and administrative processes exist to allow the effective management of hazards.
6.	Resource management	Effective systems and controls for the mobilisation, deployment and coordination of resources during the course of an emergency event.
7.	Public education	The process of educating the broader community of the nature of a hazard, the possible effects it may have, measures that are or should be in place to prevent/mitigate, respond to and recover from its effects and the role they can play in that process.
8.	Training	The education, instruction or discipline of a person or group.
9.	Exercises, evaluation, corrective actions and post-incident analysis	The exercise of plans, processes and procedures; the evaluation of those exercises to bring about positive change and the evaluation of incidents after their occurrence to create a culture of continual learning and improvement.
10.	Public information and community warnings	Systems and processes that warn the broader community of impending danger and advise of steps that they should be taking.
11.	Operations and procedures	Pre-determined processes and procedures that will be employed in the management of an emergency.
12.	Logistics and facilities	The existence of assets, equipment and facilities available in the management of an emergency.
13.	Command, control and coordination	The inter-relationship between stakeholders during an event, based on a well-known and pre-established structure that facilitates the orderly and organised giving of direction, undertaking of key tasks and reporting arrangements.
14.	Volunteering and community engagement	Engaging with the community to provide a shared understanding of responsibilities and to bolster the resources to allow communities to effectively manage the effects of emergencies.
15.	Recovery	The process of having the appropriate structures in place to allow a community to deal with the effects of a major emergency and to restore that community's normal way of life and critical infrastructure after the event has occurred.
16.	Support	The support services in place that allow effective preparedness, response and recovery.

Figure 1.4. Core capabilities of Preparedness

These capability areas have been adapted from a similar list developed in the United States by the Federal Emergency Management Agency (FEMA) and the National Emergency Management Association (NEMA) when undertaking the Capability Assessment for Readiness (CAR).

Part 2
The Capability Areas

This part of the report looks at the impact on emergency preparedness of sixteen core capability areas. These capabilities are based on those used in other jurisdictions to assess preparedness and are considered to be fundamental to how well the State performs its prevention, preparedness, response and recovery (PPRR) functions. This report does not provide a complete inventory of the resources allocated to each capability area by State agencies. It focuses instead on the extent to which each capability area contributes to the State's current emergency management preparedness, highlighting recent enhancements in systems, processes and procedures, resources and enabling policies or administrative arrangements.

SEMC adopted the capabilities based approach, as it is a common concept world-wide in analysing emergency management. For instance, emergency services providers in Victoria are piloting a capabilities self-assessment against standards, using Good Practice Indicators (GPIs): these are to be reviewed by the Office of the Emergency Services Commissioner over a four-year continuous improvement cycle. The development of the Western Australian concept to include such indicators will be considered further.

SEMC believes that adopting a capability-based approach (rather than a response-centric focus), will ensure the assessment of preparedness extends to the full range of the emergency management spectrum, including the prevention and recovery phases.

For Western Australia's first Annual Emergency Preparedness Report sixteen capabilities across the PPRR spectrum were identified, based on the Capability Assessment for Readiness (CAR) protocol as developed by the US Federal Emergency Management Agency (FEMA) and the US National Emergency Management Association (NEMA). These capabilities are under review for the Western Australian context and may vary in subsequent Emergency Preparedness reports.

Figure 2.1 depicts the relationship around preparedness (as adapted from the *Victorian Emergency Management Manual*[8]) and the defined key capability areas, representing a holistic ideal of what constitutes preparedness.

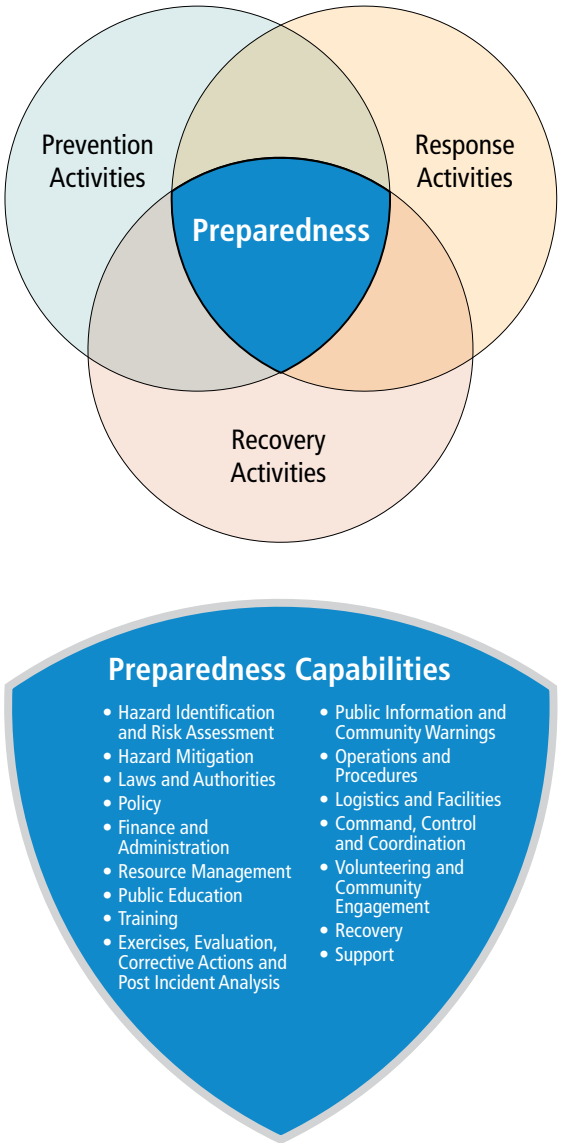

Figure 2.1 The Preparedness Concept

[8] *Office of the Emergency Services Commissioner, Victorian Emergency Management Manual (State of Victoria 1997-2012)*

The status of each core capability is discussed later in this part, along with current or future work proposed as part of continuous improvement.

Some of the capability areas are interconnected. For example, the State's knowledge of its risk (derived from hazard identification and risk assessment) profile serves to inform its resource management.

The core capabilities provide a sound framework for assessing the State's preparedness.

Hazard Identification and Risk Assessment

Capability Definition: *There is a clear process for identifying existing and emerging risks, the elements of those risks and the threats they pose to the broader community.*

Hazard identification and risk assessment is the cornerstone of a robust approach to emergency management. It informs where our greatest risks will emerge, whether our planning and preparedness for emergencies is appropriately focussed and the areas to which our precious and finite resources should best be directed.

Adoption of risk management as a business principle

Risk identification and management is a fundamental aspect of a resilient community and underpins the principles of the *National Strategy for Disaster Resilience*[9], to which Western Australia is a signatory.

Risk management is a concept well known to emergency management entities. Although most State level agencies have adopted risk management to some extent, there is scope for more uniformity of standards across the emergency management environment.

Indeed observations have been made by the Keelty reports[10] and the Community Development and Justice Standing Committee report entitled *Western Australia's Readiness for the 2011-12 Bushfire Season*[11] regarding the perceived deficiencies in the adoption by agencies of risk management as a business model principle.

More work is needed to continue fostering a risk based approach. This is also an observation made by the Office of the Auditor General in its 2009 report: *Coming Ready or Not: Preparing for Large Scale Emergencies*[12]. SEMC acknowledges that it must take responsibility for the establishment and maintenance of a State risk management framework that is utilised at all levels in emergency management. As a risk-based approach is extended and made more uniform, emergency management entities will hopefully embrace its principles in all elements of their business.

SEMC (and the SEMC Secretariat) have commenced work on a State Risk Management Framework which will be a strong focus for the coming year.

The preliminary risk management objectives are outlined below in relation to the State's core objectives.

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[9] *Ref, note 5*
[10] *Ref, note 1*
[11] *Community Development and Justice Standing Committee,* Western Australia's Readiness for the 2011-12 Bushfire Season Report No. 9 *(2011)*
[12] *Auditor General Western Australia,* Coming Ready or Not: Preparing for Large Scale Emergencies *(2009)*

Managing Risk Related to the Core State Objectives

The macro objectives which apply to Western Australia are:

- **People:** Protect the lives and well-being of persons.
- **Economy:** Maintain and grow the State's productive capacity, employment and government revenue.
- **Social:** Ensure that there is public order that people are housed and fed in a safe and sanitary manner and have access to social amenity including education and health services and that things of cultural importance are preserved.
- **Government:** Ensure that there is at all times, an effective and functioning system of government and societal respect for rule of law.
- **Infrastructure:** Maintain the functionality of infrastructure, particularly key transport infrastructure and utilities required for community health, economic production and effective management of emergencies.
- **Environment:** Protect ecosystems and biodiversity.

Risk management objectives:

- State agencies and other organisations involved in emergency management as defined by Policies under the *WA Emergency Management Act* will maintain a correct, current and comprehensive understanding of risks related to their core objectives by applying the Australian standard for risk management *AS/NZS ISO 31000:2009*. In developing this understanding, State agencies and other organisations will take into account all forms of natural and technological hazards including those referenced in the WA *Emergency Management Act 2005*.
- State agencies and other involved organisations will ensure that risks related to their objectives are within the risk criteria established by the State Emergency Management Committee.

Hazard Mitigation

Capability Definition: *Tangible steps that have been taken to prevent the occurrence of a hazard and/or reduce its impact should it occur.*

Hazard mitigation is a logical extension of the risk identification process. It is the means by which hazards are treated to reduce the potential for their occurrence and should they occur, to reduce the significance of their impact. For instance the State Government has recognised this need in regard to bushfire and has increased funding to DEC and FESA in respect to fire management and bushfire risk mitigation.

Hazard mitigation strategies also consist of broader policy initiatives such as land use planning and the declaration of bushfire prone areas to regulate building construction standards. As well, they include community based agreements and activities relating to hazard reduction. The adoption of such strategies has commenced in Western Australia.

There are a number of hazard mitigation strategies occurring at agency and local levels. The Western Australian Local Government Association (WALGA) has developed a reporting system called 'Pin2Fix' that enables community residents to report issues such as excessive fuel loads to their local government for attention. Pin2Fix is currently in trial stage, with a public campaign for its launch planned in January 2013.

WALGA has also advised that local governments in high bushfire risks are encouraging property owners to modify growth of fuel loads by providing additional tip passes and green waste collections as recommended by Keelty.[13] WALGA also advises that local governments have issued preparedness information with rates notices, at community forums, public meetings and in local advertising to increase community awareness of bushfire hazard mitigation. SEMC encourages the continuation and strengthening of these initiatives.

The Department of Commerce has published, and distributed to local governments, *Building for better protection in bushfire areas: A homeowner's guide*. This guide provides advice to homeowners on ways to improve the design and construction of their home to minimise potential damage from bushfires.

[13] *Keelty MJ, A Shared Responsibility - The Report of the Perth Hills Bushfire February 2011 Review (2011) Recommendation 17*

In September 2012 the Premier launched an initiative for public sector agencies and local governments to encourage the construction of Building Protection Zones (BPZs). BPZs are areas around assets in which fuel loads can be reduced to mitigate the risk of assets being impacted by bushfire. The initiative has been adopted by agencies and local governments that have contracted FESA to provide bushfire management services.

Land use planning[14]

A focus on land use planning and associated initiatives as a hazard mitigation strategy has been identified in a number of major incident reviews[15].

Appropriate land use planning can ensure that land is not used for purposes that will make it vulnerable to the effects of natural disasters. For example, not constructing homes in known flood or fire prone areas. The Department of Planning (DoP) and the Department of the Premier and Cabinet (DPC) are jointly coordinating the development of a Capability and Investment Plan for consideration by the SEMC, as part of the implementation of the *National Strategy for Disaster Resilience*[16] in Western Australia.

Senior officers from the DoP, DPC, FESA, the Department of Commerce, DEC, Landgate and the Western Australian Local Government Association (WALGA) will participate in a formalised working group to oversee the progression of those actions selected for development.

A number of land use planning activities and work programs relating to hazard mitigation are currently being undertaken or are planned for 2012/13 to 2013/14. Progress will be reported in next year's SEMC Emergency Preparedness Report.

Laws and Authorities

Capability Definition: *The existence of the appropriate legislative and associated structures to allow the effective management of a hazard including the response to its effects should it occur.*

As with many aspects of good governance, the ability to respond effectively and manage major incidents depends upon a robust, workable and contemporary legislative framework. Emergency management is a critical function and requires a framework that ensures:

- all participants are aware of their rights and obligations;
- all participants are clear as to how the system will function at times of emergency; and
- there are special powers and authority that may be exercised at times of need.

Figure 2.2 presents the Western Australian emergency management legislative and policy hierarchy.

***Emergency Management Act* 2005**

Emergency Management Regulations 2006
(Subsidiary legislation)

State Emergency Management Policies
State Emergency Management Policies are those developed under s.17 EM Act and provide the strategic framework for emergency management in the State.

State Emergency Management Plans
State Emergency Management Plans (Westplans) are those prepared under s.18 EM Act to outline State arrangements for the emergency management of hazards and support functions.

Figure 2.2 – WA EM legislation and policy hierarchy

[14] *Information courtesy of Department of Planning, WA*
[15] *E.g., Keelty reports. Ref, note 1*
[16] *Ref, note 5*

The current legislative framework consists of the Act and Regulations. Those who operate in the emergency management environment in Western Australia generally have a clear understanding of the legislative provisions which are considered to be quite robust.

The 2009 Auditor General report[17] identified a deficiency in the current legislative framework in that no controlling agency has legislative responsibility for major emergencies that are not prescribed as hazards in the Regulations.

There was a lack of clarity on which agency would control the response to these emergencies and which powers would be available to responders. As a result the SEMC established a partial solution through amending State Emergency Management Policy[18]. This enabled senior police officers to assume control of the emergency and coordinate combat agencies on site until such time as a controlling agency is appointed and a handover is completed.

There are a number of Acts and Regulations that provide emergency responders with various powers and authorities within Western Australia. Most of this legislation is subject to regular review, however when considered in isolation opportunities for rationalisation may not be realised. The SEMC Secretariat, in conjunction with FESA, is currently undertaking a comprehensive review of the *Emergency Management Act* 2005 in consultation with key stakeholders. However, at a future time there could be benefits for a broader review of emergency legislation to be commissioned to ensure consistency across legislation, identify legislative gaps and minimise duplication.

Proposed amendments to the *Emergency Management Act* 2005, arising from the current review, will enable the State Emergency Coordinator (SEC) to declare an emergency situation. This amendment enables the SEC to independently determine whether there is a need, in response to an emergency, to exercise the emergency powers outlined in the Act to prevent the loss of life, property or environment.

Policy

Capability Definition: *A contemporary policy framework is in place that directs and informs those operating in the emergency management environment.*

A policy structure that establishes a level of uniformity of practice and approach and can be relied upon prior to, during and after an emergency event is a core capability area.

An extensive policy structure currently exists. State emergency management policies are created under the authority of section 17 of the Act and are endorsed by the SEMC. In many cases there is an associated procedure which gives detailed information on the 'how to' aspects of the policy directives. HMAs and combat agencies also have detailed operational policies in place.

While the policy structure itself is extensive, in recent years there has been no formal review to ensure it remains robust and fit for purpose. No agency has raised any specific issues with the policy framework but good business practice dictates periodic review of such matters. Aspects of individual State-level policies raised in major reviews such as the Special Inquiry into the 2010 Perth Hills Bushfires[19] have been addressed.

All policies are subject to five-yearly reviews although there is capacity for policies to be updated and amended more frequently if required. The annual SEMC Emergency Preparedness Report will identify areas for review across the emergency management environment and may facilitate the review and continuous improvement of the State's policy framework.

[17] *Ref, note 12*
[18] *SEMC, State Emergency Management Policy 4.1 – 'Operational Management' (2011)*
[19] *Keelty MJ, A Shared Responsibility - The Report of the Perth Hills Bushfire February 2011 Review (2011)*

Finance and Administration

Capability Definition: *Appropriate financial and administrative processes exist to allow the effective management of hazards.*

Sound financial and administrative processes are fundamental to the efficient and effective management of emergencies at a State, district and local level. There are often significant costs associated with prevention, preparedness, response and recovery activities.

Effective funding arrangements for relief and recovery

Having effective funding arrangements in place for relief and recovery activities in response to a disaster is essential to the State's preparedness.

A good financial system, capable of providing disaster relief, should be easily accessible, well publicised and understood, clear and transparent and applied consistently.

Communities and individuals within Western Australia have access to several avenues of funding to assist with disaster recovery.

FESA manages the Western Australia Natural Disaster Relief and Recovery Arrangements (WANDRRA) which provide financial assistance to communities whose social, financial and economic well-being have been significantly affected by an eligible natural disaster event.

Figure 2.3 presents WANDRRA expenditure for 2011/12 by hazard category.

HAZARD	TOTAL ($)
Bushfire	4,880,806
Cyclone including associated flooding	6,416,912
Flood	104,511,750
Storm	16,439,802
Total	**132,249,270**

Table 2.3 WANDRRA expenditure for 2011/12

The Auditor General Western Australia recently published its *Second Public Sector Performance Report 2012* and found that WANDRRA payments were "generally made in a timely manner to eligible recipients and for eligible purposes".[20] Some key findings have been made regarding the need to strengthen systems and controls to ensure a more robust administration of the fund.

The SEMC Secretariat also administers the Natural Disaster Resilience Program (NDRP) which is part of an ongoing, funding program under which the Australian Government matches (on a 50:50 basis) funding provided by the State, local government or other organisations. While WANDRRA is designed primarily to assist communities to recover from the impact of disasters, NDRP aims to help communities improve their level of preparedness and self-reliance through, for example, strategic plant and equipment purchases or undertaking prevention and mitigation works.

Funding arrangements such as WANDRRA and the NDRP are a resource for a range of communities and greatly aid the State's preparedness and recovery.

[20] *Auditor General Western Australia, Second Public Sector Performance Report 2012 (2012) p19*

Optimal financial resourcing

The financing of emergency management activities makes a significant claim on State resources.

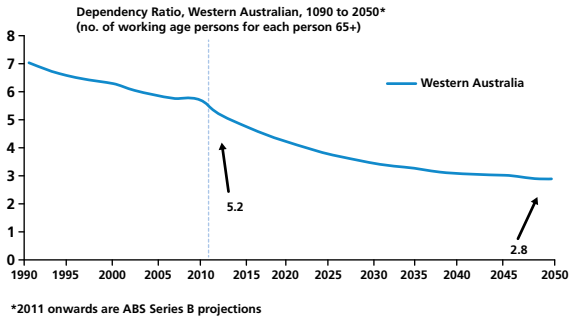


Figure 2.4 Dependency ratio Western Australia 1990 to 2050

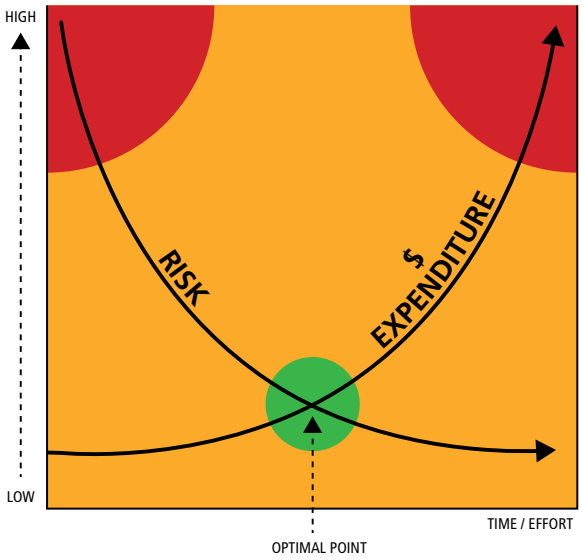


Figure 2.5 Risk vs expenditure graph on ALARP principle

Funding of emergency management activities will continue to be an issue, as financial resources are finite. The Department of Treasury Western Australia has recently conducted an environmental scan confirming that the proportion of the State's population aged 65 years and over is increasing while at the same time the growth of the traditional work force age (15 – 64 years) is expected to slow. This has significant implications for service delivery, in terms of financial and physical capacity to deliver. Figure 2.4 reflects the dependency ratio between the number of working age persons and each person over 65+.

An implication of this environmental scan is increased pressure on the State to optimally allocate financial resources.

The As Low As Reasonably Practicable (ALARP) principle is a risk management concept which may be useful in assessing the optimal level of financial resourcing to allocate to preparedness activities. When allocating financial resources and expenditure to the reduction of risk, results are not linear. When an optimal point or "ALARP" is reached, beyond that point there is only a limited reduction of risk while a disproportionate increase of cost occurs.

Using the model reflected in figure 2.5 to determine the optimal point of expenditure for emergency management activities depends on robust risk assessments. This report highlights the need for a wider adoption of a more uniform approach to risk assessment and evaluation of effectiveness. This would assist in ensuring optimal financial resourcing for emergency management activities.

Resource Management

Capability Definition: *Effective systems and controls for the mobilisation, deployment and coordination of resources during the course of an emergency event.*

How efficiently and easily resources can be mobilised, coordinated and deployed contributes to the success of a response effort.

Coordinated acquisition and management of resources

An effective resource management system is one which acquires and manages its assets and resources in a strategic and coordinated fashion.

This will reduce the risk of duplicated acquisition of assets and a disjointed approach to resource distribution.

The issue of managing resources in silos has been identified in the past. For example, the Community Development and Justice Standing Committee of the Legislative Assembly made a finding, with respect to fire-fighting equipment, that there was no whole-of-government equipment register held by FESA, DEC and local government, and that the response to a bushfire would be more effective if such a register was developed.[21]

[21] *Ref, note 11*

Remoteness and response capability

Our State is home to a unique and diverse environment, the size and complexity of which lead to many challenges.

The effect of remoteness on limiting response capability has been raised by several emergency management agencies, particularly in relation to the potential delay in equipment and personnel arriving at a regional incident. Remoteness can also be an issue with the provision of relief and communities' access to services. For example, in the event of a disaster in a remote community there is often inadequate infrastructure to support responding services.

Agencies have provided limited information concerning this challenge. It is noted, however, that community and industry engagement by some agencies has been significant in prevention, mitigation and response activities across the State. Such initiatives show a level of innovation in resource management to utilise networks and personnel outside an emergency management agency to bridge potential gaps caused by geographical remoteness. Using community engagement as a strategy to strengthen emergency management across the State is important and will be touched on later in this report.

It is important to note that while it may be convenient for specialist emergency response units to be based in the metropolitan area, for the effective mobilisation, deployment and coordination of resources during the course of an emergency event some important resources may need to be strategically placed. This is the case with, for example, equipment to respond to marine oil spills.

National and international resource sharing

Emergency management agencies and local government have reported resource and expertise sharing initiatives at a State, national and international level.

The emergency management community relies on interstate and international partnerships to assist in times of need when response capabilities and capacities are stretched. Agencies should continue to foster these partnerships and take advantage of opportunities to share knowledge and expertise wherever practicable. It seems self-evident that these resource sharing agreements should be extended to include local (West Australian) employers wherever possible.

Limited resources

In an emergency management setting all resources have a maximal capacity: this applies to financial resources, equipment, personnel, infrastructure, knowledge and expertise.

Significant historical events have shown us that there will be extreme situations that will overwhelm capacity. For example, the September 11 attacks in the United States highlighted that normal structures and processes can be overwhelmed by situational complexities and the sheer enormity of an emergency response/recovery effort.

Despite high community expectation, there may be hazards which exceed a manageable level in the case of an extreme event. Aside from a standing army, it is not feasible to have a large number of responders waiting for a maximum magnitude emergency.

One strategy may be to think innovatively about using the resources that are available, if increasing resources is not a feasible option. For example, agencies are reporting initiatives where technology is assisting in targeted response efforts. Figure 2.6 presents a case study of FireWatch/Aurora which is an example of one such initiative.

CASE STUDY

FireWatch/Aurora

FireWatch has been used by emergency services to assist in monitoring and managing bushfires in Western Australia since 1989. Landgate has redeveloped FireWatch to take advantage of improved communications in rural and remote areas of WA and technological changes in the provision of location information. The enhanced FireWatch2.0 is in the final stages of development and is currently available for use online. It provides significant improvements which will assist agencies such as Fire and Emergency Services Authority (FESA) and Department of Environment and Conservation (DEC) in monitoring and managing bushfires.

Critically, a new capability called Aurora is also being released this fire season. Aurora automatically simulates the spread of fire using satellite detected hotspots, as well as allowing for user defined simulations with results displayed in a web browser or within a geographic information system (GIS). Aurora is being delivered by Landgate, FESA and the University Of Western Australia to produce a national bushfire prediction and early warning system.

Australis, developed by the University of Western Australia, is the core of Aurora. Australis incorporates 50 years of fire behaviour research in a computing framework that can produce results in seconds instead of the minutes and hours that it currently takes to do by hand. Improved speed will result in the ability to assess community resilience to fire during community planning, operational 'what if' scenarios to assist incident management and to assist with prescribed burning programs.

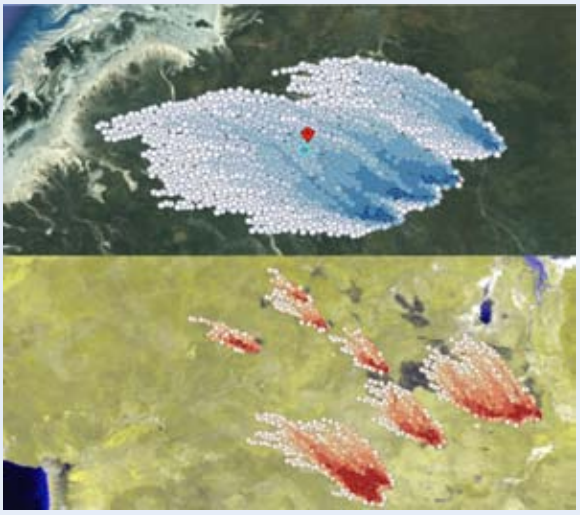


Figure 2.6 Fire spread predictions Aurora based on user input (above) and satellite-detected fire hot spots (below).

FireWatch2.0 and Aurora are significant capabilities that have the potential to make a major contribution to managing the risk associated with bushfire and improving the response to fire events. FESA is expecting to operationally trial both the desktop GIS add-in and the online version of Aurora during 2012/13 southern fire season. Aurora will be fully integrated into Firewatch2.0 by the end of 2013/14.

Figure 2.7 Aurora/Firewatch case study

Public Education

Capability Definition: *The process of educating the broader community of the nature of a hazard, the possible effects it may have, measures that are or should be in place to prevent/mitigate, respond to and recover from its effects and the role they can play in that process.*

Public education is a vital aspect of effective emergency management.

Community members not involved with emergency management on a regular basis have limited knowledge of the State's emergency management arrangements, the risks that may be presented by the range of natural and man-made hazards and the part they should be playing in dealing with those risks.

Educating the public on these issues should serve to:

- increase awareness of the risks;
- engender cooperation, co-ownership and commitment; and
- assist in the prevention and mitigation of serious emergency by helping the public to know what can be expected and what part they can play.

Considerable work has been undertaken in this area. FESA undertakes *Cyclone Smart* and *Flood Smart* programs as public education initiatives to inform communities in areas prone to these risks. FESA's *Prepare, Act, Survive* campaign is widely distributed particularly in relation to bushfire. School age programs concerning different aspects of fire management are presented by both DEC and FESA. The Department of Health and the Department of Housing provides information on community preparation and response to heatwave with particular reference to vulnerable groups such as older people and young children.

Public education programs are not confined to natural or seasonal hazards. For example, the Public Transport Authority provides extensive rail safety information for users of the passenger rail network.

Effective public education programs are also not confined to agencies with primary management responsibility for particular hazards. For example, the Department of Health website and other published material contain information on the risks to health and well-being associated with bushfire, during a fire event and in the immediate aftermath and recovery period.

The effectiveness of such initiatives needs to be evaluated by hazard management and other agencies to assess whether they are reaching the intended audience and whether the messages are being absorbed and adopted.

There is scope for whole communities to raise awareness among their members of the presence of hazards in the natural and built environment and the need to acknowledge responsibility at the household and business level for a degree of self-sufficiency and preparedness. A case study of such an approach regarding bushfire is provided by the Department of Education.

CASE STUDY

Case Study: The Department of Education's *Principal's Guide to Bushfire*

The Victorian bushfires of February 2009 occurred during some of the most extreme weather conditions ever recorded in that State, with heatwave conditions occurring across much of Victoria. The Victorian Government and fire authorities warned that the conditions forecast for 7 February were so extreme that it was likely to be 'the worst day ever in the history of the State'. The dire predictions were realised in the fire disaster that unfolded at a level never before experienced, with 173 people losing their lives as a result of the fires.

It is against this background that the Department of Education Western Australia developed processes for responding to Catastrophic Fire Danger Rating Days. The importance of bushfire preparedness in schools was also emphasised in several recommendations of the 2009 Victorian Bushfires Royal Commission, which highlighted the vulnerable nature of schools to bushfire.

Through liaison with the Fire and Emergency Services Authority (FESA), the Bureau of Meteorology, Catholic Education Office and the Association of Independent Schools of Western Australia, the Department of Education has developed the *Principal's Guide to Bushfire* (the Guide) and established a Bushfire Zone Register.

The Guide was first produced in February 2010 and enables principals to prepare their schools and to respond should a bushfire occur. The Guide is updated annually and is available on the Department of Education's website. The Guide advises that preparing a school for bushfire is the principal's responsibility, and that all staff, students and parents need to know what to do if a bushfire threatens.

The Bushfire Zone Register identifies schools that may be at risk from bushfire on days when the Fire Danger Rating is catastrophic. If FESA advises the Department of a Catastrophic Fire Danger Rating forecast for a particular part of the state, schools on the Bushfire Zone Register go into pre-emptive closure, in accordance with the Guide.

The Guide requests that schools located in areas susceptible to bushfires will incorporate key bushfire messages in their curriculum. Schools are required to report to the Department annually on progress. This procedure has been undertaken in accordance with recommendation 10 of the Keelty Special Inquiry into the Perth Hills Bushfire. A copy of the *Principal's Guide to Bushfire* can be found on the Department of Education's website at http://det.wa.edu.au/.

Training

Capability Definition: *The education, instruction or discipline of a person or group of people.*

Training is an essential component of preparedness. It conditions personnel to effectively respond under the intensity and stress of an emergency situation.

Formalised training courses

Response to an emergency requires a systematic and coordinated approach by a large and complex workforce. Training incorporating an integrated approach is essential. The Australasian Inter-Service Incident Management System (AIIMS) is a nationally recognised system which encompasses organisational principles and structures that facilitate an 'all-agencies' approach towards incident management. AIIMS principles, structures and procedures are taught through a variety of courses by private and public operators.

Of particular note is the Australian Emergency Management Institute (AEMI), a Centre of Excellence for knowledge and skill development in the national emergency management sector.

SEMC also conducts introductory courses on emergency management and recovery throughout the year and in various localities State-wide.

Hazard management and combat agency training

Hazard management and combat agencies in the State conduct and participate in various training activities integrated with their continual improvement processes. Many organisations conduct courses throughout the year to ensure operational personnel are ready for eventualities.

Figure 2.8 provides a 2012 snapshot of reported historical training and trained personnel across agencies:

AGENCY	NUMBER TRAINED		AGENCY	NUMBER TRAINED
Agriculture	• 180 in emergency response awareness • 189 in emergency management foundation unit • 20 AIIMS • 34 Biosecurity • 70 Industry liaison roles (industry members) • No level 3 incident controllers		Police	• AIIMS – all officers • 7 Land search (nationally qualified) • 6 marine search (nationally qualified) • 6 First Responder Land Search, Refreshers conducted annually • 8 First Responder Marine Search, Refreshers conducted annually • National and International sharing
FESA	• 4236 AIIMS and 323 Advanced AIIMS (career and volunteers) • >24,000 volunteers trained in various courses • 23 Level 3 incident controllers • Pathway for level 3 IC development • Regional training calendar (LGA) • National and International study tours		DEC	• 839 AIIMS • 8 level 3 incident controllers • Pathway for level 3 IC development
WaterCorp	• 200 site and incident managers • Regular AIIMS training • Continual training process		Transport	• 67 AIIMS • 6 Level 3 incident controllers • Training framework in place • National and International sharing
Health	• >150 major medical and event management • 4-5 Level 3 incident controllers		Passenger Rail	• All staff – First Responders • 14 AIIMS
Brookfield	• 5 Per way Superintendents • Staff and contractor training			

Figure 2.8 Training of personnel across government agencies

Local government training

WALGA also provides emergency management training for local governments. In addition to forums, workshops and individual sessions it includes:

- An online tool box – providing readily accessible information, tools and examples with access to links to specialist sites, planning guides and templates;
- The EM-Powering Communities Elected Members Learning Guide; and
- A Local Emergency Management Committee Guide.

Exercises, Evaluation, Corrective Actions and Post Incident Analysis

Capability Definition: *The exercise of plans, processes and procedures; the evaluation of those exercises to bring about positive change and the evaluation of incidents after their occurrence to create a culture of continual learning and improvement.*

Building capacity and disaster resilience requires emergency management agencies to apply a risk-based approach and to adopt a culture of continual learning and business improvement. This ensures operational plans, processes and procedures are as effective and efficient as possible.

Conducting appropriate exercises using a risk based approach and reviewing the outcome of those exercises is pivotal to developing operational and psychological preparedness for emergencies.

Experience in responding to major disasters is thankfully limited by their infrequent nature. Exercises provide an opportunity to practice dealing with high pressure situations in a safe and supportive environment. Skills and strategies are rehearsed, feedback on performance is received, and an increased awareness of stress reactions can minimise negative reactions in a real life response situation as well as identify improvements.

Appropriate exercises need to be undertaken at a State, district and local level

The State Emergency Management Policy '*Emergency Management Exercises*'[22] sets out guidelines to ensure that coordination arrangements and emergency management plans and arrangements are tested through regular exercises at a State, district and local level.

Agencies have reported a varied degree of exercises when it comes to emergency management. Appendix 2 lists the exercises conducted including joint exercises. Some emergency management agencies report a full range of frequent and routine desktop and field exercises against their hazards. However some hazard plans have not been exercised over the past 12 months.

Some agencies have expressed difficulties in arranging field exercises, which may be a disincentive to conduct exercises as often as they should. An example of this is the major disruption to public transport facilities if a live train line in the metropolitan area was taken offline in order to conduct a field exercise for the Rail Crash Westplan. However the alternative of desk top exercises has provided a viable option for some agencies. Using these opportunities to conduct meaningful post-exercise analysis and improve systems and procedures is a key component to maximising the State's capability.

Furthermore, under the Regulations FESA is the designated HMA for eight different hazards and WAPOL has been allocated seven. It may be that annual exercises become onerous for these HMAs, particularly when they apply to low-risk hazards. This issue requires some consideration when the relevant policy is reviewed; a risk based approach to this issue should be adopted.

In addition to frequency of exercises, the adequacy and appropriateness of chosen modes of exercises are important. It is also important that robust evaluation processes are in place. The reporting of 'nil lessons learned' from any exercise is a surprising outcome if the post-evaluation is rigorous. There are different types of exercises available to emergency management agencies: desktop, functional (drills) and field exercises (full deployment). If only one type of exercise has occurred the agency must validate its adequacy in terms of the State attaining a sufficient level of preparedness.

Many HMAs have taken the view that activating their Westplan during a real life emergency satisfies their annual exercise requirement under the '*Emergency Management Exercises*' policy[23]. While this policy supports this substitution, it does depend on the adequacy of learnings from the event. The policy also requires a robust review of the incident, including lessons to be learnt.

As part of the Emergency Preparedness Reports emergency management agencies will report to SEMC annually on the exercising of plans and associated processes and procedures including an evaluation of the outcomes and lessons derived from exercises during the year. It is anticipated that State level exercises, for example those required for Westplans, should be conducted on a multi-agency basis to strengthen interoperability.

[22] *SEMC, State Emergency Management Policy 3.1 – State Emergency Exercises (2009)*
[23] *Ibid*

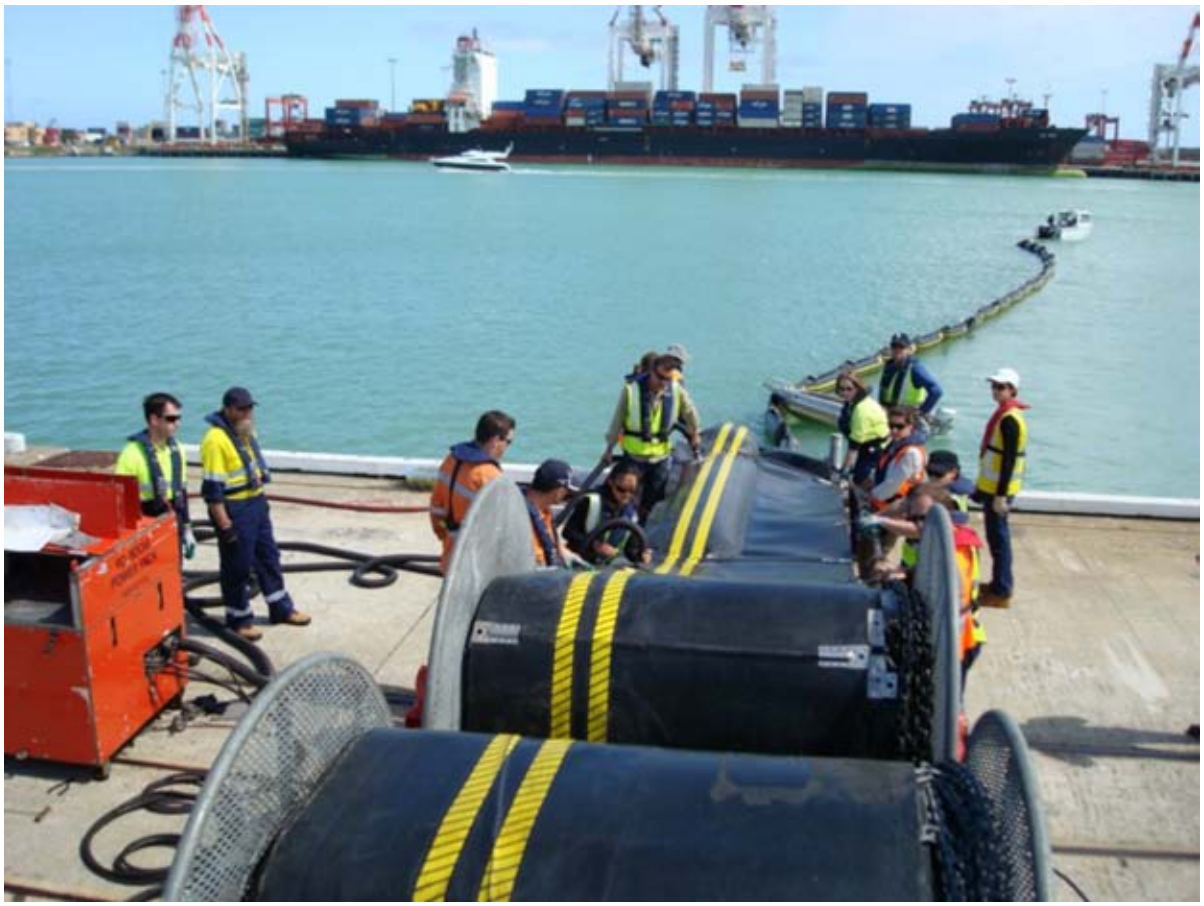
When the policy governing exercises is next reviewed, consideration will be given to the development of a formal evaluation tool to assist agencies and provide a level of standardisation to this process.

Formalised evaluation, corrective actions and post incident analysis

A formal process of evaluation, corrective actions and post incident analysis must be in place to foster a culture of continual learning and business improvement.

Agencies have reported varying levels of evaluation and post incident analysis, ranging from a whole of agency governance framework with standardised processes for evaluation and implementation of lessons, to no reported evaluation or post incident analysis mechanisms. In this regard sharing learning between agencies as to how best to conduct evaluations or alternatively establishing a policy on this seems desirable and is proposed for 2012/13.

Given the competition for scarce resources, emergency management agencies are likely to need a formal process for evaluating the business outcomes of all emergency management activities, whether they are operational activities, public education, training or policy.



Public Information and Community Warnings

Capability definition: *The existence of systems and processes that allows the broader community to be warned of impending danger and to be advised of steps that they should be taking.*

During an emergency the preservation, firstly of life and then of essential infrastructure, economic assets and property is the prime objective. This can require purposeful, precise and timely action by the general public and response agencies, to minimise risk to life and loss of infrastructure.

Preparation for an emergency and an effective, timely response require accurate, consistent, frequent, and easily digestible public information and community warning systems so the whole community can react appropriately.

Constant communication, and the sense of common purpose and support it brings, is a key to resilience.

'Emergency Alert Community Warning' system

In late 2012 the State will roll out a new '*Emergency Alert Community Warning*' (Emergency Alert) system. The system replaces the State Alert system previously used by FESA and WA Police.

The implementation of Emergency Alert addresses a number of concerns raised in the Keelty Special Inquiry into the Perth Hills Bushfire[24] regarding the availability, timing and accuracy of SMS warnings.

The Emergency Alert system is interoperable across HMAs and state boundaries. The web-based technology sends SMS text messages to transient mobile phones or voice messages to land-lines. It allows operators to use GIS technology, to define areas in which specific messages should be sent, including buffer areas. Following this, specific emergency instructions can be sent to people in the defined areas under threat or potential threat. The system, hosted by Telstra, can send out up to 500 SMS messages per second and also has up to 1000 ports per voice channel.

The hosting of the system by the nation's largest telecommunications company is considered to be a progressive step given the level of support that is inherent in such an arrangement. The initial phase of the location-based solution will allow Telstra customers to receive SMS warning messages when they are within the emergency warning area. This service will be expanded to Optus and Vodaphone customers in late 2013 as these companies develop the required systems. Emergency Alert has been adopted throughout Australia. Western Australia's HMAs are reviewing business options for implementation through direct connection to the system or shared access agreements with FESA. There is a need to be aware of system limitations. For example this system will not provide alerts to people who do not have mobile coverage or do not keep mobile phones active.

In adopting the national system the State Alert's subscription service, previously available in WA, will no longer be operating and the State Alert's subscription service will not be available during this bushfire season.

Social media applications

Over the past five years, social networking world-wide has experienced exponential growth and Australian's per capita use is amongst the world's highest.

Social networking made significant contributions to emergency response and recovery in the 2011 Japanese earthquake and tsunami, the 2011 Christchurch earthquake and 2010/11Queensland floods. This included emergency information alerts, volunteer group organisation, missing person notifications and contact re-establishment.

State agencies can use social networking sites during an emergency to reach large targeted audiences directly, interactively and instantly. Queensland Police figures show that 'likes' on their Facebook page rose steadily from near zero in May 2010 to near 7000 by December 2010. Following the cyclone and flooding events in mid-December 2010 and January 2011, 'likes' increased further to 17,000 in early-January and then jumped to 160,000 over a 3 day period.

Social networking, twittering, blogging and live update pictures (video and audio) are all useful public information and community warning tools if harnessed appropriately by agencies.

A number of the State's emergency management agencies have now embraced the use of social media including WA Police and FESA. There is also a State Public Information Sub-Committee of SEMC, chaired by the Western Australia State Public Information Coordinator, which continues to develop protocols in this area.

[24] *Ref, note 19*

Single source, single message

The State is currently assessing the adoption of a large scale messaging system similar to that implemented in Victoria following recommendations from the Victorian Bushfire Royal Commission (2009)[25]. The issue addresses the confusion that can be generated in the community where multiple sources independently disseminate information during times of crisis, particularly if information/instructions appear to be ambiguous or conflicting in nature.

The system used in Victoria, which uses the proprietary name 'One Source, One Message', is designed to ensure all relevant combat agencies are aware of activities and outgoing information and instructions of the other partners. Hosted on a shared platform, the technology allows all participants to see the postings of all other team members in real time, and across broad geographic areas. In this sense, the system facilitates consistent and accurate messaging to operational personnel and the community as a whole. It also contributes to Command and Control procedures as well as assisting with general media management.

Preliminary work has been undertaken to implement a single source, single message information platform in Western Australia and a business case is to be developed.

Recovery

Community feedback following some recent emergencies suggests that although public information may be timely and effective before and during an event, it may rapidly decline after the event, although it is still very important to the recovery process.

While local governments are responsible for the recovery phase, individual local government authorities may be overwhelmed by the demands made upon their resources. The State and HMAs may need to closely manage the information transfer process and provide support to ensure the continuation of appropriate messaging throughout the recovery phase.

Operations and Procedures

Capability definition: *The pre-determined processes and procedures that will be employed in the management of an emergency.*

Operational procedures are an essential part of effective emergency management. It is important that these are well understood by all involved and that community members know what to expect and what role they should play.

State-wide and organisational plans

The State currently has 26[26] hazard plans, prepared in accordance with the Act. The Westplans detail the roles and responsibilities of all participating agencies across prevention, preparedness, response and recovery activities.

There are also eight Support Westplans which include details of supplementary operations and procedures that may be required to assist the primary HMA in case of major emergency.

To ensure the plans are operational, SEMC policy requires that Westplans be reviewed every five years and exercised annually with participation by all agencies that have roles and responsibilities under the plan. Significant interagency dependencies are apparent and robust coordination is required in exercising and reviewing the plans.

Maintenance of the Westplans and Support Westplans by emergency management agencies also includes detailing the creation/implementation date and periodic review cycle. However, six Westplans and Support Westplans have passed their review date (as at September 2012) and two further plans are due for review by the end of 2012. Seven Westplans are due for review by the end of 2013 (see Appendix 1).

In order to contribute to the annual Emergency Preparedness Report the 'responsible agency' for each Westplan must assess and report on the capability of agencies and organisations to undertake the roles and responsibilities assigned to them in the Westplan, including any responsibilities for prevention, preparedness and recovery.

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[25] *2009 Victorian Bushfires Royal Commission (2010)*

[26] *A Westplan exists for the hazard of dambreak, which is not defined as a specific hazard in the* Emergency Management Act *2005. Conversely, the prescribed hazard of Heatwave does not have an existing Westplan.*

Logistics and Facilities

Capability Definition: *The existence of assets, equipment and facilities available in the management of an emergency.*

As the management of emergencies requires appropriate assets, equipment and facilities, there has been considerable investment by successive governments to assist emergency management agencies in undertaking their roles.

In their contributions to this report, agencies did not highlight a lack of critical infrastructure but rather the importance of the ability to make ready and mobilise resources at times of emergency. This capability requires sound knowledge of the existence, operational readiness, interoperability and location of assets and of the availability of suitably trained personnel; co-reliance and inter-dependency between agencies is significant.

Crisis information management and reporting systems

Various inquiries and indeed SEMC have identified that interagency communication can be critical and that interoperability and compatibility are important factors in emergency preparedness. WA Police, Department of Health, Main Roads WA, Public Transport Authority and the Department of Transport have all adopted WebEOC, a proprietary incident and event management system that enables users with internet access to manage multiple incidents and daily events, assign and track missions and tasks, provide situation reports and manage resources. FESA, as an interim arrangement, has adopted WebEOC utilising the WA Police licence until it finalises its incident management system requirements.

Radio communications interoperability

Past major incident reviews have highlighted the criticality of interoperability of radio communications.

The Western Australian Emergency Radio Network (WAERN) has been rolled out across the emergency services. While use of this facility has the potential to enhance interoperability between emergency services, not all agencies have adopted WAERN and limitations exist.

Technological limitations present a significant barrier to all emergency services in the State adopting a single communications platform. Each emergency service agency requires a solution that is appropriate for its core functions, which often necessitates different technological solutions. For example, the WA Police require confidentiality across their network, while FESA requires a solution that is not subject to interference from smoke. There is also the issue of congestion that might occur on a single network in times of emergency, which might limit the viability of a single network.

This is further complicated by changes in bandwidth and increased costs for emergency services organisations signalled at the Federal level.

Technology based solutions

During the compilation of this report, SEMC has identified technology based tools that can assist in the management of emergencies. Tools such as the FireWatch/Aurora application (see figure 2.7) and tools used in oil spill modelling may, with further development, be able to bridge capacity gaps.

Improving the processes for identification and adoption of innovative solutions and approaches offered by technological advances is an area of future work.

Privately held assets

At the local level, Guidelines for Operating Private Equipment at Fires have been developed and distributed to participating local governments in accordance with recommendation 28 of the Keelty Special Inquiry into the Perth Hills Bushfire.[27] This will assist fire management agencies and local governments in the use of privately held assets in responding to fires.

[27] *Ref, note 19*

Command, Control and Coordination

Capability Definition: *The inter-relationship between stakeholders during an event, based on the existence of a well-known and pre-established structure that will facilitate the orderly and organised giving of direction, undertaking of key tasks and reporting arrangements.*

Following tried and practised procedures, and coordinating the responses to emergencies adds to the strength of the State's preparedness to deal with an emergency event.

Emergencies on a large scale often require the cooperation of a number of agencies or groups to effectively combat the hazard. Such cooperation demands functional interagency decision-making systems, control channels and liaison processes. Although this is well accepted, recent emergency reviews have highlighted areas of required improvement including communication, coordination of effort and clarity in command and control processes under pressure of an event.

Coordinated emergency response

Emergencies by nature are unpredictable, and the volume of work required in a time critical fashion by multifunctional teams can simply overwhelm response systems. The established command, control and coordination processes for an emergency are vulnerable to break down under this pressure.

For instance, several recent State and national reviews reported that in some large scale emergencies, where interagency responses were required, there was a tendency for operational staff and management to communicate and act based on their specific agency's reporting line, rather than through the collective 'whole of incident' chain of command. In this regard, an integrated team response requires common reporting and control through a central coordinating body.

In December 2011, SEMC established a working group to review the function of command, control and coordination under the State's emergency management framework. This included identifying options to enhance cohesive, integrated response arrangements for multi-agency emergencies, reviewing the emergency coordinator role during emergency response and identifying options for a State Emergency Operations Centre. The working group's recommendations are currently being considered by SEMC.

Drilling and field exercises across agencies are one way to ensure that command, control and coordination processes remain operational under the pressure of a real life event. The increased training and the national reviews of AIIMS will also assist in reviewing whether any changes in procedures would help.

Interagency dependency and cooperation

Almost all agencies have reported interagency dependency as a critical issue. A number of interagency Memorandums of Understanding are in place to facilitate greater levels of cooperation in the event of major emergency, including one recently concluded between DEC and FESA.

As mentioned earlier interagency exercises in conditions which mirror as closely as possible real emergencies are expected to improve interoperability. Coordinated exercises extending to the recovery phase could also help with actual recovery.

Recent examples of interagency collaboration include work undertaken by Western Power and the Water Corporation to develop options to better protect power supplies, including a pre-summer briefing, interagency incident escalation procedures and development of Western Power's knowledge of the Water Corporation's sensitive sites.

The SEMC Lifeline Services Subcommittee provides a forum for a range of service and support agencies encouraging interagency communication and cooperation. An example of an initiative developed through this means has been the addition and identification of WA Police radio bases on Western Power's control system.

Volunteering and Community Engagement

Capability definition: *The process of engaging with the community to ensure there is a shared understanding of responsibilities and to bolster the resources available to allow communities to effectively manage the effects of emergencies.*

Shared responsibility is a central theme for the effective management of emergencies in all phases.

Communities with a strong sense of shared ownership and a healthy culture of engagement, including strong bonds between the government, the business sector, and the citizens in general, will generally recover faster.

The 'gap' between the required response to a disaster and the capacity of the career emergency services is most effectively addressed through the support of volunteers. The role of volunteers is crucial and recruitment, development and management of volunteers are central to effective emergency management.

Volunteering

Significant research on volunteerism has been conducted covering world-wide, national, State-wide and local Western Australian community trends, from general volunteering perspectives and also specifically for emergency services. Several themes are recurrent in the research, including:

- *Changing demographics* – generational changes, geographical shifts in population density and variations in population ethnicity;
- *Motivational aspects and barriers to volunteerism* – key driving forces behind an individual's desire to volunteer and reasons for declining volunteer numbers in certain domains;
- *Strategies for promoting volunteerism* – packaging and promotion of volunteerism; segmented and specific marketing to key demographics; training, skill development, support, recognition and retention programs for volunteers; and
- *Application of technology* – the advent of high-speed, online and handheld connectivity opening up new methods of assistance that greatly enhance the potential supply of volunteers.

The peak volunteering age groups are 35-44 and 45-54 years. The principal volunteering activities include sport and recreation, welfare, religious service and education.

The National Emergency Management Volunteer Action Plan (2012), reports that more than 500,000 Australians are willing to commit time to emergency services across a range of activities that includes fire management, land and marine rescue and recovery services, event welfare and lifesaving activities.

Across the entire volunteer spectrum, however, emergency services show one of the lower percentage commitments. This is probably due to a combination of aspects including time commitment, physical necessities, required technical skills and concerns over perceived risk. Against this trend, local governments in Western Australia report that emergency services are one of the highest participation areas for voluntary activities (74 per cent), suggesting that at the local community level, particularly in the rural context, the importance of emergency preparedness is appreciated. Unfortunately some rural areas are experiencing population decline, particularly among the young, through factors such as fly-in/fly-out mining operations and lifestyle choices leading to a net migration to urban coastal centres.

Globalisation, increased competition and a lack of income security (i.e. employment uncertainty) have made for a more mobile working population with more diverse work and lifestyle patterns which is a threat to traditional, longer-term, committed volunteerism. However, it can also be seen as an opportunity and in this regard, research has shown that in many countries world-wide, including Australia, there has actually been a growing trend in volunteerism over the past two decades. The challenge for all voluntary agencies, including those engaged in emergency services, is how to tap this growing volunteer market.

In Western Australia, FESA have indicated that overall there are in excess of 25,000 volunteers in the sector, including the cadet program operating in schools and in brigades, units and groups to help grow the youth numbers. Due to the nature of emergency services, operational volunteers (ready responders) require specific physical and technical capabilities to perform their job functions. These require significant time, commitment, training and experience to develop to a high standard. Ready responders are likely, therefore to be fewer than the overall volunteer pool, with estimates of active volunteers approaching 17,000.

Community engagement

Within each community and district reside expertise, manpower, resources and significant knowledge of the local context and environment. Tapping these resources in planning and during times of emergency response is critical to effective emergency management. Emphasis must be placed by government and agencies on continually strengthening community engagement so as to develop and optimise this local potential and rapid mobilisation capacity.

The concept of shared ownership and responsibility must be continually reinforced throughout Western Australia so that stakeholders collectively recognise the benefits of shared and coordinated readiness and response programs.

Local communities and districts may have on hand significant resident expertise and equipment which could be used for emergency purposes. For example, many mining companies in the Goldfields and Pilbara regions have state-of-the-art recovery equipment and highly trained emergency responders on staff, as well as medical and nursing personnel. They also may possess an array of accommodation facilities, operation and medical centres, vehicles, heavy equipment, generators, refrigeration capacity, airstrips and food and water supplies.

Regionally, aircraft companies servicing the mining, oil and gas and pastoral sectors can play a significant role in search and rescue, recovery and monitoring operations.

Businesses and individuals also possess local knowledge which may be used for mitigation, early response and reporting activities such as monitoring of livestock disease or pest migration (for example migration of the cane toad).

CASE STUDY

Resources Sector and Mutual Aid Agreements (MAAs)

In remote areas of WA where there is limited emergency response capability, the resources industry assists in some cases by providing resources and skills to respond to emergencies when necessary. The emergency response capabilities of large to medium operations include fire fighting, first aid and ambulance services, search and rescue, rope rescue, road safety (jaws of life) and recovery capacity after a disaster.

Some examples of resource sector contributions to community emergency management include:

- Industry's emergency management representatives liaise with the relevant State Government agencies regularly to align their emergency response;
- Resource companies provide resources to repair fire breaks, washed-away bridges and other broken infrastructure;
- Industry provides aviation infrastructure and capacity (i.e. all-weather airstrips and private jets) to support evacuations as required. At Karratha the resources industry provides a fulltime evacuation capacity;
- Remote mine, oil and gas operations are often first responders to road train or bus accidents;
- First aid skills provided by the resources industry are at industrial paramedic level and above with extraction capacities;
- Where no volunteer fire fighting capacity is available the site tender responds to fight bushfires;
- Where operations are located next to popular tourist destinations (e.g. Karajini National Park), the advanced rope rescue skills of the industry are regularly called upon;
- The mining industry has the greatest number of ambulances in regional WA.

Mutual Aid Agreements (MAAs)

There is always a risk of an emergency escalating into a major or prolonged incident, requiring additional resources beyond the capabilities of an individual mine. MAAs provide mine sites with the opportunity to share resources during an emergency or disaster. They are usually general in nature and are basically an understanding that support will be provided, if possible.

MAAs are usually based on the understanding that: there will be a reciprocal exchange of assistance if and when required; arrangements will not result in profit; arrangements are based on concepts of contract law which support protecting lives and property; and, the party assisting has indemnity from liability.

MAAs are an important mechanism that allow the resource sector to pool emergency response capability in times of disaster.

Recovery

Capability Definition: *The process of having the appropriate structures in place to allow a community to deal with the effects of a major emergency and to restore that community's normal way of life and critical infrastructure after the event has occurred.*

Recovery is one of the four main principles of 'Preparedness'. In an emergency management context, recovery can be described as the coordinated process of supporting disaster-affected communities as they reconstruct their physical infrastructure and restore emotional, social, economic and physical well-being.

Recovery is, however, more than simply the replacement of what has been destroyed and the rehabilitation of those affected. It is a complex social and developmental process rather than just a remedial process. The manner in which recovery processes are undertaken is critical to their success. Recovery is best achieved when the affected community is able to exercise a high degree of self-determination.[28]

Recovery activities usually commence during the response phase and in some cases may continue for a number of years.

The arrangements for disaster recovery in Western Australia are set out in the Act, State Emergency Management Policy 4.4 'State Recovery Coordination' and WESTPLAN – Recovery Coordination. Key features of these arrangements have been discussed earlier in this report under the heading 'Recovery Arrangements'.

Australian emergency management agencies are guided by principles of disaster recovery management agreed by the Community Services Ministers' Advisory Council in 2009. These provide that successful recovery relies on: understanding the community context; recognising the complex and dynamic nature of emergencies and communities; community-led approaches which are responsive and flexible and engage and empower communities; a planned, coordinated and adaptive approach based on continuing assessment of impacts and needs; effective communication with affected communities and other stakeholders; and recognising, supporting and building on community, individual and organisational capacity.

Local government and recovery plans

Local governments are at the forefront of recovery efforts and will be required to deal with the residual impact of a disaster on a daily basis after it has occurred.

It is because of their crucial role that local governments must have a recovery plan in place. Section 41(4) of the Act states that "Local emergency management arrangements are to include a recovery plan and the nomination of a local recovery coordinator".

At the time of this report 126 local governments had established recovery committees and of those 87 had established recovery arrangements.

Many recovery principles, such as understanding the context, recognising complexity, and using community-led approaches, are best understood and driven at a local level. The existence of a localised recovery plan is part of having appropriate structures in place to allow a community to deal with the effects of an emergency and to restore that community's normal way of life and critical infrastructure after the event has occurred.

In addition to the development of local recovery plans, there should be a formalised system in place to ensure plans remain current and that a standard quality is met. This is an area for further development and enhancement.

Local governments are required to include a recovery plan as part of their local emergency management arrangements. SEMC proposes to report on and share best practice in relation to recovery plans, and develop a process to ensure that they remain current and effective.

Insurance

Property owners and businesses are expected to understand and mitigate their emergency risk by obtaining an appropriate level of insurance for their property and/or business continuity. Having adequate insurance is essential to the recovery process for those affected by emergencies, especially in the case of total loss of a home or business.

[28] *Emergency Management Australia, Australian Emergency Management Series (2004)*

CASE STUDY

City of Bunbury – Ready to Roll: U-4-72 Resilient Communities Project

Bunbury (in the south west of Western Australia) has a population of approximately 33,000 within its small local government boundary. However, it is also the main administrative centre for a larger regional area of approximately 65,000 people, called the Greater Bunbury Region.

Bunbury's relative lack of experience of significant emergency situations has led to a perception that it is not vulnerable to major disasters. The City of Bunbury is concerned that the lack of experience means that the local community is unprepared.

In early 2010 a pilot preparedness project was initiated by the City to test a unique community engagement approach. The pilot project identified in the community a very low level of awareness, knowledge and preparedness across several domains including planning, preparedness, self-reliance and awareness of community emergency management systems.

As an outcome of the pilot project, the City of Bunbury developed the Ready to Roll: U-4-72 project, a 2-year initiative with funding assistance through the Federal Government Natural Disaster Resilience Program and in kind support from Australian Red Cross.

The project aims to 'switch people on' to the reality that they will have to rely on themselves for up to 72 hours (that is, three days) in the event of a major disaster or emergency.

An anticipated outcome of the project is an increased level of self-responsibility and resilience in the Bunbury community. They should be able to rely on their own resources following a major emergency, which would reduce the risk of an unprepared population with low resilience to disasters.

Many organisations have expressed interest in the results of the project, including universities and emergency service organisations in Australia and overseas.

The methods used in the engagement process (participatory action research; cultural change model) together with many other initiatives will keep ongoing communication with the community alive. It is expected that the U-4-72 program of self-reliance will remain active and part of everyday business in the Bunbury community.

However, non-insurance and under-insurance are common throughout Australia. The following are edited extracts from the *Natural Disaster Insurance Review* report published by the Commonwealth Government in November 2011.[29]

- The proportion of owner-occupied homes with no insurance has been estimated at 4 per cent.
- It is estimated that 28 per cent of households in Australia had no contents insurance.
- Indications following the 2003 Canberra bushfires and the 2009 Victorian bushfires were that a substantial proportion of homeowners were under-insured to some degree.
- Following the Canberra bushfires, it was estimated that structures were under-insured, on average, by 40 per cent of their replacement cost.
- The Insurance Council has noted that the average claim for homes that were total losses from the Victorian bushfires was $132,000 compared with an average cost of building a home in Victoria of $230,000, indicating here also an average level of under-insurance of around 40 per cent.

Non-insurance and under-insurance have been evident in recent bushfire events in Western Australia.

The Insurance Council of Australia has reported that government policy can impact the costs and the benefit of the decision to purchase insurance.[30]

Often government expenditure programs are justified as providing a form of social insurance addressing the needs of those who are not insured. At the same time however, such government policy can negatively impact the benefits of private insurance whereby the provision of after the event support to the non-insured can reduce the incentive to become insured.[31]

[29] *Commonwealth of Australia,* Natural Disaster Insurance Review *(2011)*
[30] *Insurance Council of Australia,* The Non-Insured: Who, Why And Trends *(May 2007)*
[31] *Ibid, p3*

The Insurance Council of Australia also looked at the effect of state-based insurance taxes on non-insurance. Research showed that following the removal of the Fire Services Levy in Western Australia, the level of non-insurance in building and contents declined while climbing elsewhere in Australia.

Insurance is a feature of a community carrying a shared ownership of preparedness when it comes to disaster management. Given the wide-ranging benefits of household and business insurance and the negative consequences of non-insurance, ways to promote the benefits of insurance coverage across our community should be explored.

Support

Capability Definition: *The support services in place that allow effective preparedness, response and recovery.*

The preparedness of the State is significantly affected by the availability of key support services and their ability to deal with the effects of an emergency. While there are a range of what could be termed support functions, a number are picked up in previous capability areas. The support services of welfare and health in particular are fundamental to the State's level of preparedness and they are discussed below.

Support services

Welfare
The Department for Child Protection has advised SEMC that as a result of the range of processes in place and the level of coordination achieved through the State Welfare Emergency Committee, it is confident that it has adequately addressed the Prevention, Preparedness, Response and Recovery functions of emergency management. It advises that it has the capacity and resources to meet the challenges of community welfare needs arising from the impact of disasters.

Health
The development of health, emergency management preparedness and response capabilities date back to the 2002 Bali bombings. Prior to this time, most disaster response was centred on hospital based response teams. In 2003, the WA Health Department created a capability to respond at a State level to a disaster. This was enhanced by the development of the Disaster Preparedness and Management Unit in the aftermath of the Boxing Day tsunami in 2004. With additional targeted funding received after the London bombing in 2005, WA Health progressively developed its current capability to respond to a range of diverse disasters.

Lifelines providers

Community functioning during and following an emergency can be significantly affected if services such as the supply of food, electricity, gas, water and telecommunications are disrupted.

These 'lifeline' services are provided by the owners and operators of critical infrastructure including physical assets and supply chains that are often interdependent. Some critical infrastructure is owned and operated by private sector corporations (for example food supply) while the Government owns and operates other services (for example water supply).

The interdependencies between assets and supply chains can become obvious following an emergency that disrupts one or more lifeline services. The loss of a major part of the State's gas supply in 2008 following an explosion at the gas plant on Varanus Island and the subsequent impact on many parts of the economy demonstrates the vulnerability of the community to major disruptions in lifeline services.

The major owners and operators of critical infrastructure are engaged in emergency management preparedness activities through at least three mechanisms. The first is through participation in a SEMC sub-committee; the Lifelines Services Subcommittee (LSS) that provides a forum for consideration of preparedness and emergency response activities. The second is an operational group that sits underneath LSS known as the Lifelines Operations Group (LOG). Finally, the critical infrastructure protection program operated by WA Police and the Department of the Premier and Cabinet involves engagement with critical infrastructure owners and operators to, in the first instance, facilitate their preparedness for the threat of terrorism, but also to consider other hazards. A key focus of this program is to encourage the owners and operators to maintain risk management processes and business continuity arrangements for their facilities.

While there are no specific data collected that would provide an objective, numerical assessment of preparedness for lifeline services, there is evidence that the owners and operators of the facilities and supply chains have taken steps to ensure the resilience of their service delivery. For example:

- In relation to water supply and wastewater treatment services the Water Corporation has comprehensive business continuity arrangements in place including a 24/7 emergency contact centre, a program of seasonal preparedness activities, a centrally deployable fleet with critical water treatment and response equipment and packaged water, and incident and emergency management policies, procedures, and training;
- In relation to upstream and downstream gas supply, all operators along the supply chain participate in exercises that test emergency response actions (Westplan Gas Supply Disruption);
- In relation to liquid fuel supply disruption, a Westplan is in place and has recently been exercised with no critical issues being identified during the exercise;
- In relation to food supply, the SEMC has information that a major food distributor has business continuity planning in place at the State and the national level. These plans are reviewed annually, and staff retain a copy of the plan at home. Recent storm events have resulted in the plans being tested and refined. The plans address a number of risks including power interruption, transport chain issues and security incidents. Mitigation strategies include robust preventative security measures, power redundancies, arrangements for priority supply of key dependencies such as water and electricity, and the national level support for alternative transport arrangements.
- In relation to electricity distribution, the SEMC is informed that Western Power has contingency plans (including physical recovery plans for critical assets). The plans include measures for maintaining or restoring supply to customers and the prioritisation application of these measures. These measures are continually tested and refined following seasonal events (for example winter storms) and scenario exercises. Crisis management is part of the organisation's business continuity framework.
- In relation to critical infrastructure Main Roads WA have assessed all timber bridges in the south west for fire risk and the highest priority timber bridges have been the subject of vegetation control as part of annual maintenance.

Part 3
Key Seasonal Hazards

Some hazards – notably cyclone, flood and bushfire – have pronounced seasonal characteristics due to links between climate patterns, weather conditions and the likelihood and degree of impact of adverse events. Other links to the calendar, such as school holidays, are associated with increased human presence in vulnerable environments such as forests, or in locations where people are exposed to greater risk from seasonal hazards.

Some seasonal hazards are also strongly, although not exclusively, associated with remote parts of the State containing isolated or remote communities that present particular challenges for preparedness, response and recovery.

Bushfire, as a major seasonal hazard, will be considered in greater detail later in this part. Close attention is given to its unique characteristics and to the findings of two recent major inquiries into serious loss of property, community disturbance and exposure of residents and travellers to a heightened risk of injury and death.

Cyclone and Flood

In accordance with Western Australia's commitment to the *National Partnership Agreement on Natural Disaster Resilience* [2009], the SEMC in 2012 identified the hazards of cyclone and flood as the priority 'sudden onset' natural hazards for which a risk assessment would be undertaken under the agreement. The SEMC June 2012 risk assessment identified as 'high' the likelihood in Western Australia of cyclone and flood events with major consequences for loss or damage to critical infrastructure, interruption to services and business activity, loss or damage to private property and community exposure to physical harm. Although the State's overall resilience was assessed as high, a number of areas were identified as priorities for mitigation and improvement. In the case of both cyclone and flood, remote area capacity building and community information, education and planning for recovery are identified priorities. These priorities have implications for both season-specific preparedness and long term risk mitigation.

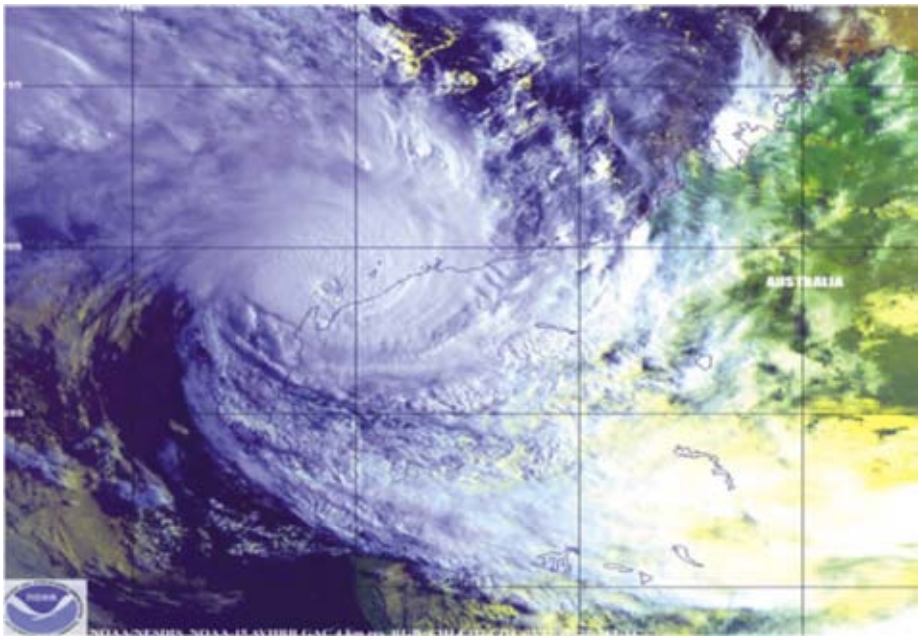
In addition to season-specific preparedness, the management of seasonally recurrent hazards emphasises measures such as land use planning and the application and enforcement of building standards, to minimise exposure to hazards and reduce hazard impact. These preventative measures can be applied over long time-frames and take account of the observed frequency of hazard recurrence.

Season-specific preparedness for cyclone and flood hinges on community awareness of risk and the measures that need to be taken at the household, business or municipal level to secure property and to enable informed decisions about refuge and evacuation options. The FESA-coordinated *Cyclone Smart* and *Flood Smart* programs are designed to engage and inform communities in high-risk areas on preparedness and response. Communications relating to specific incidents are developed in formats and media appropriate for the particular circumstances. These range from isolated pastoral, mining and Indigenous communities to those developed for the metropolitan area, peri-urban or other more closely settled parts of the State.

Remoteness and isolation lead to a high requirement for self-reliance and preparedness on the part of regional communities, including a high ratio of volunteers to professional emergency response officers.

FESA maintains a number of capabilities for incidents that require specialist coordination or advice through a Specialist Operations branch, including for hazards that are not essentially seasonal in nature. Currently this capability is only available in the metropolitan area. Developing a stronger regional capability for specialist operations will provide greater capacity to relieve volunteers and staff who inevitably have less training and equipment than is necessary for a rapid and safe response to prolonged or complex incidents.

Notwithstanding the operation of the *Flood Smart* program, an area which needs further investigation is how to increase community engagement, for example through school aged education or tailored local safety programs in the Kimberley, Pilbara, Mid West/ Gascoyne or Midlands/ Goldfields regions. To date it has only been possible for about one-half of the identified 150 high-risk locations to be the specific focus of community safety engagement and innovative ways to increase this engagement need to be explored.



CASE STUDY

Port Hedland Port Authority

Tropical Cyclone (TC) Lua formed off the coast of the Pilbara in March 2012. With the forecast potential to develop into a Category 5 system, TC Lua represented a real and significant threat to coastal populations, resource sector projects and port operations in the region.

As TC Lua approached the coast, more than 320 people relocated to regional welfare centres opened by the Department for Child Protection, oil and gas workers were evacuated from offshore platforms, and Pilbara mining operations were shut down.

The Port Hedland Port – Australia's largest individual port by tonnage handled – was closed as TC Lua intensified and tracked toward the coast.

The Port Hedland Port Authority (PHPA) is a statutory authority whose primary purpose is to facilitate trade through the Port Hedland Port. The PHPA has detailed cyclone preparation procedures in place to ensure safety of the Port, all mariners and their vessels, port users and marine infrastructure within the Port.

On 15 March 2012, TC Lua was located 330 nautical miles north-west of Port Hedland and tracking in such a manner that there was potential for the system to impact on the Port.

Within 12 hours of the forecast track of TC Lua across the coast, the PHPA commenced clearance of the Port and anchorage of all large commercial vessels. Shortly thereafter, the Port shut down all commercial operations. Inner harbour evacuation took place throughout the night of 15 March, with the last vessel sailing at 5:00 am on 16 March.

The track and intensity of TC Lua ultimately did not develop as forecast, and it crossed at 3:00 pm on 17 March 2012 as a Category 4 cyclone, 150 km east of Port Hedland.

Staff involved in the activation of the cyclone procedures provided feedback on the closure operations which will be used to inform the annual review of the procedures.

While the Port Hedland Port was spared damage, the PHPA's preparations for the impending cyclone provided a valuable opportunity to exercise its procedures and test the relationships between all port users in an emergency.

Bushfire

The seasonal nature of cyclone, flood and fire requires an emphatic, continuous improvement approach to preparedness. The regularly recurring nature of these hazards also provides the opportunity to review and adapt capabilities, and to assess agency performance on a seasonal basis as well as in the wake of a significant incident. Bushfire risk has additional complexity arising from the potential involvement of careless or criminal actions in fire ignition. It is highlighted in this initial Emergency Preparedness Report as an example of the management of one of Western Australia's most frequently encountered and socially significant hazards.

Recent examples of the destructive impact of bushfire in Western Australia are provided in Appendix 3.

Responsibility for bushfire emergency management

The Bush Fires Act 1954 is the principal source of direction and authority for the prevention, preparedness and response phases of bushfire management in Western Australia. The recovery phase for bushfire is initiated by the appropriate response agency but, as with other hazards, the recovery phase is managed by local government. In addition to the agency responsibilities prescribed in legislation, all landholders in Western Australia have statutory obligations to prepare for, prevent or manage bushfires on their land.

The Bush Fires Act 1954 interacts with other legislation, including the *Fire Brigades Act 1942, Fire and Emergency Services Authority of Western Australia Act 1998, Emergency Management Act 2005* and *Conservation and Land Management Act 1984* to allocate responsibility for the different phases of an emergency management response depending on ownership of the land.

A significant issue for fire management in Western Australia is the extent of Crown Land, which accounts for 93 per cent of the State's land area. The Department of Regional Development and Lands (RDL) is responsible for the overall administration of Crown Land. However, Crown Land that is leased, vested in other agencies, or reserved and

managed by other bodies is the management responsibility of such lessees, vestees or management bodies. RDL has direct responsibility for the remaining Crown Land. These lands are Unallocated Crown Land and unmanaged reserves and together account for approximately 38 per cent of the State. RDL has Memorandums of Understanding with FESA and DEC for fire management services on these lands.

In addition to its role as HMA, FESA is responsible for undertaking prevention activities on behalf of RDL on Unallocated Crown Land and unmanaged reserves within all town sites, regional centres and the Perth metropolitan area. FESA is also responsible for preparedness and response for all lands within Gazetted Fire Districts declared under the *Fire Brigades Act 1942* or where a Fire Service brigade or Volunteer Emergency Service unit is established under the *Fire and Emergency Services Authority of Western Australia Act 1998*.

DEC is the agency primarily responsible for conserving Western Australia's native flora, fauna and natural ecosystems, and many of our unique landscapes. With this comes the responsibility for fire management, to conserve biodiversity and protect the community, on more than 26 million hectares of DEC-managed lands (10 per cent of the area of Western Australia). In addition, DEC undertakes fire prevention activities on 89 million hectares of Unallocated Crown Land and unmanaged reserves outside town sites, regional centres and the Perth metropolitan area, on behalf of RDL (35 per cent of the State's area).

Local Government Authorities (LGAs) are responsible for undertaking prevention activities in relevant local government districts. LGAs are responsible for bushfire preparedness and response on significant tracts of land within local government districts, including through the prescription and enforcement of bushfire prevention measures on all freehold and leasehold lands that fall within their boundaries.

Westplan Bushfire establishes a goal of ensuring '... each local government area develops an integrated bushfire risk management plan across all tenures which details the bushfire prevention and mitigation measures'. This goal has not been met by all LGAs, and preparation of these plans should be a priority.

FESA and DEC frequently assist LGAs and volunteer bush fire brigades to suppress bushfires. *The Bush Fires Act 1954* was amended in 2009 to provide for a legislative regime whereby FESA, DEC and LGAs could transfer control of bushfires to each other. The Act was amended to provide that FESA could appoint a person to take control of a bushfire burning on local government or DEC land due to the nature and extent of the fire, or at the request of the LGA or DEC. The amendments also provide that DEC and LGAs could transfer control of bushfire to each other. These new powers have been used frequently since 2009 and have provided for greater flexibility in response to bushfires in the State.

Capacity to undertake initial response in regions outside the South West is limited because the areas concerned are often very large and sparsely inhabited. Under local mutual aid arrangements, initial attack is undertaken by the nearest fire suppression resource regardless of tenure (including by pastoral and mining lessees with responsibility for fire management on their lands). This does not usually involve a formal transfer of control.

Climate, fuel load and prescribed burning

Land managers use prescribed burning as a tool to achieve a range of objectives including bushfire risk mitigation.

The use of prescribed burning for fuel hazard reduction has been proven to significantly reduce the impact of bushfires by reducing fire size and intensity. As shown in Figure 3.1, an inverse relationship exists between the area burnt by prescribed fire and the area burnt by bushfire in the following four years in the South West forest regions of Western Australia.

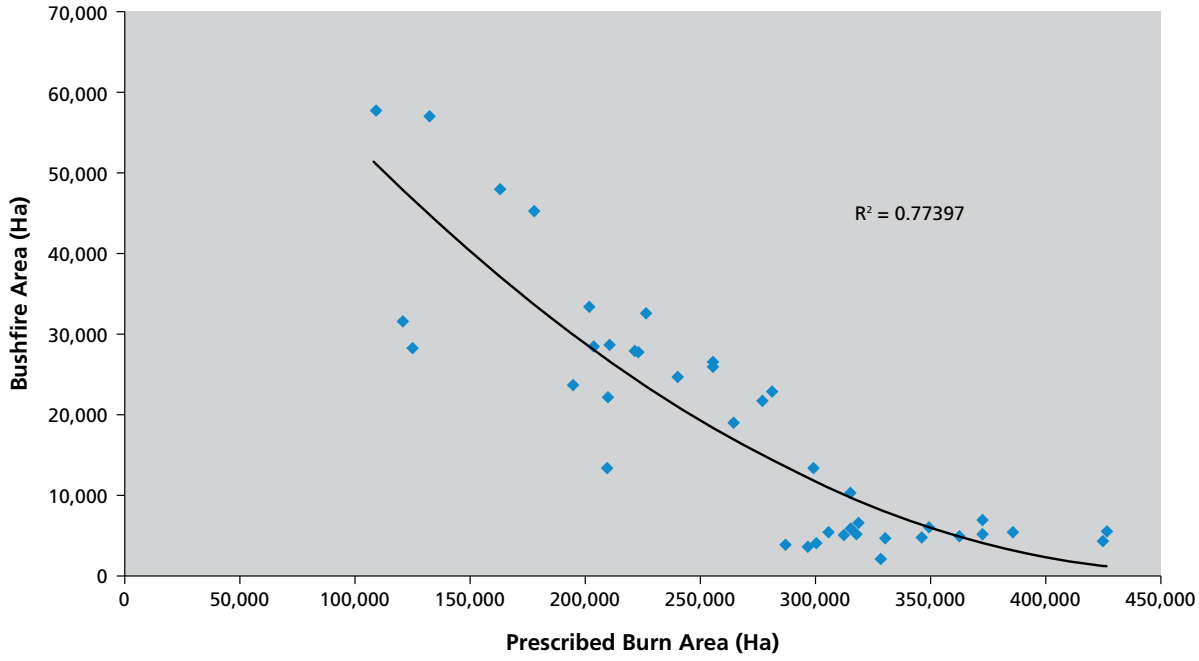


Figure 3.1: Correlation between the annual area of prescribed burns averaged over four years and the area of bushfires averaged over the following four years in South West forest regions of Western Australia (Source: Department of Environment and Conservation)

This is also reflected in Figure 3.2 which reveals a correspondence between the increase in area burned by bushfire over the last decade and the decline in area burned through prescribed burning in the South West forest regions.

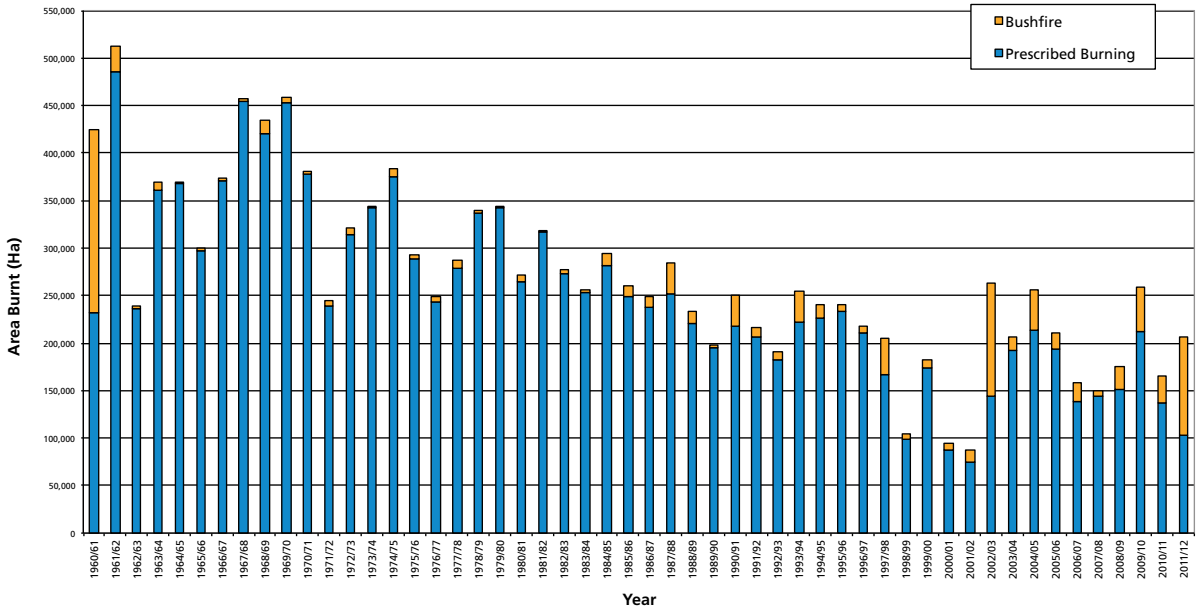


Figure 3.2: South West regions prescribed burning and bushfires: 1960/61 to 2011/12 (Source: Department of Environment and Conservation)

DEC has a 3-year/6-season prescribed burn program with an annual burn target for the South West forest regions of 200,000 ha. Local governments also have management/works plans for prescribed burn programs that are usually carried out by volunteer brigades. DEC has on average achieved 83 per cent of this target over the past 20 years. Failure to achieve annual burn targets (due to weather conditions or resource limitations) contributes to fuel build-up. In 2011/12, the total burn area achieved was only 103,000 ha or slightly more than half the target area. Fuel age is a significant factor in the management of bushfire. Fuels older than seven years are difficult to control under average summer conditions of moderate to high fire danger in open eucalypt forest. Fuel reduction programs better enable fire managers to control major fire events and prevent serious impact on lives, property and environmental values. Fuel age has been mapped for approximately 2.5 million hectares of DEC-managed lands in the South West of Western Australia. The state of South West fuel loads on these lands approaching the 2012/13 southern bushfire season is apparent from Figures 3.3 and 3.4.

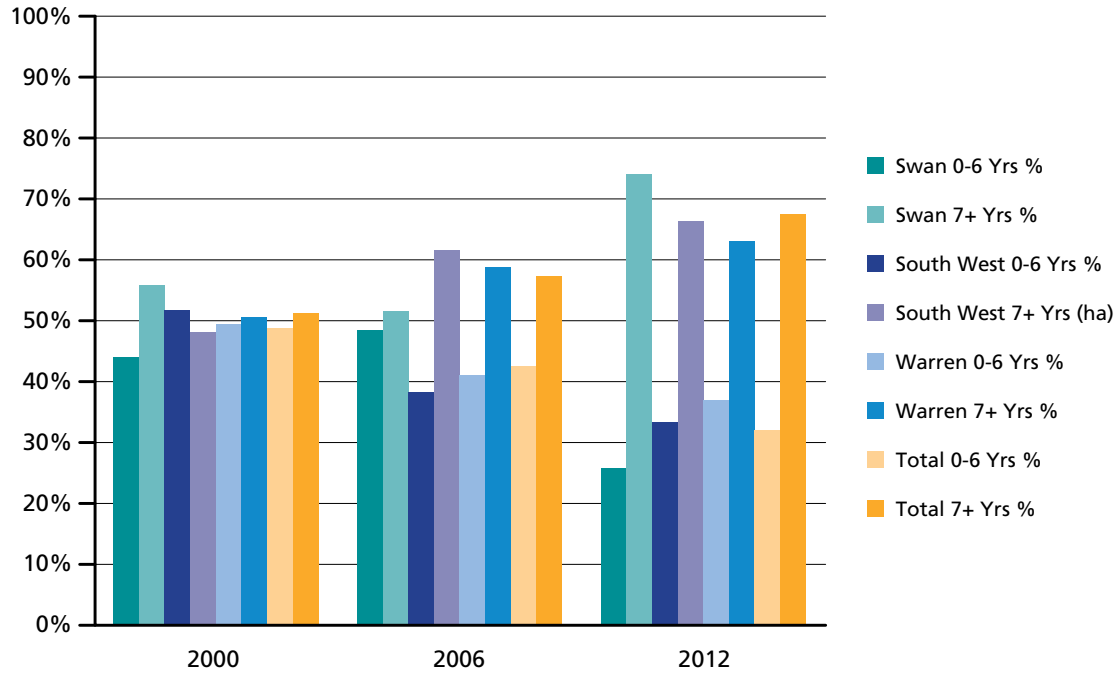


Fig 3.3: Fuel age analysis 2000-2012: Regional breakdown (Source: Department of Environment and Conservation)

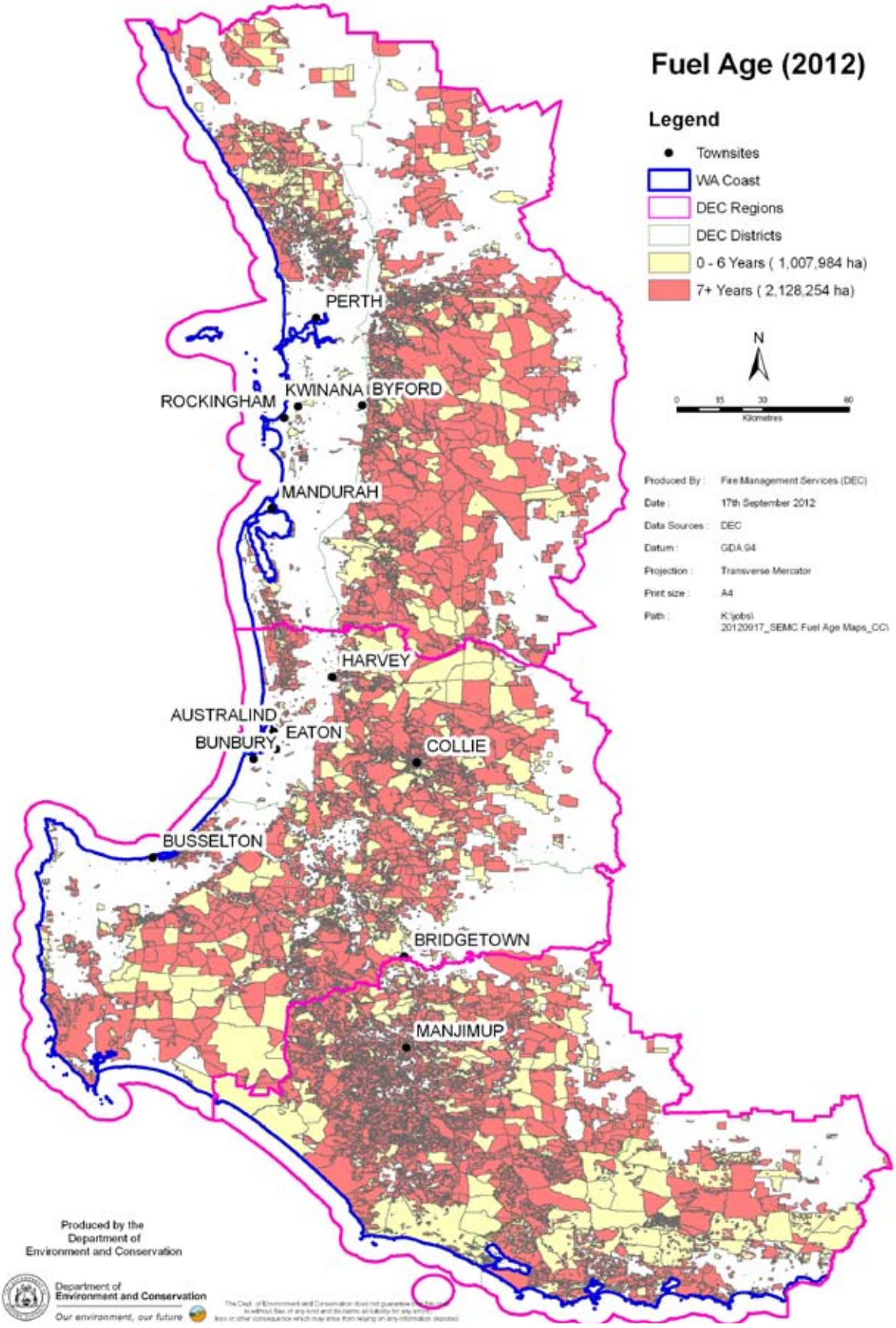


Figure 3.4: Fuel aged distribution (2012) on Department of Environment and Conservation managed lands (Source: Department of Environment and Conservation)

In addition to the consequences for forest fire managers, the state of fuel loads has consequences for landholder risk mitigation strategies and household level decision making in the context of the *Prepare, Act, Survive* public safety message. All landowners must be made aware of the importance of fuel reduction on their properties. In addition, a particular issue in recent years has been the appropriate balance between vegetation conservation on road reserves and ensuring that the fuel load on the reserves is managed.

Climatic variability in Western Australia also has an impact on fuel loads. Reduced winter rainfall, late starts and late finishes to the 'wet' season and a longer 'dry' period are features of a warmer, drier climatic era. The annual average rainfall in some parts of the South West region has declined by up to 18 per cent since the 1970s. Warmer, drier weather reduces the time available for carrying out low intensity prescribed burns, which means more burning must be done in a narrower window of opportunity.

Following the release of the *Report of the Special Inquiry into the November 2011 Margaret River Bushfire*, the Premier announced his intention to establish and Office of Bushfire Risk Management (OBRM). In May the Minister for Emergency Services, the Hon. Troy Buswell MLA announced the establishment of OBRM which reports directly to the Chief Executive Officer of FESA.

The OBRM will support the various agencies involved in bushfire risk management through working with agencies on:

- endorsement and oversight of risk management for 'high-risk' burns;
- development of performance standards for the planning and conduct of bushfire risk mitigation programs including prescribed burns;
- ensuring development of contingency arrangements within every prescribed burn plan to appropriately manage the community risks associated with prescribed burning; and
- monitoring and reporting to the CEO on performance of bushfire risk mitigation programs, including prescribed burning.

The 2012/13 seasonal bushfire outlook

Western Australia experienced below average rainfall between April and July 2012, with large areas in the South West significantly below average. This has exacerbated a rainfall deficiency in the South West over the last three years that is already classed as severe by the Bureau of Meteorology. This below average rainfall coincided with above average temperatures. The combination of these factors has hampered prescribed burning operations, leading to high fuel loads and consequently an elevated risk profile in the South West of the State. The fire potential across the Mid West, Central Desert region and Nullarbor is also expected to be above average due to high fuel loads resulting from extensive rainfall.

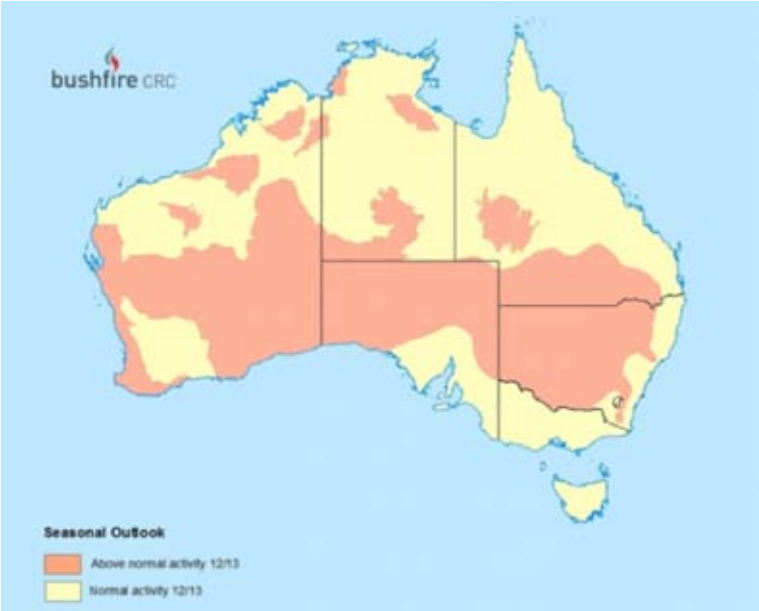


Figure 3.5: Southern Australian seasonal bushfire outlook 2012/13

The outlook for the November 2012 to January 2013 period released by the Bureau of Meteorology is for a wetter than average season in the South-West and far North-Eastern parts of the State. Although a positive factor in inhibiting fire spread and intensity by increasing soil moisture content, wetter conditions will reduce the ability to undertake prescribed burns for mitigation.

The Bushfire Cooperative Research Centre (BCRC) seasonal outlook (Figure 3.5) shows that more than half of Western Australia is expected to experience above normal bushfire activity. With dry conditions and high fuel loads, the bushfire season for 2012/13 is expected to be long and challenging. There is a heightened risk in key rural-urban interface areas including the Perth Hills and Leeuwin-Naturaliste Ridge. Privately held lands may present significantly higher risk than publicly managed lands due to the relative lack, or unevenness, of preparation including fuel load reduction.

Preparedness for the 2012/13 Southern Bushfire Season

The two Special Inquiries conducted by Mr Mick Keelty AO in 2011, which concerned the Perth Hills and Margaret River bushfires of the same year, contained 65 recommendations for the improvement of bushfire preparedness, prevention and response. The wide scope of the recommendations included strategic policy and legislative enhancements, intergovernmental and interagency coordination and cooperation, community engagement and awareness, research needs and operational response issues. Most recommendations are applicable to the management of bushfire throughout Western Australia and are not restricted to the areas that were the subject of the two Inquiries.

The Department of the Premier and Cabinet has established the Bushfire Review Implementation Group (BRIG) which is responsible for the implementation of the recommendations of the Perth Hills Special Inquiry. The BRIG advises that, of the 55 recommendations of the Perth Hills Special Inquiry, 43 have been signed off and a further 12 are still in progress. Agencies responsible for the remaining 12 recommendations include FESA, Department of Planning and SEMC. The BRIG also has oversight of a number of bushfire initiatives announced by the Premier including the establishment of the Office of Bushfire Risk Management, the moratorium on DEC prescribed burns within 5 kms of communities, the Capes Enhancement Project and the independent review of the Margaret River and Nannup bushfires. All of these initiatives have been completed. DEC's progress on the implementation of the recommendations of the Margaret River Special Inquiry is being reported via SEMC. The Government has accepted all 10 recommendations of this report and they are being progressed.

Implementation of the recommendations of the two Special Inquiries will enhance preparedness and response capabilities for the 2012/13 season.

The 2012/13 budget increase for fire management, prevention and mitigation in DEC together with the establishment of the OBRM, places DEC in a better position to reduce the risk associated with prescribed burning and to respond to bushfires. It also provides the means to address a recommendation of the 2010 Ferguson Review which highlighted the need for succession planning for fire management staff, in order to minimise loss of skills and experience.

Interagency measures that will enhance preparedness for the 2012/13 season include the establishment of Integrated Level 2 and Level 3 incident management teams (IMT) across country regions with 'pre-identified' personnel from DEC, FESA and local government to ensure that suitably experienced and qualified personnel are available to fill IMT positions. FESA and DEC are also developing an agreed position which will have 'pre-identified' personnel from DEC, FESA and local government available to perform roles in metropolitan IMTs on days of 'extreme' or 'catastrophic' fire weather.

The second of the two Keelty reviews, the *Special Inquiry into the November 2011 Margaret River Bushfire*, made 10 recommendations for change and improvement, with particular reference to prescribed burning. Most of these recommendations related to DEC and significant work has been undertaken to implement these recommendations prior to the 2012/13 season. It is likely this work will have implications for other entities involved in prescribed burning as mitigation works extend more routinely to all tenures ('tenure-blind approach').

Recommendation 2 of the Special Inquiry, which provides that DEC 'urgently undertake a review of its risk management practices as they relate to prescribed burns,' has been a particular focus of DEC. Risk assessment and the selection of risk treatments will be undertaken as part of all decision-making associated with prescribed burning in a manner consistent with the risk management process specified in the standard: AS/NZS ISO 31000:2009 *Risk management: Principles and guidelines*.

In response to Recommendation 8 of the Special Inquiry, DEC has prepared a communications strategy with the goal: 'To better inform the community about the complexities and decisions surrounding prescribed burns when they are undertaken in the rural-urban area.' This strategy aims to take a whole of government approach to encourage adoption and dissemination of information about prescribed burning functions and activities.

As part of its preparations for the 2012/13 season, FESA Country Regions has undertaken two major regional bushfire exercises (one internal and one multi agency) during September and October 2012. The aim is to test levels of operational and incident management preparedness prior to the southern bushfire season. The Metropolitan Regional Operational Centre will also exercise each of the four metropolitan regions prior to the commencement of the southern bushfire season. Dedicated multi-agency Incident Control Centres at Margaret River and Busselton are being upgraded.

A review of Westplan Bushfire has been completed but a decision has been taken that an unacceptable level of risk is associated with the adoption of the changes at this late stage. Training and exercising that has occurred for incident management staff is in accordance with the current Westplan Bushfire. Advice from fire management agencies is that while the current plan is adequate, the amendments proposed will provide improvements for future fire seasons.

An increased emphasis on communications and public awareness in advance of the 2012/13 season includes the establishment of a Community Liaison Unit in FESA, the primary role of which is to enhance two-way communications between IMTs and affected communities during the 'response' phase of an incident. To support this role, FESA has developed a training resource kit and is undertaking recruitment and training of liaison staff and volunteers able to participate effectively in Level 3 incidents.

FESA is also reviewing bushfire safety publications (including focus group consultation). Residents living in high bushfire risk areas will be asked to test the content and ongoing usefulness of FESA's Prepare, Act, Survive publication prior to distributing a revised version in November 2012. Other areas of community engagement focus in high risk locations will promote a shared responsibility with landholders for bushfire preparedness and response. Of particular importance will be engaging with absentee landowners.

In December 2011, FESA and the Commonwealth of Australia (Bureau of Meteorology) entered into a three year agreement for the provision of fire and significant weather briefing services in the FESA State Operations Centre, and the evaluation and delivery of FESA weather-related operational procedures and training.

Issues affecting bushfire preparedness

Agencies responsible for fire management operate under different systems, structures and workforce arrangements. This has several consequences for the structure and management of IMTs, including the maintenance of sustainable rosters and relief arrangements during operations.

Notwithstanding the 'tenure blind' objective of bushfire response, the primary roles and responsibilities of the fire management agencies may require differences in appliances, personal protective clothing, communications and other equipment with the risk of incompatibility.

There is a need to develop greater structural fire capability in the larger town sites and rural urban interface areas that are not currently within a Gazetted Fire District and covered by Volunteer or Career Fire and Rescue Service stations. Within these areas existing bushfire brigades do not have the capability to enter buildings safely. In addition, a long and difficult fire season will have a debilitating impact on volunteer structures.

Advances have been made during 2012 in combined DEC, FESA and local government exercise and training activities. However, there remains a significant need for additional investment in this area. Because the agencies have different primary responsibilities in the management of fire, they employ different fire behaviour models for bushfire incident planning. The agencies continue to use different forms and incident response reporting tools in some areas. This is an area of further work as is the development of further mechanisms to improve communication.

FESA has reported that resources do not currently exist for it to provide 24/7 information communications and technology technical support or GIS/spatial support to incident management teams. To improve all hazard preparedness, FESA is looking at alternatives such as expanding the ICT, technical and GIS/spatial support capability across all regions in the State or other ways of ensuring adequate preparedness.

Summary

In summary, the State faces a number of challenges over the 2012/13 fire season. These include:

- below average rainfall experienced in winter has resulted in a soil moisture deficit;
- high average fuel levels across the State. In the South West this is partly because the area of lands treated in DEC's prescribed burning program has, over the past 20 years, been on a generally declining trend as a result of a drying climate, the proliferation of rural subdivisions and smoke management issues (including the impact on vineyards). The management of the fuel load on other tenures in the South West of the State, including on private land-holdings is also sub-optimal. In large parts of the interior fuel accumulation is due to increased annual growth resulting from good rains in recent years; and
- forecast wetter Spring weather that may hinder DEC's ability to undertake prescribed burning for risk mitigation.

Significant progress has however been made in terms of preparedness. This includes:

- considerable progress towards implementing recommendations from reviews and post-incident analyses from the 2011-12 bushfire season (with over two-thirds of the recommendations already implemented);
- increased interagency communication and cooperation as an outcome of the two Special Inquiries conducted into the Perth Hills and Margaret River fires of 2011 and systems in place to ensure that these relationships are ongoing and productive;
- enhanced mobilisation procedures through *Cape Zone Response Arrangements* between FESA, local governments and DEC; with a schedule developed to exercise arrangements by 17 December 2012;
- improvement in DEC's ability to efficiently undertake prescribed burning and bushfire control in the South West through an increased staffing capacity dedicated to fire management; and
- an improved ability to develop staff succession strategies as a result of the increased budget allocated to DEC for fire management, as well as improved risk management as assured by the establishment of OBRM.

In the short term however, these advances are not likely to substantially improve the State's capacity to manage more than two simultaneous, large and sustained fire incidents in the South West. Fires in more remote areas present even greater challenges as a result of logistical and infrastructural limitations. These long-observed capacity limitations were validated in 2011/12 during the November fires in Margaret River and Nannup and the major Carnarvon fire complex during January/February 2012. Mutual aid arrangements exist with other States to assist in this situation.

The State is better prepared for 2012/13 relative to 2011/12, due to better training, resourcing and improved interagency arrangements. However, the State still faces a significant bushfire threat. In the medium term, issues such as the ageing demographic of experienced fire staff and volunteers, the availability of sufficient experienced accredited personnel to fill senior roles in IMTs, and the need for further scientific research to underpin the knowledge of fire behaviour in some fuel types in a drying climate, represent future challenges.

Part 4

Conclusions and Future Work

Preparedness Assessment

The 2012 Emergency Preparedness Report is based on an assessment of key emergency management capabilities in Western Australia's hazard management and support agencies. The capability based assessment has been adapted from approaches to emergency management evaluation adopted in other jurisdictions.

Current capability has been assessed using information provided by the agencies, WALGA and local and district emergency management committees. The findings of recent major incident reviews provide important guidance and an opportunity to assess operational issues and the current policy and practice environment in emergency management. The framing of this report and the testing of the report's conclusions has also drawn on the combined corporate experience of the SEMC partner agencies.

The SEMC Secretariat collated and analysed agency self-assessments through an iterative process. SEMC considers that the process was reasonably efficient. Participating agencies responded in a collegial and comprehensive way to SEMC's requests for information, which ensured that the process could be completed within the time allocated.

This report identifies significant advancement across the range of emergency management capabilities while also identifying areas that could be enhanced as part of an ongoing commitment from the sector to continuous improvement. The observations and suggested actions included in this report point to further opportunities for HMAs and combat agencies to build and maintain their capacity across all the identified capability areas.

The 2012 Emergency Preparedness Report identifies recent agency and whole of government initiatives which increase the State's level of preparedness. Some of these have been in response to major incident reviews. Others have arisen directly from the agencies' identification, through their normal business practice, of ways to enhance service delivery through innovation and efficiencies in resource deployment, increased engagement with other agencies and improved links with the community. The effect of some changes and initiatives will be felt immediately while others will contribute to longer term improvements in emergency management in Western Australia.

Recent Major Reviews

The most notable recent reviews were those conducted by Mr Mick Keelty AO APM into the Perth Hills and Margaret River bushfires of 2011.

Implementation of review recommendations, and additional Government actions in response to the reviews, has involved extensive collaboration between emergency management agencies under the leadership of State agency CEOs and the Western Australian Local Government Association. It has also led to significant additional resources being provided by the Western Australian Government.

Out of the 55 recommendations of the Perth Hills Special Inquiry, 43 have been signed off and 12 are still in progress. The Government accepted all 10 recommendations of the Margaret River Special Inquiry and they are being progressed.

The change program being implemented across the emergency management sector involves multi-year commitments from all agencies and organisations. This work inevitably involves those who have key roles in responding to emergencies. The challenge of balancing continuous improvement and ongoing emergency response is acknowledged.

Themes

In its assessment of agency emergency management capabilities, the 2012 Emergency Preparedness Report has re-confirmed four major themes that have been previously identified by others in various forms. These are:

- Shared Responsibility
- Risk Management
- Improving Coordination Particularly in Response
- Continuous Improvement

The first two themes have implications for State agencies and the wider Western Australian community. The latter two apply specifically to the hazard management and support agencies. Areas of work under each of these themes are identified below.

Shared responsibility

Effective emergency management relies on a complex synergy between agencies, industry, other levels of government and the community. Across the range of capabilities considered in this report, the concept of shared responsibility has emerged as central to the challenge of creating a more prepared Western Australia.

There is need for a clear understanding of the part that all of us can play before, during and after an emergency. This is not just because the resources available to Government agencies are limited. It is apparent from consideration of the key emergency management capabilities that, notwithstanding the level of agency preparedness, the best outcomes in terms of community safety, environmental protection and asset preservation are likely to come from self-reliant communities with a high level of preparedness based on a clear understanding of risk.

To promote preparedness across the community we must develop community capacity to understand how risk based assessment can operate at the household, small and large business and community organisation level.

The immediacy of local government's links to the community means it is well placed to nurture a shared responsibility ethos and to build community capacity in the key capability areas. Investment will be required to build this capacity in local government themselves. A priority for SEMC is to work with local government to develop emergency management preparedness at the local level, including areas in which increased cooperation between State agencies and local government can be entrenched in legislation, policy and practice.

This report also identifies the need for SEMC to work with emergency management agencies to strengthen the community engagement and volunteerism that is critical to emergency management efforts, including hazard based volunteer groups and general community service organisations. The engagement of emergency agencies with volunteer organisations includes a continued focus on capability development through training, exercising and facilitation of individual and group development opportunities for volunteers. Effective shared responsibility relies on clear, concise communication before and during an emergency. Such measures would make more information available to the community to develop greater risk awareness and deliver more knowledge about what to do in emergencies and enhance self-reliance.

Recovery after an emergency is also a shared responsibility. Local governments are required to include a recovery plan as part of their local emergency management arrangements. SEMC proposes to report on and share best practice in this area in order to ensure that recovery plans are reviewed and remain current and effective.

Risk management

This report identifies that a major contributor to change and ongoing improvement in the sector will be the increasing adoption of a risk management approach across the Prevent Prepare Respond Recover spectrum. This will include the incorporation and use of the Australian/New Zealand standard Risk Management – Principles and Guidelines (AS/NZS ISO 31000:2009) in the development and operation of whole of community and agency systems, resource allocation and operating policies and procedures.

Adopting a risk management approach will help to ensure that emergency management strategies keep pace with growing challenges such as a drying climate, population increase and associated changes in population distribution and density. It is also likely to lead to a realignment of resource priorities, as well as an increased emphasis on interagency cooperation and partnership with a more engaged and self-reliant community.

Proceeding from the basis of risk assessment should also allow more proactive approaches to emergency management to develop, with greater emphasis on preparation and prevention.

SEMC (and the SEMC Secretariat) has commenced work on the establishment of the State Risk Framework and this issue will be a strong focus for the coming year.

Coordinated emergency response

Other commentators, as well as this report, have emphasised the importance of improved coordination within and between emergency response agencies as well as a greater commitment by agencies to engagement with volunteers and other organisations.

One of the means by which agencies can enhance coordinated response capabilities is interagency exercising, and by using the exercises to develop common or consistent approaches to planning and field operations.

It is proposed that emergency management agencies report to SEMC annually on the exercising of plans and associated processes and procedures, including an evaluation of the outcomes and lessons derived from exercises conducted during the year. HMA compliance with the requirement to review and exercise Westplans and Support plans on a timely basis, as well as overall compliance with the plans, is anticipated to be monitored and reported on annually by SEMC.

An aspect of coordinated response identified in the report is the issue of interoperability. SEMC intends to work with HMAs and other agencies to research and report on innovative solutions and options that would enable the State to achieve greater technological interoperability and coordination between emergency management agencies. Innovation will also be encouraged to improve preparedness in situations where resources cannot be increased. Where complete consistency is not attainable, joint exercises provide a positive and proactive means to promote familiarity and complementarity of approach.

Continuous improvement

Across the range of capabilities, and in the operation of the hazard management and support agencies, there is need for a commitment by all to continue to review, to learn and to improve.

In view of the importance of community engagement, the effectiveness of communication in building community preparedness, in warnings about impending events and during an emergency, needs continual evaluation. A number of initiatives to improve communication have been implemented or are in progress. Unfortunately, technology and resource limitations inevitably mean that some gaps may remain. Moreover further evaluation of the initiatives is required to ensure that the desired outcomes are efficiently achieved.

Future Directions

The annual SEMC Emergency Preparedness Report will point to issues which need to be covered in the review and continuous improvement of the State's policy framework. In this regard SEMC intends, at least annually, to assess preparedness and also to examine how to provide a level of assurance through use of performance indicators.

From SEMC's viewpoint an important initiative during the year was the reconstitution of SEMC as described in Appendix 4. The commitment of all emergency management agencies to the new arrangements and the support of governments at Federal, State and local levels augurs well for the continual improvement of emergency management outcomes in Western Australia.

The new SEMC Strategic Plan (2012-15) as summarised in Figure 4.1 indicates some of the future areas of work.

SEMC Strategic Plan (2012-15)

MISSION: The State Emergency Management Committee, as the peak body for emergency management in Western Australia, strategises, organises and oversees the coordination and continuous improvement of emergency management in the State by:

- promoting shared understanding and responsibility across whole of government and the wider community;
- establishing an emergency management framework based on a risk management approach;
- promoting preparedness for emergencies to minimise their impact and accelerate recovery; and
- providing advice to government on any matter in relation to emergency management.

	STRATEGIC OVERSIGHT AND COORDINATION	RISK	SHARED RESPONSIBILITY	PREPAREDNESS	CONTINUOUS IMPROVEMENT
OBJECTIVE	Review Emergency Management (EM) arrangements so as to ensure improved outcomes	Develop and coordinate a strategic risk framework	Clarify roles and responsibilities of EM partner organisations Develop community risk management awareness and capacity	Assess and advise on preparedness	Embrace learning and continual improvement and incorporate into our business
OUTCOMES	Legislative and policy framework understood and applied correctly	Risk is applied across all hazards Future risks identified	Shared responsibility ethos and enhanced community preparedness linked to local initiatives	Identify gaps and highlight planned improvements in annual reporting	Disseminate expert knowledge on EM
PRIORITY PROJECTS	Interoperability of communication Review of sub-committees and communication processes to ensure efficiency and effectiveness EM Act review Policy review Implementation of an assurance process Review of the State's Command, Control, Coordination arrangements	Risk framework developed and applied to emergency management All risks assessed using ISO31000	Review of community alert system Review of local emergency management structures and arrangements Act to clarify responsibilities	Emergency Preparedness Report both preparation and follow up of actions identified in the report	Monitor on-going implementation of reviews including Keelty, Noetic. Office of the Auditor-General including completion of actions allocated to SEMC Develop a process to share learnings from exercises and incidents
OTHER PROJECTS	Review of State Recovery arrangements	State natural hazard research project Development of a State Risk Register Integration of National Disaster Resilience Program arrangements	Identify how National Strategy for Disaster Resilience is best implemented in WA	Establishment of Emergency Preparedness Framework for 2013-2014	EM Extranet or portal web-site

Figure 4.1 – SEMC Strategic Plan 2012-15

This first assessment of preparedness has confirmed the increased resources provided and a number of recent initiatives, as well as priorities for SEMC and emergency management agencies forward work programs. With a continuous improvement approach there will always be more to do but progress is anticipated to reduce the residual risk levels. The progress over the next twelve months will be reported on in the next Emergency Preparedness Report.

Appendices

Appendix 1

Status of Emergency Management Hazard Plans (Westplans)

HAZARD PLAN (WESTPLAN)	DATE REVIEW TO BE COMPLETED	RESPONSIBLE BODY
AIR CRASH	Dec 2014	WA Police
ANIMAL & PLANT BIOSECURITY	Mar 2013	Department of Agriculture and Food WA
BROOKFIELD RAIL EMERGENCIES	Dec 2013	Brookfield Rail Pty Ltd
BUSHFIRE[#]	Jun 2012 (under review)	FESA
CHEMICAL, BIOLOGICAL, RADIOLOGICAL AND NUCLEAR	Jun 2013	FESA
COLLAPSE	Jun 2013	FESA
CYCLONE	Dec 2012	FESA
DAMBREAK	Sept 2011	FESA/Water Corporation
EARTHQUAKE	May 2016	FESA
FLOOD	Sept 2015	FESA
GAS SUPPLY DISRUPTION	Jun 2016	Public Utilities Office
HAZMAT	Dec 2015	FESA
HUMAN EPIDEMIC	Oct 2013	Department of Health
LAND SEARCH	Dec 2012	WA Police
LIQUID FUEL SUPPLY DISRUPTION	Sept 2016	Public Utilities Office
MARINE OIL POLLUTION	Jun 2015	Department of Transport
MARINE SEARCH & RESCUE	Mar 2013	WA Police
MARINE TRANSPORT EMERGENCY	Jun 2016	Department of Transport
NUCLEAR POWERED WARSHIPS	Dec 2015	WA Police
PTA RAIL CRASH	Dec 2014	Public Transport Authority
ROAD CRASH	Jun 2013	WA Police
SPACE RE-ENTRY DEBRIS	May 2015	WA Police
STORM	Sept 2009 (under review)	FESA
TERRORIST ACT	Sept 2014	WA Police
TSUNAMI	Sept 2015	FESA
URBAN FIRE	Jan 2005	FESA

[#] A review of Westplan Bushfire has been completed but a decision has been taken that an unacceptable level of risk is associated with the adoption of the changes at this late stage. Training and exercising that has occurred for incident management staff is in accordance with the current Westplan Bushfire. Advice from fire management agencies is that while the current plan is adequate, the amendments proposed will provide improvements for future fire seasons.

Appendix 2

Hazard Plan (Westplan) Exercises Conducted in 2011/12*

WESTPLAN	AGENCY RESPONSIBLE FOR WESTPLAN	DATE CONDUCTED	TYPE OF EXERCISE/ EMERGENCY	ASPECTS(S) TESTED	LOCATION OF EXERCISE	EMERGENCY MANAGEMENT DISTRICTS/ AGENCIES OR SECG INVOLVED
Air Crash	WA Police	28/07/2012	Response	Response	Fitzroy Crossing	WA Police, Rescue Coordination Centre Canberra, Local Hospital
Air Crash	WA Police	03/09/2011	Discussion exercise	Planning	Kununurra Regional Airport	State Welfare Emergency Committee, WA Police, St John Ambulance (SJA)
Air Crash	WA Police	18/10/2012	Full deployment	Capability and response	Curtin Airport	Shire of Derby-West Kimberley, Derby Volunteer Fire & Rescue Service, Derby SES, Derby Hospital, WA Police
Air Crash	WA Police	05/11/2012	Full deployment	Response	Halls Creek Airport	WA Police, Fire, Hospital, Airport management, Golden Eagle Air safety (observer)
Air Crash	WA Police	09/11/2012	Deployment	Multi command control and coordination	Broome International Airport	Broome Airport, FESA, WA Police, Health / Ambulance, SES, Airport Rescue & Firefighting, DCP
Air Crash	WA Police	12/01/2012	Full deployment	Capability and response	Broome International Airport	WA Police, Broome International Airport, Broome Volunteer Fire & Rescue Service, Broome SES, Broome Regional Bush Fire Brigade, SJA, DCP, Broome International Airport Aircraft Rescue & Firefighting
Air Crash	WA Police	06/01/2012	Table top	Response	Perth Airport	FESA, WA Police

WESTPLAN	AGENCY RESPONSIBLE FOR WESTPLAN	DATE CONDUCTED	TYPE OF EXERCISE/ EMERGENCY	ASPECTS(S) TESTED	LOCATION OF EXERCISE	EMERGENCY MANAGEMENT DISTRICTS/ AGENCIES OR SECG INVOLVED
Air Crash	WA Police	28/02/2012	Deployment	Command, Control, Coordination, communication, interoperability	Exmouth	CHC, Aspen, Australian Maritime Safety Authority, WA Police and Department of Health (Dept Health)
Air Crash	WA Police	17/04/2012	Discussion Exercise	Planning	RAAF Base Pearce	WA police, Dept Health, ADF
Air Crash	WA Police	19/04/2012	Discussion Exercise	Roles, decision making and relationship between those in the role of airport operations, emergency response and support, airlines and passenger welfare following an air crash scenario	Mulberry Farm Caversham	WA Police, Perth Airport, Dept Health, various
Air Crash	WA Police	19/04/2012	Full field deployment	Command, Control, Coordination, communication	Local Government Authority Kalgoorlie-Boulder Airport	FESA, WA Police, SJA, SES, DCP, Royal Flying Doctor Service, Dept Health, Local Government Authority, Skystar, Skywest, Qantas, QantasLink, Johnnoclan Holdings, Cobham.
Air Crash	WA Police	02/05/2012	Deployment	Response	RAAF Base Pearce	WA Police, Dept Health, Australian Defence Force (ADF), FESA
Animal and Plant and Biosecurity	Department of Agriculture and Food WA	01/04/2012	Training/Field Exercise	Response and planning	Forrestfield	Department of Agriculture and Food WA, WA Police, Emergency Management Australia
Animal and Plant and Biosecurity	Department of Agriculture and Food WA	15/06/2012	Training/Field Exercise	Awareness and processes, roles and relationships	Geraldton	Department of Agriculture and Food WA, FESA observed

WESTPLAN	AGENCY RESPONSIBLE FOR WESTPLAN	DATE CONDUCTED	TYPE OF EXERCISE/ EMERGENCY	ASPECTS(S) TESTED	LOCATION OF EXERCISE	EMERGENCY MANAGEMENT DISTRICTS/ AGENCIES OR SECG INVOLVED
Brookfield Rail Pty Ltd Emergencies	Brookfield Rail Pty Ltd	07/07/2012	Discussion Exercise	Contingency planning	Northam	Brookfield Rail Pty Ltd, Wheatbelt and East Metro
Brookfield Rail Pty Ltd Emergencies	Brookfield Rail Pty Ltd	17/05/2012	Response	Response	Mooliabeenee Rd, Bindoon	Brookfield Rail Pty Ltd, FESA, WA Police
Bushfire	FESA	20/09/2011	Discussion Exercise	Review and planning	Leake St, Belmont	FESA, WA Police, ADF
Bushfire	FESA	20/09/2011	Discussion Exercise	Review and planning	Karratha and conference phone link	FESA,DEC,Shire of Roebourne, Shire of Ashburton
Bushfire	FESA	08/11/2011	Functional Exercise	Multi-agency response, control and coordination	Statewide	FESA, DEC, WA Police, Local Government Authorities, DCP
Bushfire	FESA	04/11/2011	Response	Response	Gidgegannup	FESA, Local Government Authority, SES, WA Police
Bushfire	FESA	23/11/2012	Response	Response	Shire of Augusta-Margaret River	FESA, DEC, Local Government Authority, WA Police, Dept Health, Main Roads WA
Bushfire	FESA	20/09/2011	Discussion Exercise	Review and planning	Leake St, Belmont	FESA, WA Police, ADF
Bushfire	FESA	20/09/2011	Discussion Exercise	Review and planning	Karratha and conference phone link.	FESA, DEC, Shire of Roebourne, Shire of Ashburton
Bushfire	FESA	12/04/2012	Table top	AIIMS testing	Mid West Gasgoyne	FESA, Local Government Authority
Chemical, Biological, Radiological and Nuclear	FESA	05/09/2011	Functional/Field Exercise	Response and information sharing	Joondalup Police Training Centre	National Counter Terrorism Committee, FESA, WA Police, ADF, Chemcentre, SJA, Dept Health
Chemical, Biological, Radiological and Nuclear	FESA	24/09/2011	Functional Exercise	Multi-agency response	Gloucester Park	FESA, WA Police, AFP, SJA, ADF, Dept Health, Chemcentre

WESTPLAN	AGENCY RESPONSIBLE FOR WESTPLAN	DATE CONDUCTED	TYPE OF EXERCISE/ EMERGENCY	ASPECTS(S) TESTED	LOCATION OF EXERCISE	EMERGENCY MANAGEMENT DISTRICTS/ AGENCIES OR SECG INVOLVED
Chemical, Biological, Radiological and Nuclear	FESA	28/09/2011	Functional Exercise	Capability and response	Swanbourne Barracks	ADF, FESA, WA Police, SJA, Australian Federal Police (AFP)
Chemical, Biological, Radiological and Nuclear	FESA	5/10/2011	Functional Exercise	Response	FESA house	FESA, WA Police, Chemcentre, SJA, Dept Mines and Petroleum, Dept Health, Worksafe, DEC
Chemical, Biological, Radiological and Nuclear	FESA	20/10/2011	Deployment	Interoperability and response	Bindoon ADF Training Facility	ADF, FESA, WA Police, AFP
Chemical, Biological, Radiological and Nuclear	FESA	27/03/2012	Discussion Exercise	Interagency arrangements	US Consulate, St Georges Terrace	US consulate, AFP, WA Police, FESA
Chemical, Biological, Radiological and Nuclear	FESA	1/05/2012	Deployment	Response and advice	FESA House	FESA, WA Police, DEC, Chemcentre, SJA, AFP, Department of Mines and Petroleum
Collapse	FESA	17/05/2012	Deployment	Building Collapse	Bentley	FESA, WA Police, SJA, Department of Housing
Collapse	FESA	29/05/2012	Deployment	Building Collapse	Bentley	FESA, WA Police, SJA, Department of Housing
Cyclone	FESA	10/01/2012	Response	OASG activated in response to cyclone threat	Pilbara - TC Heidi	FESA, WA Police, DCP, Horizon, WaterCorp, Main Roads WA (MRWA), Dept Health, Department of Education, Department of Transport, Local Government Authority, Industry

WESTPLAN	AGENCY RESPONSIBLE FOR WESTPLAN	DATE CONDUCTED	TYPE OF EXERCISE/ EMERGENCY	ASPECTS(S) TESTED	LOCATION OF EXERCISE	EMERGENCY MANAGEMENT DISTRICTS/ AGENCIES OR SECG INVOLVED
Cyclone	FESA	26/01/2012	Response	OASG activated in response to cyclone threat	Pilbara - TC Iggy	FESA, WA Police, DCP, Horizon, WaterCorp, MRWA, Dept Health, Department of Education, Department of Transport, Local Government Authority, Industry
Cyclone	FESA	14/03/2012	Response	OASG activated in response to cyclone threat	Pilbara - TC Lua	FESA, WA Police, DCP, Horizon, WaterCorp, MRWA, Dept Health, Department of Education, Department of Transport, Local Government Authority, Industry
Dambreak	Water Corporation	30/08/2011	Desktop	Safety monitoring and planning	Water Corporation SWR Office	Water Corporation
Dambreak	Water Corporation	7/02/2012	Desktop	Simulate dambreak Churchman's Brook Dam	Water Corporation City of Gosnells	Water Corporation
Dambreak	Water Corporation	14/02/2012	Desktop	Safety monitoring and planning	Water Corporation SWR Office	Water Corporation
Earthquake	FESA	15/09/2011	Discussion Exercise	Response, command and control	Perth	FESA, Central Metropolitan District
Gas Supply Disruption	Public Utilities Office	01/06/2012	Discussion Exercise	Multi-agency response	Albert Facey House, 469 Wellington St Perth	Public Utilities Office, Coordinator of Energy, Dept Health, FESA, Gas and Petroleum Industry Organisations, Western Power, Horizon Power, Chamber of Commerce
HAZMAT	FESA	01/08/2011	Functional Information	Information sharing	Burswood	FESA
HAZMAT	FESA	01/08/2011	Drill	Response and interoperability	Malaga	FESA, Dept Health

WESTPLAN	AGENCY RESPONSIBLE FOR WESTPLAN	DATE CONDUCTED	TYPE OF EXERCISE/ EMERGENCY	ASPECTS(S) TESTED	LOCATION OF EXERCISE	EMERGENCY MANAGEMENT DISTRICTS/ AGENCIES OR SECG INVOLVED
HAZMAT	FESA	01/08/2011	Presentations, Discussion Exercise and Field Exercise	Response	FESA Training Centre, Forrestfield	DEC, FESA, US-Environmental Protection Authority, Dangerous Goods Clean-up contractors
HAZMAT	FESA	10/08/2011	Discussion Exercise	Capability and response	Rockingham	FESA, Kwinana Industries Mutual Aid (KIMA) network major chemical facilities
HAZMAT	FESA	11/08/2011	Discussion Exercise	Communications and review	Kwinana	Coogee Chemicals, Town of Kwinana, FRS Hope Valley/ Rockingham/ Murdoch, FESA, WA Police, BHP Billiton, CSBP
HAZMAT	FESA	11/08/2011	Discussion Exercise	Response	Technology Park, Bentley	DEC, FESA, US-EPA,WA Police, Dangerous Goods Clean-up contractors
HAZMAT	FESA	25/08/2011	Deployment Field Exercise	Response	Subiaco Waste Water Treatment Plant	Water Corporation, Orica, FESA, DEC, Chemcentre, WA Police
HAZMAT	FESA	31/08/2011	Deployment Field Exercise	Response	Wanneroo Waste Water Treatment Plant	Watercorp, Orica, FESA, DEC, Chemcentre, WA Police
HAZMAT	FESA	1/09/2011	Drill	Multi-agency response	Canningvale	FESA, Industry
HAZMAT	FESA	2/09/2011	Functional Exercise	Chemical Awareness/ Detection and Dignitary Protection	Leake St, Belmont	FESA, WA Police, ADF
HAZMAT	FESA	6/09/2011	Functional Exercise	Chemical Awareness/ Detection and Dignitary Protection	Leake St, Belmont	FESA, WA Police, ADF
HAZMAT	FESA	20/09/2011	Discussion Exercise	Evaluation	Leake St, Belmont	FESA, WA Police, ADF

WESTPLAN	AGENCY RESPONSIBLE FOR WESTPLAN	DATE CONDUCTED	TYPE OF EXERCISE/ EMERGENCY	ASPECTS(S) TESTED	LOCATION OF EXERCISE	EMERGENCY MANAGEMENT DISTRICTS/ AGENCIES OR SECG INVOLVED
HAZMAT	FESA	6/10/2011	Functional Exercise	Chemical Awareness/ Detection and Dignitary Protection	Leake St, Belmont	FESA, WA Police, ADF
HAZMAT	FESA	10/10/2011	Functional Exercise	Chemical Awareness/ Detection and Dignitary Protection	Leake St, Belmont	FESA, WA Police, ADF
HAZMAT	FESA	14/10/2011	Functional Exercise	Dignitary Decontamination	Leake St, Belmont	FESA, WA Police, ADF
HAZMAT	FESA	18/10/2011	Functional Exercise	Dignitary Decontamination	Leake St, Belmont	FESA, WA Police, ADF
HAZMAT	FESA	27/04/2012	Response	Response	North Coogee	FESA, WA Police, DEC
Land Search	WA Police	22-23/04/2012	Response	Response	Fitzroy Crossing	WA Police, SES
Marine Oil Pollution	Department of Transport	20/09/2011	Full Deployment Exercise	Planning, resources, interoperability	HMAS Stirling	WA Police, Fremantle Port Authority, BP, DMS Maritime, Department of Transport
Marine Oil Pollution	Department of Transport	5-7 June 2012	Full Deployment Exercise	National exercise - incident activation	Victoria Australia	Department of Transport
Marine Search and Rescue	WA Police	16/05/2012	Desktop	Resources and role and responsibilities	WA Police HQ	WA Police, DEC, Bureau of Meteorology, Dept Health, FESA, Surf Life Saving Western Australia, Metro Marine Search and Rescue
Nuclear Powered Warship	WA Police	27/04/2012	Visitation Response	Deployment	Gage Roads Garden Island	WA Police, FESA, Dept Health, US Consulate, AU Navy, Australian Nuclear Science and Technology Organisation
PTA Rail Crash	Public Transport Authority	20/02/2012	No Notice Field Exercise	Evacuation of Prospector train in Avon Valley	Toodyay	Public Transport Authority
PTA Rail Crash	Public Transport Authority	9/05/2012	Discussion Exercise	Command/ Control	Maylands Conference Room 2	WA Police, Public Transport Authority

WESTPLAN	AGENCY RESPONSIBLE FOR WESTPLAN	DATE CONDUCTED	TYPE OF EXERCISE/ EMERGENCY	ASPECTS(S) TESTED	LOCATION OF EXERCISE	EMERGENCY MANAGEMENT DISTRICTS/ AGENCIES OR SECG INVOLVED
Road Crash	WA Police	1/07/2011	Discussion Exercise	Response	Kalamunda	FESA, Local Government Authority, SES, WA Police, Volunteer Fire Brigade
Road Crash	WA Police	3/08/2011	Command Control	Establishing IMT	Grt Southern Police	WA Police, Albany LEMC
Road Crash	WA Police	23/10/2011	Response	Response	160 Km west of Fitzroy Crossing	WA Police, MRWA
Road Crash	WA Police	8/12/2011	Discussion Exercise	Communication and coordination	Gin Gin/ Chittering Shires	WA Police, FESA, Local Government Authority
Road Crash	WA Police	11/02/2012	Response	Response	Fitzroy Crossing	WA Police, Local Hospital
Road Crash	WA Police	1/04/2012	Response	Response	Grt Southern Police	WA Police
Space Re Entry Debris	WA Police	20/06/2012	Discussion Exercise	Response	Canberra, Perth, Regional WA	WA Police, Commonwealth Attorney General's Dept, FESA, Dept Health, DCP, DEC, Department of the Premier and Cabinet, State Solicitors Office, Australian Defence Force
Storm	FESA	21/10/2011	Discussion Exercise	Response	Mundaring	SES,FESA, DCP, Red Cross, Dept Health
Storm	FESA	3/11/2011	Response	Response	City of Albany, Shire of Denmark, Shire of Dumblyung, Shire of Narrogin, Shire of Wagin, Shire of West Arthur	FESA, WA Police, DCP, Local Government Authority, Dept Health
Terrorist Act	WA Police	24/08/2011	Deployment	Classified	Classified	WA Police, National Police
Terrorist Act	WA Police	21/03/2012	Drill	Common information management system	Alice Springs with ExCon in WA, SA, NT and VIC	WA Police, National Police
Terrorist Act	WA Police	24/04/2012	Deployment	Tactical Capability	Perth	WA Police

WESTPLAN	AGENCY RESPONSIBLE FOR WESTPLAN	DATE CONDUCTED	TYPE OF EXERCISE/ EMERGENCY	ASPECTS(S) TESTED	LOCATION OF EXERCISE	EMERGENCY MANAGEMENT DISTRICTS/ AGENCIES OR SECG INVOLVED
Urban Fire	FESA	26/07/2011	Discussion exercise and information presentation	Response and logistics	BP Kwinana	FESA, BP Kwinana
Urban Fire	FESA	22/11/2011	Discussion exercise	Capability	Fremantle Port Authority	WA Police, FESA, SJA, Health, DEC, Venue Management, Event Management (ISAF), Local Government Authority
Urban Fire	FESA	13/01/2012	Functional	Planning	TRG bomb range	WA Police, FESA, Chemcentre
Various Westplans (planning for CHOGM)	WA Police	12/10/2011	Functional	Interoperability	Maylands Police Complex	Multiple including National

**Please note, the information in Appendix 2 is based on information provided by agencies to the Emergency Services Subcommittee of the SEMC. The list may not be a complete record of exercises conducted.*

Legend

Response to an actual incident/activation of Westplan

Appendix 3

Recent History of Major Bushfires in Western Australia

Waroona January 2006
A bushfire in the Murray Valley burned through 11,500 ha of jarrah and wandoo forests. Suspected to have been deliberately lit, the fire threatened the town sites of Waroona and Yarloop as well as Alcoa's Wagerup refinery and infrastructure.

Dwellingup January – February 2007
A bushfire occurred between Dwellingup and Pinjarra and around North Waroona. This fire burnt 13,376 ha of which 7,625 ha were privately held. The fire destroyed 14 homes, 35 sheds and outbuildings and about 100 kms of fencing.

Boorabbin December 2007 – January 2008
The Boorabbin National Park fire, on the Great Eastern Highway about 200 kms west of Kalgoorlie, burned approximately 40,000 ha. On 30 December 2007, two trucks travelling along the highway were over-run by the fire and in consequence the three vehicle occupants died.

Bridgetown January 2009
A fire seriously threatened the town of Bridgetown and the nearby subdivision of Highland Estate. The fire burned out 5,877 ha, mostly privately held, and resulted in the loss of seven houses, nine sheds and 1,600 ha of mostly privately owned pine and blue gum plantations.

Two Rocks January 2009
A very large fire started near Two Rocks and rapidly spread through the northern sections of Yanchep National Park and pine plantations to the north and east. The fire area burnt 10,270 hectares of which 1,836 ha were in national park, 2,664 ha were privately held land and 5,760 ha were State forest, including about 4,000 ha of Forest Products Commission plantation.

Toodyay December 2009
This fire occurred on a severe fire danger day and burnt through nearly 3,000 ha of mainly private property, destroying 38 homes. The fire directly threatened the town of Toodyay but most damage occurred on farmland and small acreages to the South West and south east of the town.

Lake Clifton January 2011
Possibly related to a tyre blow-out on the Forrest Highway about 110 km south of Perth, this fire burnt through approximately 1000 ha of reserves and private property. Ten houses were destroyed and the Tuart Grove locality was evacuated.

Roleystone February 2011
Though relatively small at around 450 ha, this fire was the most destructive in WA since 1961, destroying 71 homes and damaging another 39 homes and structures. Caused by angle-grinding activity, the fire burnt predominantly on privately held land property. The subsequent special inquiry into the fire has led to significant changes in fire management in WA.

Margaret River November 2011
An escape from a DEC prescribed burn, this fire burnt fiercely through nearly 3,000 ha of long-unburnt coastal heath under unseasonably warm, windy conditions and destroyed or damaged 45 homes, chalets and sheds. DEC incident management teams, led by incident controllers with Section 13 (Bush Fires Act) authorisations from FESA, managed the response operation with assistance from FESA and local government bush fire brigades. The subsequent special inquiry has led to improvements to DEC's and the State's approach to risk management associated with prescribed burning.

Milyeannup November 2011
This fire escaped from a DEC prescribed burn on the same day and under the same conditions as the Margaret River fire. Though property damage was not as extensive, the Milyeannup fire was the largest in the South West in fifty years, burning through over 50,000 ha of forest and coastal heath.

Carnarvon Complex December 2011 – February 2012
These fires, which resulted from two separate series of lightning strikes, led to possibly the longest fire suppression campaign in WA since 1961, running for over five weeks. No homes were lost but there was significant damage to pastoral infrastructure and the North-West Coastal Highway was closed on several occasions. Whilst the first ignition occurred on DEC-managed land, the vast majority of the nearly 800,000 hectares burnt was pastoral land.

Appendix 4

Reconstitution of the State Emergency Management Committee

In July 2012, the Government determined to reform the approach to emergency management in Western Australia. The State Emergency Management Committee (SEMC) was reconstituted to provide more independent and objective oversight of emergency management with three new independent members: Chairperson Kerry Sanderson AO; Deputy Chair Sue Ash; and member Frank Edwards.

In addition to those new members, the committee now comprises the Directors General and Chief Executive Officers of:

- WA Police
- Fire and Emergency Services Authority
- Department of the Premier and Cabinet
- Department for Child Protection
- Department of Environment and Conservation
- Department of Health
- WA Local Government Association

Membership reflects the wide reach of emergency management across the community, local government, industry and government.

Other changes include:

- Sub-department status for the SEMC Secretariat to support the Committee (previously this function was carried out by a division within the Fire and Emergency Services Authority).
- Clearer delineation between the State Emergency Coordination Group (SECG), which is drawn together to co-ordinate the response to specific emergencies, and SEMC, which has a role in preparedness including policy development, assessing compliance and reviewing responses.

The changes are designed to promote increased emphasis on collaboration and shared learning as well as to ensure the provision of annual advice to Government on the State's preparedness for large-scale emergencies.

SEMC has also been asked to report on the implementation of the recommendations of past reviews and investigations of emergencies. This is being done currently and over time ways of providing increased assurance through performance indicators will be examined.

A clear focus for SEMC, consistent with a risk management environment, will be to look for ways to foster a greater level of community engagement across the sector including the continued cultivation of a strong culture of self-reliance and volunteering, including increased recognition and development opportunities for volunteers.