Emergency Preparedness Report 2021

STATE EMERGENCY MANAGEMENT COMMITTEE

GOVERNMENT OF WESTERN AUSTRALIA

SEMC
STATE EMERGENCY MANAGEMENT COMMITTEE

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Dr Ron F Edwards
Chair, State Emergency Management Committee

From the Chair

COVID-19 has had significant impacts across the globe, within Australia and Western Australia (WA). I believe we have achieved exceptional results in WA, largely due to our leadership, the decisive action taken and the Emergency Management arrangements we have in place.

This nonetheless serves as an excellent opportunity for us to review our arrangements in light of the largest scale emergency we have seen this century.

Similarly, 2021 saw significant natural disasters under COVID-19 conditions.

The Wooroloo bushfire destroyed homes and impacted local businesses and residents – thankfully, no lives were lost. This was closely followed by Tropical Cyclone (TC) Seroja which impacted significant areas of the State that does not normally experience cyclone activity.

We need to continually improve our arrangements so that we are as prepared as possible for the next emergency. The lessons identified will be fed back into our emergency management arrangements to ensure we are as prepared as possible for the future and this report provides examples of how we are creating systems to ensure continuous improvement as all emergency management partners work towards a safer and more resilience State.

1. Introduction

The State Emergency Management Committee (SEMC) has a responsibility under the *Emergency Management Act 2005* (the EM Act) to advise the Minister on the preparedness of the State to combat emergencies (s.14). Since 2012, the SEMC has prepared the Emergency Preparedness Report as a primary deliverable against this responsibility. This Emergency Preparedness Report aims to provide the Minister with an understanding of existing strengths of the Emergency Management (EM) sector and priority areas for capacity and capability development.

The process for preparation of the Emergency Preparedness Report is described in section 3.18 of the State Emergency Management Procedure. Further information about the methodology is provided in Chapter 2.

Capability and preparedness are a function of risk; the EM sector assesses hazards, vulnerabilities and risks to inform the development of plans and capability. Chapter 3 of the Report provides a brief summary of hazards, vulnerabilities, and risk assessments.

The Emergency Management Procedure requires that the SEMC undertake targeted and tailored surveys of all Hazard Management Agencies, EM agencies, service providers and local government (LG) agencies to inform the Emergency Preparedness Report. Chapter 4 provides a high-level summary of responses to this Capability Survey. It does not report on the capability of individual agencies but on key groups within the EM sector.

Due to the resourcing impacts of COVID-19 the Capability Survey was not undertaken in 2020 and an Emergency Preparedness Report was not finalised. This Report therefore draws on observations, insights and lessons identified during the events of the past two years. This discussion is included in Chapters 5 to 10, which focus on the State's six Core Objectives and the underlying governance arrangements for emergency management.

The concluding Chapter includes a summary of priorities that have been identified by the sector.

2. Methodology and Data

This 2021 Emergency Preparedness Report has been informed by the following activities.

1. 2021 Capability Survey.
   The 2021 Survey was undertaken between April and June 2021.

   Organisations that make up the EM sector in WA complete a self-assessment based on the SEMC Emergency Management Capability Framework. This data is aggregated by 'like organisations' and analysed after grouping questions into Capability Topics.

   In 2021, the Survey was sent to 127 LGs out of the 137 across the State. Thirteen local government areas were impacted by Cyclone (TC) Seroja, which made landfall on 11 March 2021. The ten LGs most impacted by TC Seroja[1] were exempted from completing the Survey to avoid increasing their administrative burden. Refer Appendix A for more information about the Survey and the Capability Topics.

2. The outcomes of State and district-level assessments undertaken for the State Risk Project during 2013-2020. Refer Appendix B for further detail about the scope and methodology of the State Risk Project.

3. Observations, insights and lessons identified per:
   a. Key stakeholder interviews undertaken by the Chair and Executive Officer of the SEMC in 2020
   b. Public Sector Business Continuity Planning workshops co-hosted by the SEMC in March 2020
   c. Agenda items and matters for discussion at SEMC during 2020 and 2021
   d. Subcommittee agenda items and matters for discussion
   e. Review of the Norseman West Complex of Bushfires Agency level after-incident reviews (where shared)
   f. Stakeholder interviews undertaken by the SEMC Business Unit Lessons Management Team to understand actions taken to address recommendations and lessons identified from previous years in the context of the Wooroloo bushfire

1 Shire of Carnamah, Shire of Chapman Valley, Shire of Coorow, City of Greater Geraldton, Shire of Irwin, Shire of Mingenew, Shire of Morawa, Shire of Northampton, Shire of Perenjori, Shire of Three Springs.

3. What Do We Prepare For?

Preparedness is a constant goal across the EM sector. 75% of respondents to the Capability Survey provided details of preparedness initiatives planned for the year ahead based on their local evaluation of hazards, vulnerabilities, risk and capability. This Chapter provides a snapshot of hazards, vulnerabilities and risks at a state level.

3.1 Hazard Identification

The Western Australian EM Framework prescribes 28 hazards (Table 1) ranging from hazards that occur quite frequently – such as storms, floods and fires – to events that rarely occur in the lifetime of most West Australians. While the majority of hazardous events are localised, causing minimal impacts and able to be managed within the core capabilities of local communities, every hazard has the potential to become or cause a larger incident with increased significant impacts, requiring a coordinated response across a wide range of organisations. This Report focuses on the capacity of the EM sector to manage coordinated responses to these larger and possibly disastrous incidents, noting that where this capacity exists, smaller incidents will be readily managed.

TABLE 1: PRESCRIBED HAZARDS IN WESTERN AUSTRALIA		
Air crash	Gas supply disruption sufficient to cause potential risk to life	Marine search
Animal or plant pests or diseases	HAZMAT: release of chemical, radiological or other hazardous materials capable of causing harm to persons, property, or the environment	Marine transport emergency
Biological substance: release biological substance capable of causing harm to persons, property or the environment		Radiation escape from a nuclear-powered warship
Collapse[2]	Heatwave	Rail crash
Cyclone	Hostile act	Road crash
Earthquake	Human epidemic	Space re-entry debris
Electricity supply disruption sufficient to cause potential risk to life	Land search	Storm
Fire	Liquid fuel supply disruption with potential to cause risk to life	Terrorist act
Flood	Marine Oil Pollution: release of substance capable of causing harm to persons or the marine environment	Tsunami

2 Collapse refers to hazards resulting in the injury or threat to life of persons trapped by the collapse of a structure or landform.

3.2 Vulnerability: Protecting What We Value

Hazards are a part of daily life and can bring positive impacts, such as the rejuvenating impacts of a rainstorm or early season fire. However, hazards and emergencies can also have negative impacts on people and what they value. The SEMC has defined six Core Objectives for emergency risk management that describe those things that are valued by West Australians and which are vulnerable to the impacts of an emergency.

- **People:** To protect people's lives and wellbeing. This is the primary objective of emergency management.
- **Economy:** To maintain and grow the State's productive capacity, employment, and government revenue.
- **Social setting:** To ensure there is public order, under which people are housed and fed in a safe and sanitary manner, have access to social amenity including education and health services, and that things of cultural importance are preserved.
- **Government:** To ensure there is, at all times, an effective and functioning system of government and societal respect for rule of law.
- **Infrastructure:** To maintain the functionality of infrastructure, particularly key transport infrastructure and utilities required for community health, economic production and the effective management of emergencies.
- **Environment:** To protect the ecosystem and biodiversity of the State.

3.3 Risk Assessment

In simple terms, risk is the chance of something happening that will have a negative effect. In the context of emergency management, risk is the possibility that a hazard could have an adverse impact on something or someone that is vulnerable.

Emergency Risk Management (ERM) is a systematic process to identify risk, involving the following three steps:

- identify the hazards that may result in an emergency or disaster
- understand the likelihood and potential impacts and consequences of hazardous events
- determine controls by which the impacts can be minimised, mitigated, or managed

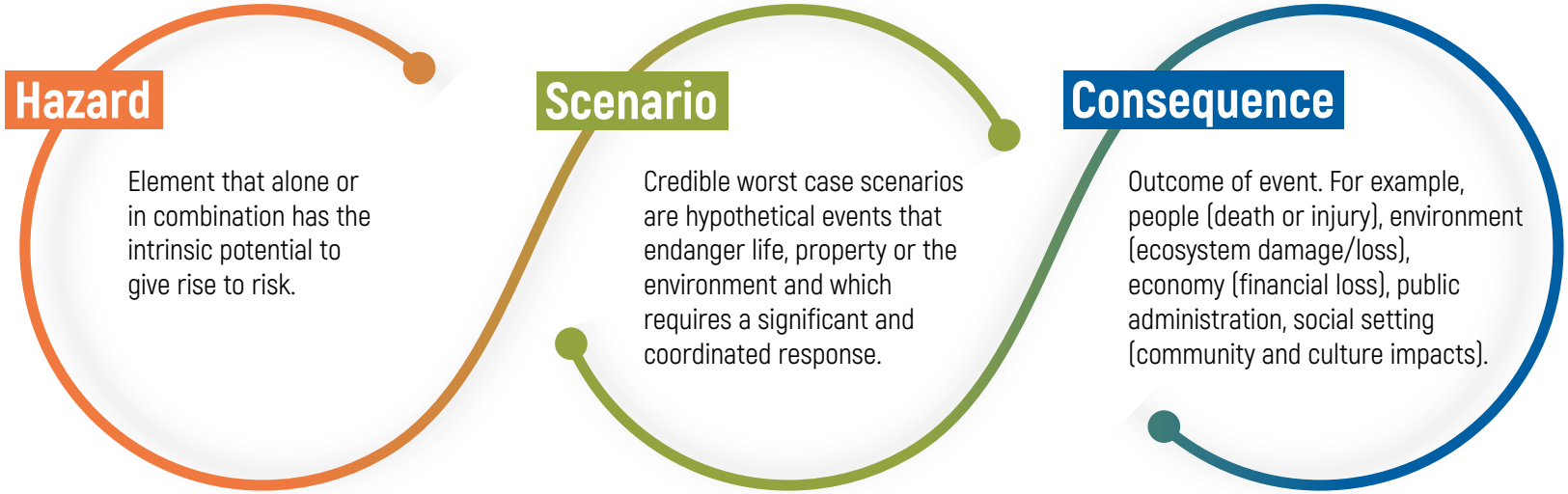


Figure 1: Elements of the Scenario based risk assessment process

The State Risk Project (the Risk Project) created credible worst-case scenarios for each of the prescribed hazards to gain a better understanding of the most significant risks facing the State. Figure 1 describes the risk assessment workshop process based on the *Australian Institute for Disaster Resilience (AIDR), National Emergency Risk Assessment Guidelines (NERAG) Handbook 2020.* The source of risk is the hazard, the scenario provides an example event from which the consequences can be predicted and assessed to identify the consequences. The project also involved the identification of potential controls for significant risks. In emergency management, risk controls are categorised as prevention, preparedness, response, and recovery activities (PPRR). Each of these is defined below.

- **Prevention:** defined in section 3 of the EM Act as 'the mitigation or prevention of the probability of the occurrence of, and the potential adverse effect of, an emergency'.
- **Preparedness:** means that actions and arrangements are in place to ensure that all resources and services needed to combat the effects of an emergency can be effectively and efficiently mobilised and deployed. Preparedness also means informing individuals and communities about hazards and risks, so they are able to make plans to protect themselves from the impacts of an emergency and lead recovery efforts.
- **Response:** defined as 'combating the effects of an emergency, the provision of emergency assistance for casualties, the reduction of further damage, and helping to speed recovery'.
- **Recovery:** defined as 'the support of emergency-affected communities in the reconstruction and restoration of physical infrastructure; the environment; and community, psychosocial and economic wellbeing'.

These four types of controls inform the capabilities needed by the EM sector: that is, the capability to prevent emergencies, to prepare for the impacts of an emergency, to combat the effects of an emergency and to assist impacted communities rebuild physically, socially, and economically. The findings of the Risk Project enable the State Government and local governments to understand and prioritise risk management activities and to develop capabilities for each of the control areas.

The methodology and scope of the Risk Project are summarised at Appendix B State Risk Project.

The Risk Project found that the hazards of human pandemic and animal or plant biohazard posed the highest risk because they could impact human health, economies, social settings and the environment across the entire State. This assessment was completed prior to the COVID-19 pandemic and the forecast impacts have proven to be realistic.

The Risk Project also found that the occurrence of a large-scale natural disaster in Perth, such as an earthquake, poses a high risk of death or injury, displacement of people and disruption to economy, administration and community.

Although cyclones, floods, storms and fires occur every year, they were not rated as the highest risks to the State because they tend to cause local or district-level impacts rather than Statewide impacts. These hazards were, however, rated as a higher risk in district and local risk assessments, reflecting the significant impacts they can cause for local communities.

Further information about the findings of the Risk Project is included in Appendix B State Risk Project.

Findings of the State Risk Project

In understanding the findings of the Risk Project, it is important to note that the risk assessments evaluate the likelihood and consequence of the impacts that could be caused by hazardous incidents. That is, the harm that could occur for people, communities, environments, economic activity and governance capability. The scale of impact is not necessarily a direct measure of response activity but does inform the planning and resourcing of response and will inform the recovery requirements.

The findings of the Risk Project are also interpreted in terms of the relative scale of an impact. For example, in some districts an economic loss of $30 million is a major consequence relative to the regional economy. It therefore rates as a high or extreme risk. However, in a Statewide context, these impacts have a lower relativity and are therefore assessed as lower risk. This does not downplay the impact to the local community or the need to manage local risks.

What is Webfusion?

An Incident Management System (IMS) helps an organisation respond to, manage and prevent incidents and emergencies. Many EM agencies in WA use WebEOC as their IMS.

WebFusion allows these different organisational versions of WebEOC to share real time data during incidents.

Webfusion facilitates information sharing in emergencies.

More detail on WebFusion on page 66.

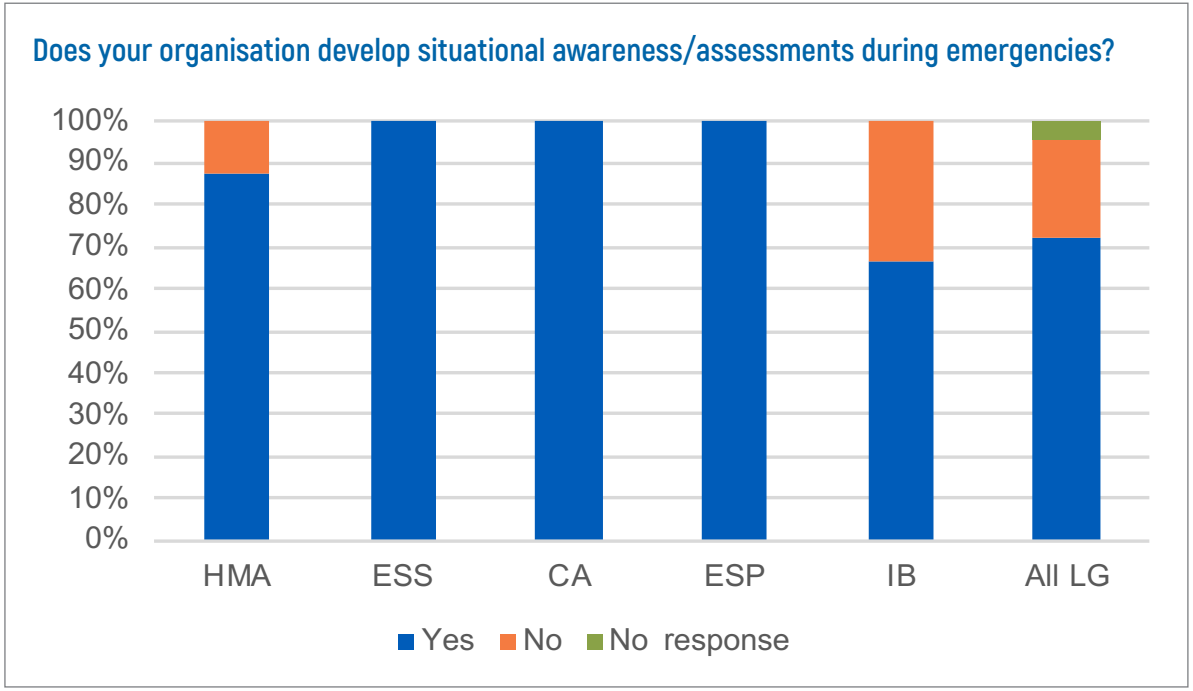


Figure 2: Situational assessment scores 2021

3.4 Sharing Information

Risk and vulnerabilities are not static. Horizon scanning and situation awareness are key skills in emergency management that assist the sector to identify changes in risk profiles. Horizon scanning refers to long range forecasting and situational awareness is about the changing landscape of an active event.

Situational Assessments are commonly undertaken by organisations during events. WebFusion has now been implemented to assist with shared situational awareness across agencies. As usage increases, policies and procedures will be developed and integrated into operations that will maximise its benefits.

Some additional work to increase situational awareness have been identified, and agencies should work together to ensure they are addressed. The early activation of Liaison Officers with local government and support organisations will allow a two-way flow of information with the HMAs.

Graph categories are explained in full on **page 14**.

Improving consistency and standardisation of IT platforms (e.g. GIS platforms, WebFusion) and including all support agencies will facilitate information sharing and situational awareness. Continued work to share data between agencies remains important, including during the recovery phase. Data needs to be accessible, relevant, current and correct. Recent examples from the Wooroloo bushfire have identified that multiple versions of datasets are in use and not all are updated. Decisions based on outdated information have led to the duplication of effort and rework.

The most common method of horizon scanning and monitoring best practice is through involvement in peer, industry and specialist groups, such as Australian and New Zealand National Council for fire and emergency services (AFAC) technical groups; membership in AIDR; engagement with Bushfire and Natural Hazards Cooperative Research Centre; participations in the Australian Health Protection Principal Committee and National Heatwave standardisation working group; and collaboration with Australian Maritime Safety Authority (AMSA).

Local governments tended to rate lower on this capability than other organisations. Most LGs rely on personal networks, such as District Emergency Management Advisors and Community Emergency Services Managers. Information is received and acted upon rather than actively sought out. One LG noted that 'time and resources make this very difficult, we are "keeping up" rather than improving'.

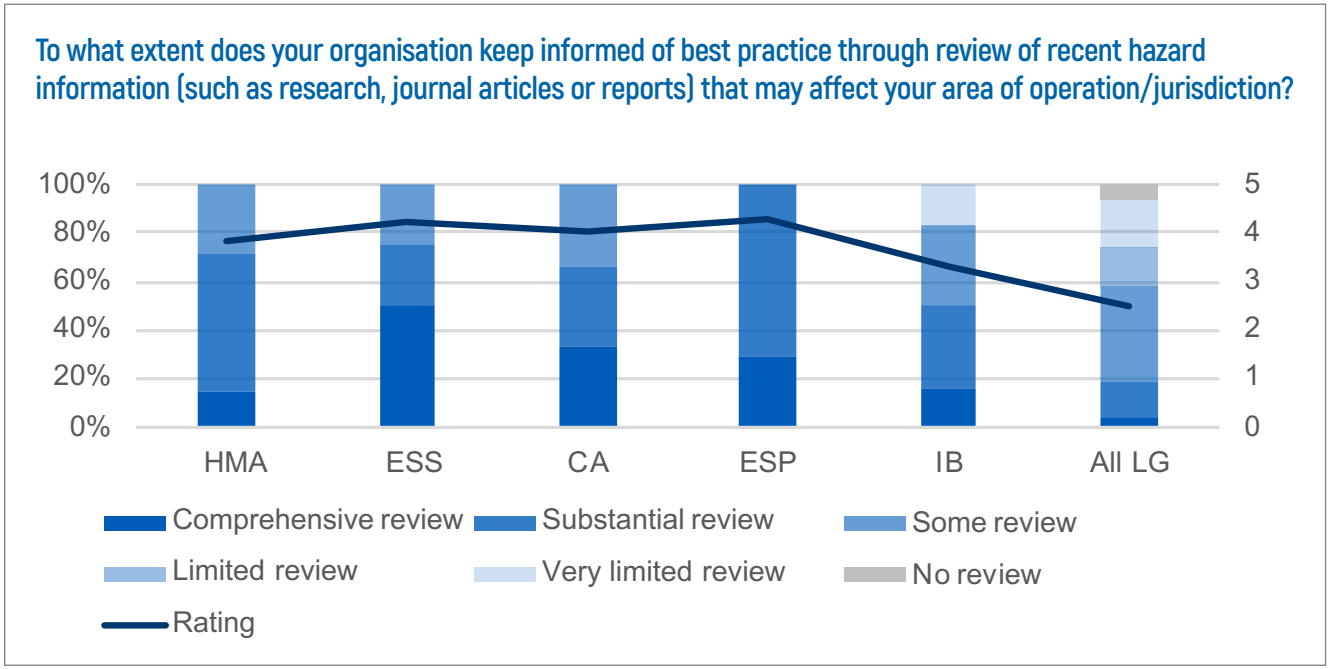


Figure 3: Horizon scanning scores 2021

A notable example of effective horizon scanning practice is the Emergency Management Australia (EMA) High Risk Weather Season briefing to the WA EM sector. The annual briefing covers the fire outlook across Australia, meteorological and climactic outlooks, and briefings from other Commonwealth agencies such as Defence and Geoscience Australia. These seasonal outlooks inform expected impacts and consequently the capacity required to respond, including accessing Commonwealth response arrangements and potential Australian Government assistance based on jurisdictional risks in WA.

It should be noted that some respondents called for more inclusive forums, which often only invite HMAs and key stakeholders. This is a missed opportunity to open and connect the sector.

Graph categories are explained in full on **page 14**.

4. Our Capabilities

4.1 Annual Capability Survey

The annual Capability Survey is sent to a wide range of organisations.

THE RESULTS ARE ANALYSED BY CAPABILITY TOPICS WHICH COVER:

- Risk Assessment
- Horizon Scanning
- Hazard Information
- Lessons Management
- Alerts and Warnings – Quality
- Alerts and Warnings – Tools
- Public Information – Quality
- Public Information – Tools
- Sector Information Sharing
- Natural Buffers
- Infrastructure Protection
- Critical Infrastructure
- Essential Services Protection
- Essential Services Protection
- Remoteness Planning
- Business Continuity Plans
- EM Personnel
- Finance and Administration
- Equipment and Infrastructure
- Situational assessment
- Evacuations
- Evacuation/ Welfare Centres
- Agency Interoperability (including MOU)
- Emergency MOU
- Community Welfare
- Impact Assessment
- Recovery Resources
- Recovery Skills
- Sustained Recovery
- Recovery Plans

The content of the Capability Topics is explained in Appendix A.

The Survey asks a range of questions that organisations use to self-assess their capability to prevent, prepare for, respond to and recover from emergencies. Not all capabilities are required by every organisation, so the relevant topics are analysed by the following organisational groups:

Hazard Management Agencies (HMA) are prescribed by the EM Regulations for a hazard or an aspect of a hazard under section 4(1) of the EM Act. The SEMC has delegated the responsibility for the development, maintenance, review and exercising of relevant State Hazard Plans (Westplans) to the HMAs[3].

A public authority or other person is prescribed as an HMA because of their functions under a law or specialised knowledge, expertise and resources.[4]

Local governments (LG) have a range of responsibilities in EM and prepare Local Emergency Management Arrangements (LEMA), and work closely with HMAs to provide local support during emergencies. LGs lead community-centred recovery.

Essential service providers (ESP) are owners and operators of critical infrastructure that may be impacted by an emergency or required in recovery. They are also known as Essential Service Network Operators (ESNO). Together, these organisations provide advice to the SEMC through the Essential Services Network Operators Reference Group (ESNORG).

Emergency support service (ESS) agencies are those who are highly likely to play a role in or to be called upon during an emergency. In this Report, those surveyed are the Department of the Premier and Cabinet (DPC), the Australian Red Cross, the Bureau of Meteorology (the Bureau) and the Department of Defence (Defence).

Combat agencies (CA) are agencies with clearly identified or legislated roles during an emergency. These include the Department of Communities; the Department of Biodiversity, Conservation and Attractions (DBCA); and St John WA (SJWA).

Industry bodies (IB) are agencies with non-legislated supporting roles in EM. The agencies within this category are the Department of Education (Education), the Department of Planning Lands and Heritage (DPLH), the Department of Water and Environmental Regulation (DWER), the Forest Products Commission (FPC), WA Council of Social Services (WACOSS), and WALGA.

Other organisations are organisations that provide a wide range of critical support to the HMAs. These organisations provide health, and welfare response and recovery support.

3 State EM Policy section 1.5.4

4 *Emergency Management Act (2005)* s. 4(2).

4.2 Hazard Management Agencies (HMA)

There are eight HMAs in Western Australia:

- Agriculture Director General
- Arc Infrastructure Pty Ltd
- Chief Executive Officer, Department of Health
- Chief Executive Officer, Department of Transport
- Commissioner of Police
- Coordinator of Energy
- Fire and Emergency Services (FES) Commissioner
- Public Transport Authority

HMAs have EM responsibility for their hazards. This includes leading the response to an event arising from their prescribed hazards[5] and leading other EM activities for prevention, preparedness and recovery in relation to their prescribed hazard/s.

An HMA, or delegate, may declare or revoke an emergency situation for an area of the State for its hazards[6]. The Public Transport Authority (PTA) and Arc Infrastructure have negotiated with the WA Police Force and the Department of Fire and Emergency Services, depending on the circumstances of the emergency, to undertake the role of Controlling Agency for their emergencies.

HMA capability is assessed against 17 *Capability Topics* reflecting the core EM skills that HMAs require to manage a coordinated response to a large-scale emergency. Due to the varied and highly specialised skill sets required by HMAs, the EM personnel section refers to a skilled and capable workforce.

Each agency manages and trains their personnel with the required skills for specific impacts, such as firefighting or managing mass casualties, and reports on their aggregated capability.

Figure 4 illustrates the survey responses for the 17 Capability Topics, averaged across the eight HMAs.

Capability Topic	All HMAs
Alerts and Warnings Quality	84
Situational Assessment	83
Finance and Administration	79
Lessons Management	79
Horizon Scanning	78
Public Information Quality	78
Impact Assessment	75
Risk Assessment	70
Agency Interoperability	69
Remoteness Planning	68
Equipment and Infrastructure	67
Alerts and Warnings Tools	65
Essential Services Protection	64
EM Personnel	63
Business Continuity Plans	61
Sector Information Sharing	57
Public Information Tools	56
Average Score (%)	70

Figure 4: Average Capability Topic scores for HMAs 2021

5 definition of emergency management, *Emergency Management Act (2005)* s. 3
6 *Emergency Management Act (2005)* s. 50(1)

Changes in Capability 2019-2021

The 2019 Survey was completed prior to the COVID-19 pandemic, the Norseman West Complex of Bushfires, the Wooroloo bushfire and TC Seroja. These events have both tested and developed capability. It is interesting to observe changes in how the HMAs assess their capacity over this period.

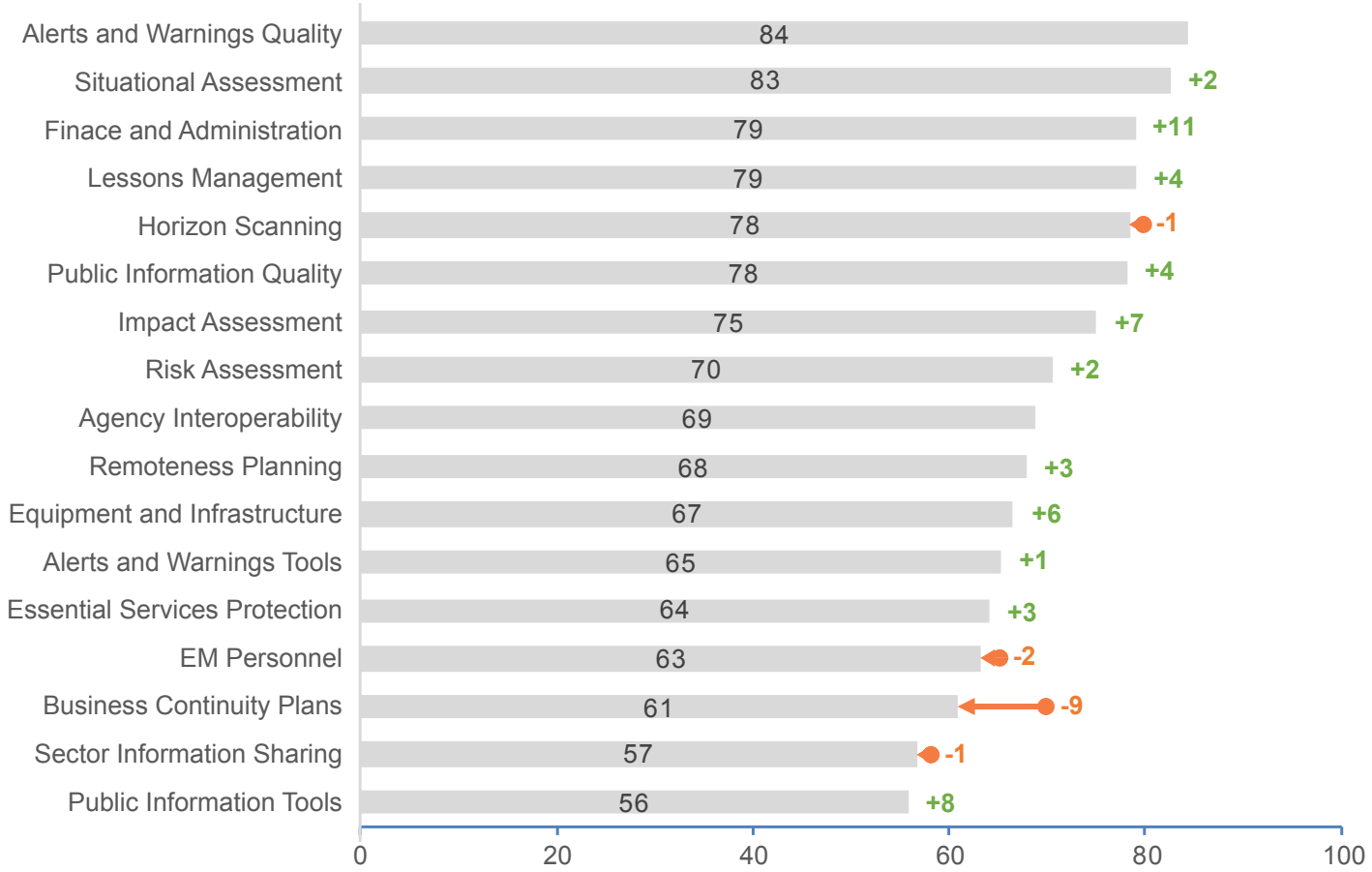


Figure 5: HMA Capability Topic scores in 2021 with change from 2019 indicated

Rail Crash Arrangements

Section 4.3 of the State Hazard Plan – Crash Emergencies notes that Arc Infrastructure and the PTA have agreements for the WA Police Force or DFES (depending on the nature of the emergency) to assume the role of Controlling Agency where an emergency situation declaration or State of Emergency declaration has been made, or in other situations that exceed the capacity of Arc Infrastructure/the PTA.

Top Capability Topics

Alerts and warnings quality (84%)

During emergencies, HMAs are responsible for delivering alerts and warnings that are clear, concise, timely and actionable to communities that may be impacted. Coordination of communications with other responding organisations is also important. This continues to be the highest capability topic for HMAs. All but one HMA reported they have procedures in place to ensure that the emergency and/or hazard information provided during a response is reliable, timely and actionable.

Strong communications coordination between agencies is evident with procedures in place in six of the eight HMAs.

Situational Assessment (83%)

Situational assessments during emergencies inform the HMAs response and recovery activities. Of the eight HMAs, seven develop situational assessments during emergencies that determine the nature and potential extent of the hazard, the resources required and vulnerable elements. Five of the eight HMAs reported that their situational assessments had comprehensive or substantial effectiveness. This was the second highest capability for HMAs.

Finance and Administration (79%)

Agencies often report that resourcing is a challenge in meeting their EM obligations. However, this was the area of greatest improvement for HMAs and one of the highest capabilities in 2021. HMAs reported increased capability in this area in 2021 (79%) compared to 2019 (68%), with most (six out of eight) HMAs indicating that funding for both proactive measures and mitigation and for response activities was available, accessible and sufficient. Some of the referenced proactive and mitigation activities are funded through competitive grants: however this reliance on external funding may lead to desired mitigation strategies not being undertaken if funding is not made available.

Four of the eight HMAs indicated difficulties in accessing sufficient funds for recovery activities. Some hazards are not eligible for the joint Commonwealth/state funding program, the Disaster Recovery Funding Arrangements WA (DRFAWA), so recovery funding for these emergencies is limited. For example, this funding is applicable to the consequences of a terrorist act emergency in WA but not for a hostile act with the same consequences (ie where the only difference might be the offender's motivation). This raises the question of whether the funding should be a consequence-based assessment. WA Police Force recommends the funding rules be reviewed by the Commonwealth body managing the funding.

Lessons Management (79%)

The lessons management capability topic covers evaluation and amendment of plans, policies and procedures based on findings from EM activities. Most HMAs reported comprehensive or substantial assessment and/or amendment to their plans, processes or procedures based on (in order of use) emergency responses, incidents, exercises and emergency recovery. Externally sourced hazard information, such as journal articles or reports, is used far less frequently. It is pertinent to note that while emergency response is the most commonly used trigger to assess and amend plans, some hazards cause an impact very infrequently, affording little in the way of review opportunities.

All HMAs have review processes in place to track that recommended amendments are implemented. The Department of Fire and Emergency Services (DFES), who previously did not have a rigorous process to monitor the effectiveness of amendments, has undertaken a review of after-action reviews for fire to ensure that lessons identified since 2010 are reflected in organisational policy and adequately demonstrates that they have been learned.

Notable Improvements

Impact Assessment (+7)

This was another notable area of improvement for HMAs. All HMAs stated they could contribute to an Impact Statement (IS) in both 2019 and 2021. While the number of HMAs that could coordinate an IS decreased slightly, the number of HMAs that used findings from an IS to inform EM planning, prevention/mitigation priorities and recovery coordination increased.

Equipment and Infrastructure (+6)

As of 2021, six of the eight HMAs indicated that they were able to manage multiple concurrent emergencies with existing equipment and infrastructure, an increase from five for equipment and four for infrastructure in 2019. There was also an overall improvement in planning by HMAs to address equipment mobilisation, pre-deployment, peak surges and redundancies for outages. The Department of Transport (Marine Safety) stood out in 2021 as the sole HMA to report having formal, reliable, fully tested and embedded plans in place to address these factors, achieving the highest level of planning. However, the Department of Primary Industries and Regional Development (DPIRD) noted a decrease in capability in this area, reporting that their plans needed further work. This may reflect the increased number of incidents they have had to manage over the past two years as well as a changing risk profile.

Priority Areas for Improvement

Public Information Tools (56%)

HMAs should provide knowledge on hazards, exposures and vulnerabilities to the community to help them prepare for emergencies. Most of the HMAs reported using at least three forms of traditional media (email, newspapers, radio, TV, SMS and websites) while just five of the eight HMAs used social media or local media such as newsletters, pamphlets/brochures, or public talks/meetings. While this was the lowest capability for HMAs in both years, it was the second greatest area of improvement, driven by the increased use of bulk email and Instagram. Across both years, websites and public talks/meetings were the most used forms of communication by HMAs, while SMS/text messaging was the least used.

Sector Information Sharing (57%)

This capability measures the degree to which HMAs share knowledge about risks and disaster management with those who may be affected. While most HMAs shared at least some information about individual risks, vulnerable elements and treatment options with other State government agencies and business/industry, levels of sharing with LGs and communities were much lower, with most HMAs reporting limited, very limited or no sharing with these stakeholders.

Business Continuity Plans (61%)

This was the third lowest capability for HMAs as well as showing the largest reduction from 2019 to 2021. While all HMAs reported having a BCP in both years, only three HMAs in 2021 considered EM hazard-specific risks and strategies for fatigue management, a decrease from 2019. Only one HMA in 2021 had formalised and tested plans that were fully embedded in their organisation, while three HMAs reported that their plans were mostly formalised. The remaining four HMAs acknowledged that further work was needed on their plans. A few HMAs noted that their BCP was due for review, and some, being large agencies, had multiple BCPs to maintain.

EM Personnel (63% and 2% Decline)

Most organisations reported that they have critical personnel due to the specialised expertise required to undertake some functions within EM. Examples of critical personnel cover the range of hazards and include paediatric and burns clinical staff, category 2 USAR response (subterranean rescue) and oil spill expertise. Organisations address this via BCPs, and succession, upskilling and training programs to mitigate against 'single points of failure' in personnel.

One of the driving factors in the reduction is that while the numbers of capable and well-trained personnel are sufficient for short duration events, resourcing longer or concurrent events places strain on the system. A better understanding of the impact of fatigue on HMAs ability to maintain extended situations has led to a more considered answer than in previous years.

Organisations also report that while they can mount an effective response to an emergency, this can have a knock-on effect on day-to-day business. For some agencies, response involves tasking staff that do not have EM as part of their usual role, so while personnel are skilled and capable and the response requirement is filled, other work within the agency does not get done or is delayed.

4.3 Local Governments

Local governments have significant responsibilities across the PPRR spectrum. Twenty-three Capability Topics are applicable to LGs in the 2021 Capability Survey. 10 LGs were exempted from this reporting process due to the significant impacts of TC Seroja. In general, the surveyed LGs reported improvements in capability for most Capability Topics in 2021 compared to 2019 results.

Types of Local Governments

The list of LGs, their EM district and type is detailed in Appendix C Local Government Types and Emergency Management Districts. For the purposes of this section, LGs surveyed have been grouped into one of five LG types. These groupings were created using the Australian Classification of Local Governments[7] structure, and are based on an LG's population size, population density and proportion of the population that is urban, as shown in Table 2.

This allows comparison of LGs which share similar characteristics. On occasion, these five groups are aggregated to allow comparison between metropolitan and country, or between small and large centres. In some cases, the characteristics of LG types led to significant differences being reported.

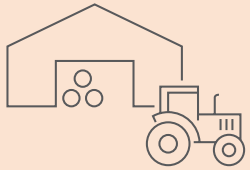
LOCAL GOVERNMENT (LG) TYPE		DESCRIPTION
	Metro **32 LGs**	LGs in the Perth metropolitan area and urban fringe.
	Regional centres **6 LGs**	Small to medium regional LGs with a large urban centre. Excludes remote LGs and town centres. Mostly concentrated in the South West EM District.
	Medium to very large agricultural **25 LGs**	Spread out across the State, but mostly in the Wheatbelt, Great Southern and South West EM districts.
	Small agricultural **41 LGs**	Concentrated mostly in the Wheatbelt and Great Southern EM districts.
	Remote towns and shires **23 LGs**	Furthest out from the Perth metropolitan area, includes most LGs in the Kimberley and Pilbara EM districts, and many LGs in the Midwest-Gascoyne and Goldfields-Esperance EM districts.

Table 2: Definitions and count of LG types

7 These classifications are based on a combination of LG classes from The Australian Classification of Local Governments (ACLG). They are based on the 2014-15 classifications, as provided by the Western Australian Department of Local Government, Sport and Cultural Interests (DLGSPI).

Australian Classification of Local Governments (Combined) 2014-2015

Note that tables, figures and comparisons in this section exclude LGs that were exempt from completing the Capability Survey in 2021 due to TC Seroja[8].

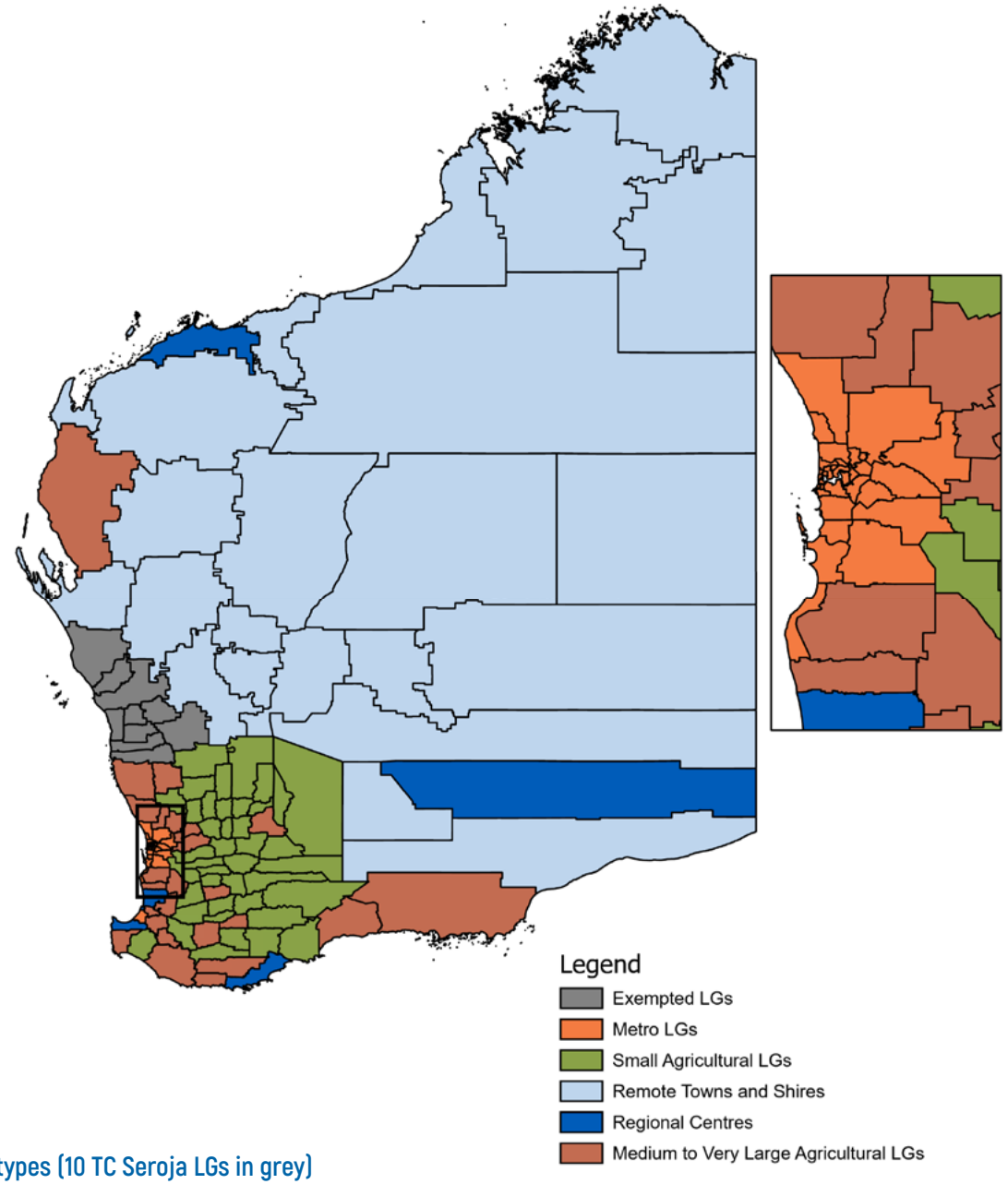


Figure 6: LG types (10 TC Seroja LGs in grey)

8 Shire of Carnamah, Shire of Chapman Valley, Shire of Coorow, City of Greater Geraldton, Shire of Irwin, Shire of Mingenew, Shire of Morawa, Shire of Northampton, Shire of Perenjori, Shire of Three Springs

Figure 7 shows the Capability Topics scores averaged across all LGs, with changes from 2019 shown.

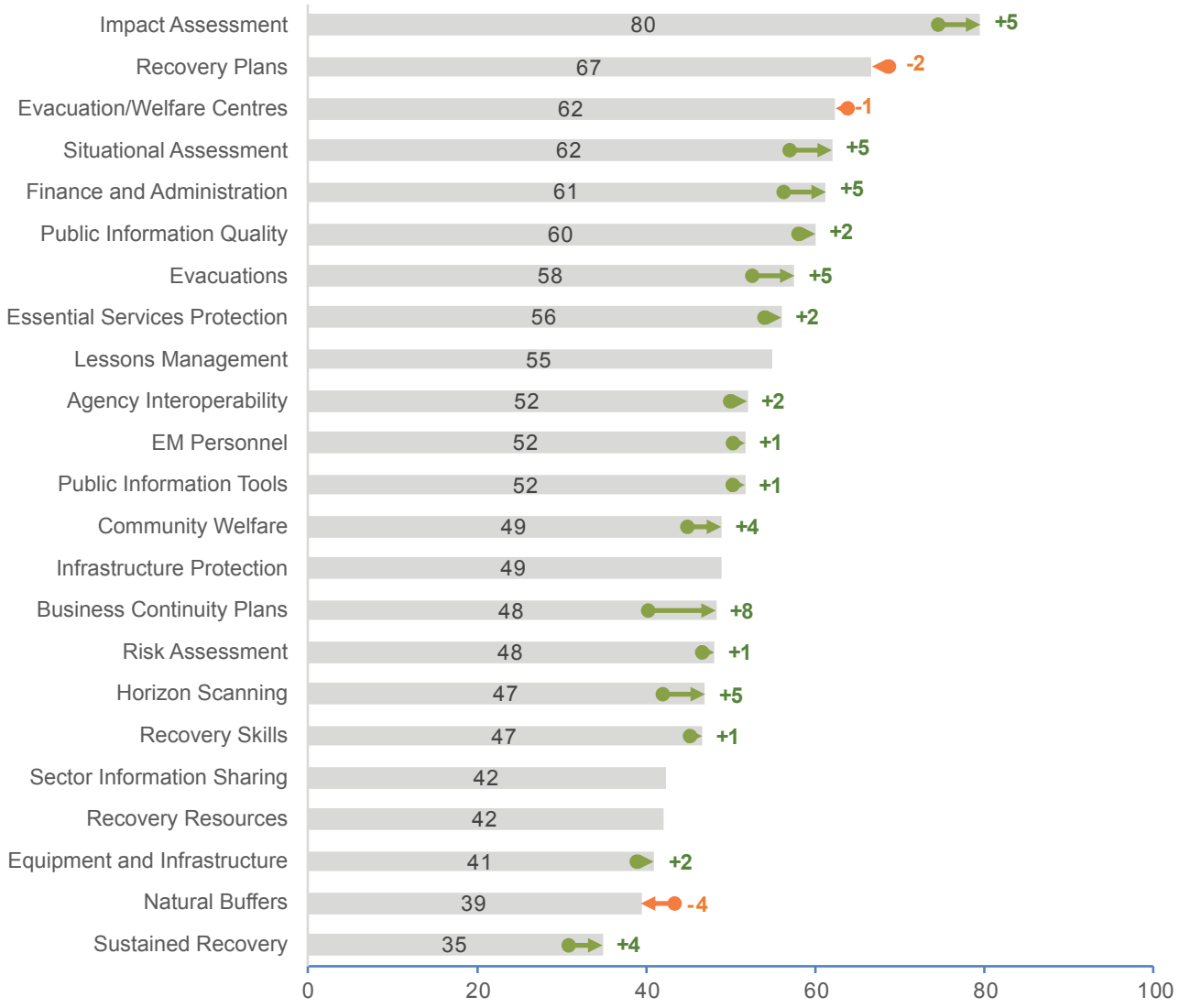


Figure 7: LG Capability Topic scores in 2021 with change from 2019 indicated

Figure 8 lists the 23 Capability Topics applicable to WA LGs in 2021, with average capability shown for each LG type. The data is sorted according to the overall average (final column), highest capability at the top. The three highest and lowest scores for each LG type are shaded in green and orange respectively.

Overall, metro and regional centre LGs reported notably higher capability in most topics compared to the other LG types. Both metro and regional centre LGs had capability scores that averaged above 50% for all topics and reported their highest capabilities in Impact Assessment and Evacuation/Welfare Centres. Metro LGs also showed strengths in Situational Assessment, Evacuations and Public Information Quality, while regional centres showed strengths in Finance and Administration.

However, both metro and regional centre LGs reported their lowest capabilities in Sector Information Sharing and Risk Assessment.

Other LG types stood out in other areas. Medium to very large agricultural LGs reported the highest Situational Assessment capability (85%) of any LG type, and remote towns and shires reported the second highest Essential Services Protection capability (62%). There was significant variation in the capability levels of agricultural LGs, with medium to very large agricultural LGs reporting higher capability that small agricultural LGs on every topic.

Capability Topic	Metro LGs	Regional centres	Medium to very large agricultural LGs	Small agricultural LGs	Remote Towns and Shires	All LGs
Impact Accessment	98	100	86	67	63	80
Recovery Plans	76	79	67	54	72	67
Evacuation/Welfare Centres	77	88	66	46	60	62
Situational Assessment	81	74	85	44	40	62
Finance and Administration	74	85	64	46	61	61
Public Information Quality	77	67	64	43	60	60
Evacuations	77	71	62	50	36	58
Essential Services Protection	60	67	60	45	62	56
Lessons Management	71	73	61	38	50	55
Agency Interoperability	64	65	63	36	49	52
EM Personnel	67	68	57	39	43	52
Public Information Tools	63	69	57	42	44	52
Community Welfare	63	78	50	39	37	49
Infrastructure Protection	58	58	56	37	47	49
Business Continuity Plans	68	61	49	30	49	48
Risk Assessment	56	56	56	35	49	48
Horizon Scanning	64	58	52	31	43	47
Recovery Skills	73	63	43	31	37	47
Sector Information Sharing	56	54	48	26	43	42
Recovery Resources	68	64	36	26	34	42
Equipment and Infrastructure	58	72	44	28	30	41
Natural Buffers	65	53	39	22	30	39
Sustained Recovery	57	58	33	21	24	35
Average Score (%)	**68**	**69**	**56**	**38**	**46**	**52**

Green is the highest per LG type Orange is the lowest per LG type

Figure 8: Average capability topic scores (%) by LG type, WA, 2021

Top Capability Topics

Impact Assessment (80% /+5% improvement)

Impact Statements (IS) capture information about what is lost or damaged during an emergency and guides recovery priorities. Of the 127 LGs, 101 (80%) reported they were able to contribute to an IS, and the majority used the findings from an IS to inform recovery coordination (82%), EM planning (80%) and prevention/mitigation priorities (77%).

Impact Assessment was in the top three capabilities across all LG types. It was the highest reported capability for metro LGs, regional centres, and medium to very large agricultural LGs.

Substantial improvements were reported in the ability of country LGs to contribute to an IS and to utilise its findings. All metro and regional centre LGs had the ability to contribute to an IS, and all but one used these findings to inform recovery coordination, EM planning and prevention/mitigation priorities.

Recovery Plans (67%)

Local governments have major obligations in managing recovery after an emergency and need to have plans in place that include input from key stakeholders. Around three-quarters of LGs reported that their recovery plan included input from HMAs (76%), Combat Agencies or Supporting Organisations (76%) and ESP (76%). Most LGs' plans also included input from communities (69%) and business/industry (60%), while fewer included input from other LGs (55%) and NGOs (54%). While a slight decrease (2%) from 2019, this is still a strong capability for LGs.

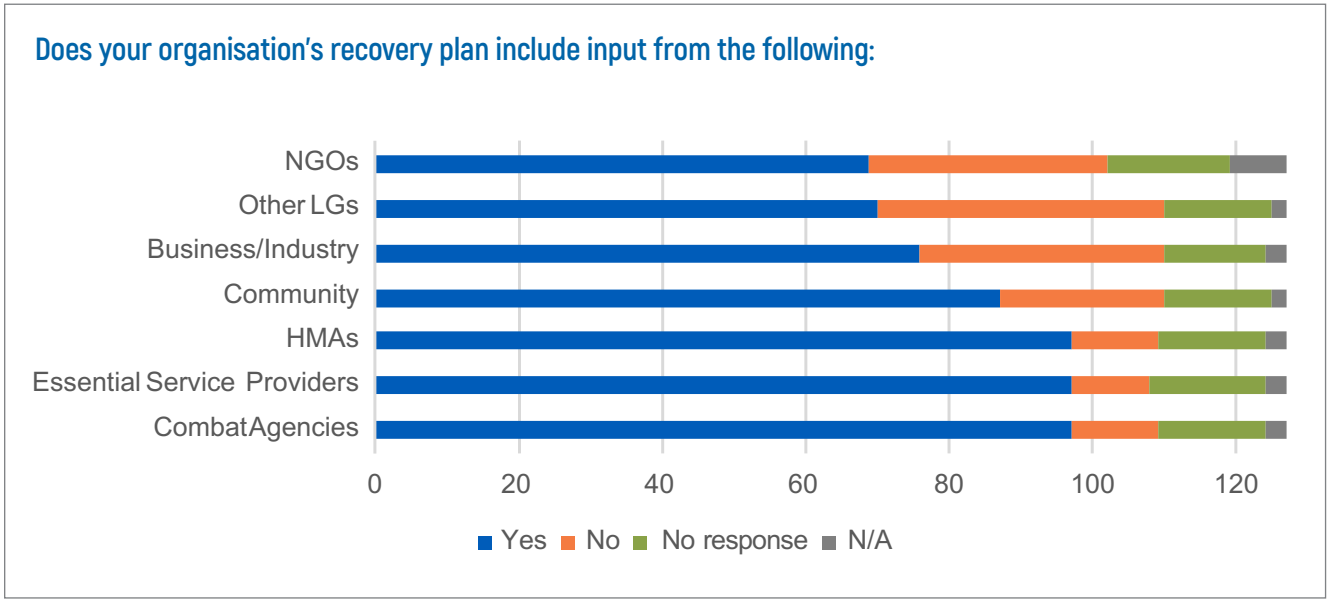


Figure 9: Input into local government recovery plans

In developing their recovery plans, LGs include input from other organisations across the EM sector. However, LGs include more input from State government agencies (HMAs, Combat agencies and supporting organisations) and ESPs than from business/industry, communities NGOs and other LGs (Figure 9).

Even though in the LG types with the lowest overall capability, Recovery Plans capability was rated lower than metro and regional centres, recovery planning is in the top three capabilities for agricultural and remote LGs. This shows the importance of recovery across local governments.

These high ratings for recovery highlight the extremely important role that LGs play in community-centred recovery. It should be noted however, that ten LGs are exempted from the results due to the impact that recovery for TC Seroja is having. Noting that recovery is a long and complex endeavour, lessons identified from this significant event will be captured in future Emergency Preparedness Reports.

Evacuation/Welfare Centres (62%)

Despite a minor decrease from 2019 (1%), the provision of evacuation and welfare centres is a strong result for LGs in 2021. The role of LGs in evacuations includes provision for and maintenance of evacuation and welfare facilities, although the Department of Communities manage the evacuation centre. Most LGs (90%) have identified suitable evacuation sites and many LGs have identified multiple locations. Most LGs reported they had redundancies to maintain the provision of food (73%), potable water (69%), shelter (96%) and power (70%) to their evacuation/welfare centres.

Evacuation/Welfare Centres was in the top three capabilities for the two LG types with the highest overall capability – metro and regional centre LGs.

Notably, while remote towns and shires reported 60% capability for Evacuation/Welfare Centres, showing that they had plans in place to maintain essential services to their evacuation sites, they scored only 36% for Evacuations, reporting that they did not have sufficient ability or resources to coordinate or support evacuations. Only three of the 23 remote towns and shires had formal, tested evacuation plans in their LEMA.

Almost all metro and regional centre LGs had identified suitable evacuation sites (Figure 10) and most had redundancies in place to maintain food, potable water, shelter and power.

While at least 75% of metro and regional centre LGs had the ability, plans and resources to coordinate/support directed and recommended evacuations, most regional centres did not have formal or tested evacuation plans in their LEMA, while around half of metro LGs did.

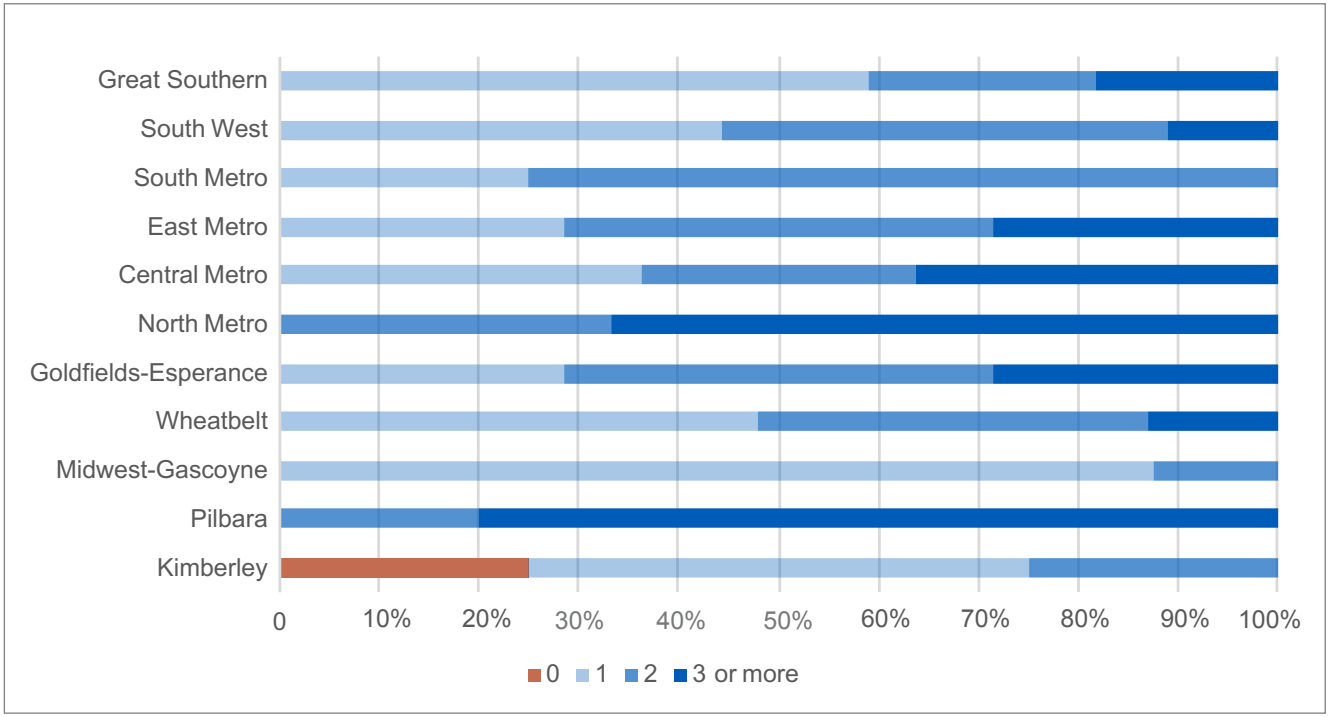


Figure 10: Number of evacuation centres that can be run simultaneously – as % of LG respondents per district

Situational Assessment (62%/+5% improvement)

Situational awareness during an emergency – being aware of what is happening around you and whether anyone or anything around you is unsafe – is crucial to an effective response. Of the 127 LGs, 87 (69%) reported that they developed situational awareness/assessments during emergencies, and for nearly all of them, these situational awareness/assessments determined the nature and potential of the hazard, the vulnerable elements and the resources required. The number of LGs which develop situational awareness/assessments during emergencies rose from 80 in 2019 to 87 in 2021. The percentage of LGs who reported that their situational awareness/assessments had comprehensive or substantial effectiveness rose from 41% in 2019 to 49% in 2021.

Most medium to very large agricultural LGs (92%) reported that they developed situational awareness/assessments during emergencies, and three out of five reported their assessments had comprehensive or substantial effectiveness.

Essential Services Protection

Remote towns and shires reported notably higher capability in this area (62%) compared to the State average (56%). Compared to other LGs in the State, a higher proportion of remote towns and shires reported they had plans to protect the continuity of most essential services, including local government services and road networks for their communities and fuel, sewerage, shelter and telecommunications for their organisations.

Notable Improvements

Business Continuity Plans (+8%)

Business Continuity Planning is crucial to ensuring that an LG can maintain critical community services following an emergency. This was the area of greatest improvement across the State. The number of LGs that reported having a BCP rose from 84 (66%) in 2019 to 109 (86%) in 2021. Of these LGs, more included EM hazard-specific risks in their BCPs. LGs also made progressions from informal to formal plans, and in testing and embedding these formalised plans within their organisations. Many LGs noted that their BCP was tested and updated in response to the COVID-19 pandemic.

Finance and Administration (+5%)

Resourcing is consistently reported as a challenge by LGs, with small and remote LGs being more likely to cite this as a difficulty across various aspects of capability. Improvements were seen across all aspects of Finance and Administration from 2019 to 2021, with an increased number of LGs reporting that funding for proactive measures and mitigation, response and recovery activities were accessible, available, and sufficient. However, while most LGs reported that funds were accessible (≈61%) and available (≈69%) in both years, the number of LGs reporting that funds were sufficient remained low (≈37%).

Evacuations (+5%)

The Evacuations topic is based on the capability of LGs to support evacuations during emergencies affecting their area, excluding the provision of evacuation and welfare centres. Slightly more LGs reported being involved in evacuations in 2021 (81%) compared to 2019 (79%). Improvements were seen across all aspects of evacuations from 2019 to 2021, with more LGs reporting they had the ability to coordinate/support both directed and recommended evacuations, along with the required plans. LGs also improved their evacuation planning by formalising, testing, and embedding pre-emergency evacuation planning in their Local Emergency Management Arrangements. Fewer than half of LGs, however, reported having sufficient resources for evacuations.

Horizon Scanning (+5%)

Horizon scanning by an LG refers to staying informed of best practice through reviews of recent, relevant hazard operations and the monitoring of events that may be relevant to a jurisdiction. While there was little change in the extent to which LGs reviewed best practices from 2019 to 2021, LG monitoring of relevant incidents and/or events

increased over this time. More LGs undertook comprehensive or substantial monitoring of intrastate, interstate and international incidents/events, with interstate monitoring increasing substantially, and international monitoring increasing the most.

Priority Improvement Areas

Recovery

Trends across recovery were captured by examining capability across the four recovery-related Capability Topics – Recovery Plans, Recovery Skills, Recovery Resources and Sustained Recovery. Across these four topics, LGs generally reported their highest capability in Recovery Plans and their lowest capability in Sustained Recovery. (Figure 11)

Recovery Plans are the second highest Capability Topic as discussed above. However, reported capability in Recovery Plans was notably higher than in other recovery topics for all LG types, but the difference between Recovery Plans and other recovery capabilities was most pronounced for the agricultural and remote LGs.

Only a minority of the agricultural and remote LGs surveyed had at least some recovery skills to support reconstruction/restoration in the built (37%), social (39%), economic (35%) and natural (29%) environments. This is low compared to the State, where around half of LGs have these skills.

Only around a quarter of the agricultural and remote LGs surveyed had at least some Recovery Resources to support reconstruction/restoration in the built (28%), social (27%), economic (20%) and natural (26%) environments. This is compared to all LGs across the State, where around 42% could do so.

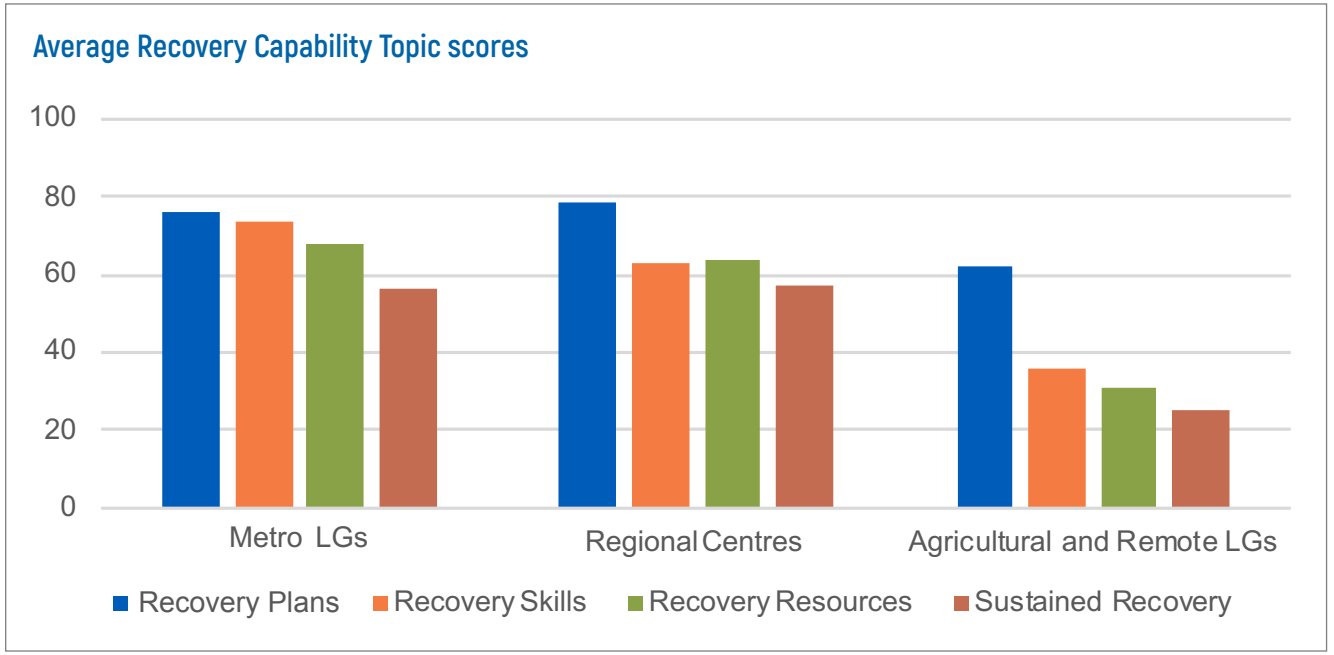


Figure 11: Recovery Capability Topics comparing metro, regional and remote and agricultural LGs

Sustained Recovery (35%)

Sustained Recovery was the lowest reported capability for all LG types except regional centres, where it was the fourth-lowest capability. However, Sustained Recovery capability among agricultural and remote LGs was particularly low.

82% of metropolitan LGs and 34% of country LGs have comprehensive, substantial or some resources for a three-month recovery period. Figure 12 shows that while metropolitan LGs are better able to sustain recovery than country LGs, for both groups capacity drops significantly as recovery stretched to six months, 12 months and 18 months. Most country LGs (66%) reported having limited or very limited resources to sustain recovery for any length of time; only 13% had comprehensive, substantial or some resources for a recovery period of 12 months or more.

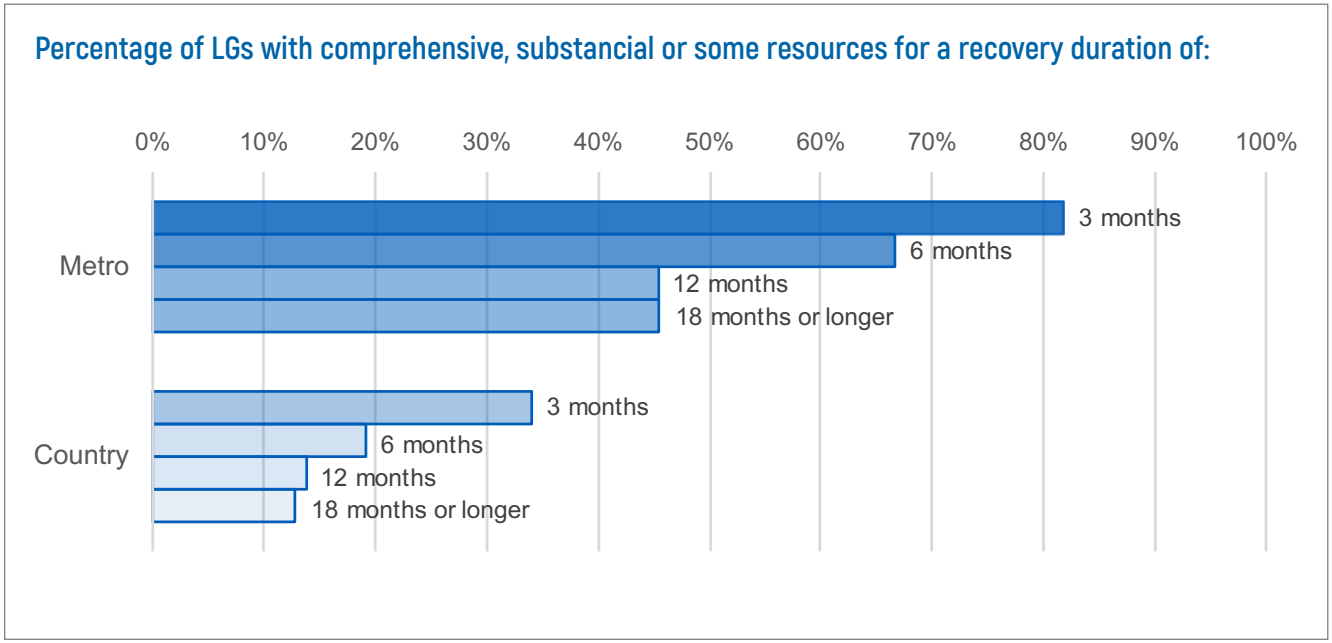


Figure 12: Comparison of Sustained Recovery scores between metropolitan and country LGs

Remoteness

Figure 13 shows that low population and remote LGs have a far lower overall recovery capability score. Remoteness is but one of the challenges that places constraints on regional LG's recovery: lower levels of planning, skills and resources all play a role as demonstrated above.

Natural Buffers (39%/4% decline in Capability)

Natural buffers are existing features in the surrounding environment that aid community protection in the event of an emergency. Examples of natural buffers include mangroves or wetlands to mitigate flooding, vegetation to protect against slope instability or heatwave, and dune systems to mitigate coastal erosion. The natural buffers capability topic is based on the extent to which the LG ensures that these natural buffers are identified, protected, maintained and/or enhanced and monitored.

Natural buffers is the second lowest capability topic for LGs and showed the largest reduction in capability from 2019 to 2021. More LGs reported having very limited or no capability in this area in 2021 (46%) compared to 2019 (39%). In addition, only 37% of LGs reported in 2021 that they had a role in managing the natural environment, compared to 42% in 2019. While all metro LGs reported that they had a role in managing the natural environment, only two-thirds of non-metro LGs said so.

In addition, the capability of metropolitan LGs (67%) and country LGs (30%) in this area differs significantly. More than half of country LGs reported very limited or no capability in the identification (55%), maintenance and/or enhancement (56%), monitoring (59%) or protection (56%) of natural buffers for community protection. In contrast, more than half of metro LGs reported comprehensive or substantial capability in these areas.

Only a minority of non-metro LGs reported that to a comprehensive, substantial or some extent, they ensure that natural buffers are identified (34%), protected (29%), maintained and/or enhanced (34%) and monitored (29%).

Average Recovery Capability by Local Government Area

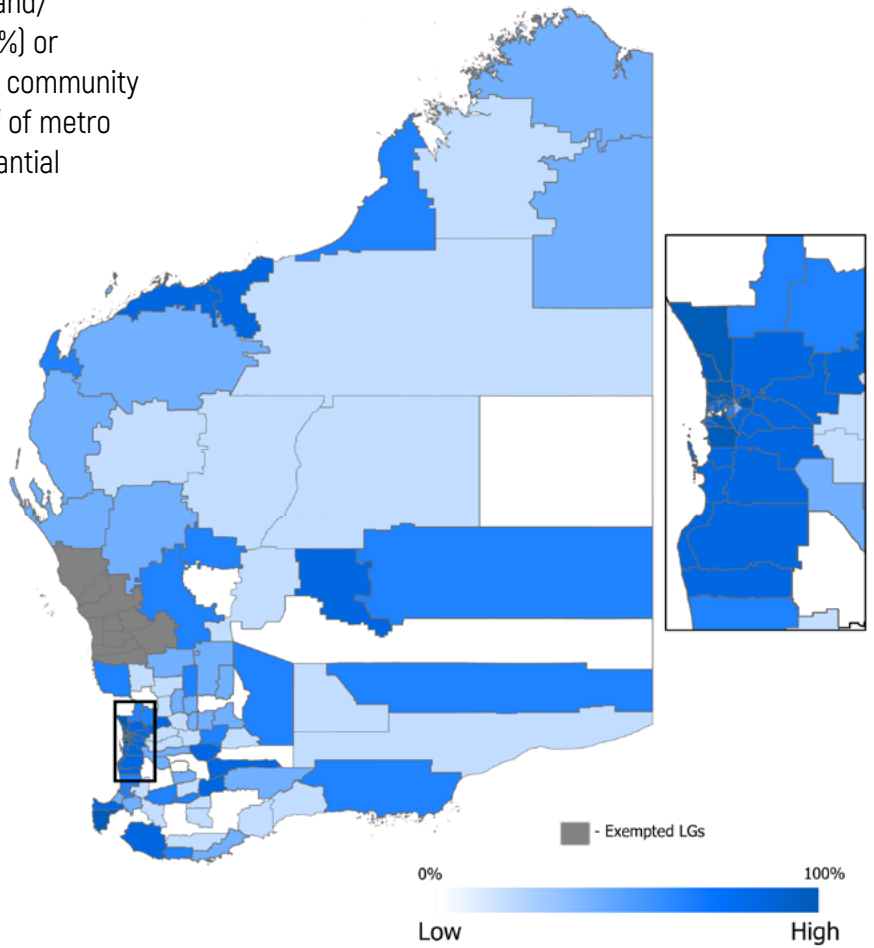


Figure 13: LG recovery capability (10 TC Seroja LGs shaded in grey)

Equipment and Infrastructure (41%)

The equipment and infrastructure capability topic is based on whether the LG can manage multiple concurrent emergencies with existing infrastructure and equipment, and the extent to which the LG has plans in place to address equipment mobilisation, pre-deployment, peak surges, and redundancies for outages. Overall, LGs expressed concerns in these areas, with less than half of LGs (41%) reporting they could manage concurrent emergencies of moderate consequences or worse with existing equipment. Half the LGs (50%) could manage such emergencies with existing infrastructure. Many small LGs and remote LGs cited inadequate funds to maintain equipment, difficulties in coping with equipment breakdowns due to their location, and heavy reliance on contractors in emergency situations.

Equipment and Infrastructure was one of the lowest reported capabilities for remote towns and shires. At 30%, their average score for this topic was notably below the State LG average.

60% of remote towns and shires stated they could not manage multiple concurrent emergencies of moderate consequences or higher with existing infrastructure, compared to three out of five LGs in the State. Two-thirds of the remote towns and shires could not manage with existing equipment, compared to half of LGs in the State as a whole.

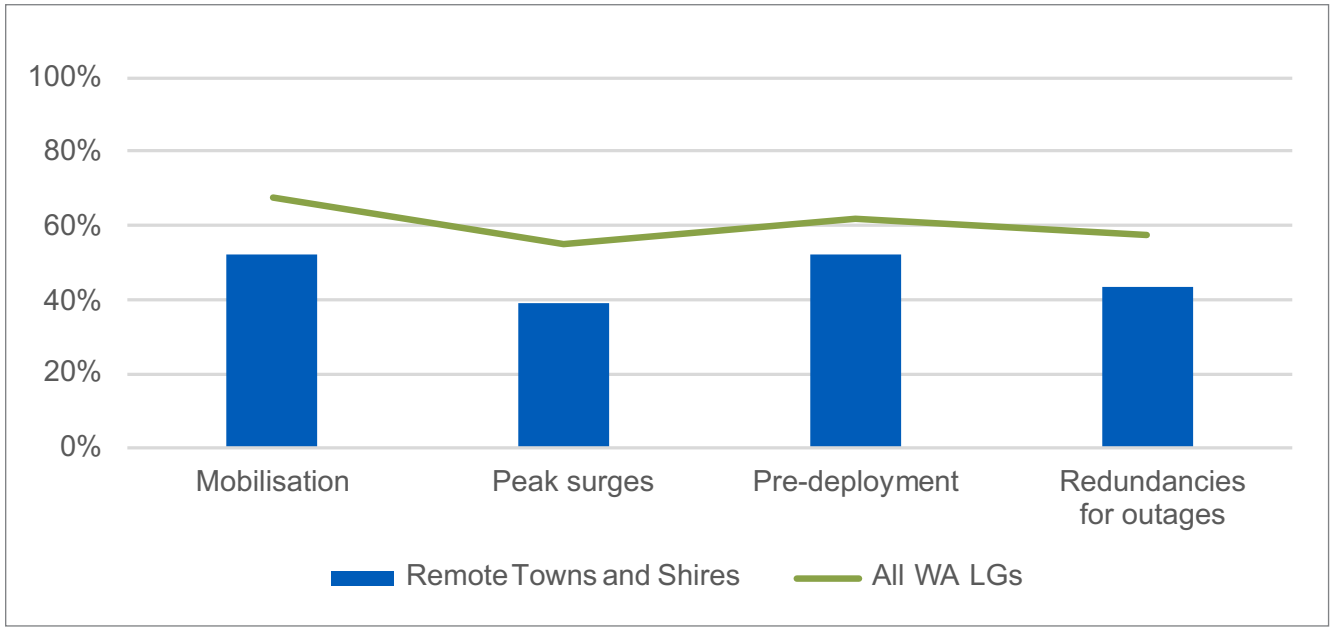


Figure 14: LG Equipment Planning

More than half of the LGs across the State have complete and viable equipment plans that address mobilisation, peak surges, pre-deployment and redundancy for outages (Figure 14). However, remote locations have lower rates for all types of equipment plans.

Increasing Resourcing and Capacity in Areas of Need

Many LGs cited lack of resourcing as a key factor across a range of Capability Topics reflected in the above capability scores. In particular, LGs noted that staff resourcing levels limit the EM activities they can undertake.

A number of LGs highlighted areas where they need assistance. They include:

- ability to improve community resilience and education
- funding for evacuation centres and Incident Control Centres
- increasing information and knowledge sharing

Local governments, particularly in large regions, noted that government department EM officers who provide additional support for LG officers is limited. Some survey respondents suggested that additional assistance and resources be directed towards smaller LGs in the form of funding and on-the-ground support.

Local governments also highlighted a lack of coordinated training and professional development at the State level. A concern for many local governments was training LG staff to manage all phases of EM: education, mitigation and recovery functions, and liaising with other organisations in the event of an emergency. Training options are limited and can be cost prohibitive in constrained LG budgets.

4.4 Essential Service Providers (ESP)

The Essential Service Providers (ESPs) are owners and operators of critical infrastructure that may be impacted by an emergency or required in recovery. Also known as Essential Service Network Operators (ESNO), these organisations provide advice to the SEMC through the Essential Services Network Operators Reference Group (ESNORG).

There are eight private organisations, government departments and government owned companies within the ESP group in Western Australia:

- ATCO Gas
- Australian Gas Infrastructure Group (AGIG)
- Horizon Power
- Main Roads WA
- NBN Co
- Telstra
- Water Corporation
- Western Power

Top Capability Topics

Situational Assessment (95% / +14% Improvement)

Situational assessments support all key personnel involved in making informed decisions during an emergency. Along with critical infrastructure, this was the highest capability for ESPs in 2021 and an area of significant improvement over 2019. With an average score of 95%, ESPs showed relatively high capability in this area compared to LGs and HMAs, which scored averages of 62% and 83% respectively.

All ESPs reported that they developed situational assessments that determined the nature and potential of the hazard, the vulnerable elements and the required resources during an emergency. Seven of the eight ESPs considered their situational assessments to have comprehensive or substantial effectiveness in 2021, compared to five of the eight ESPs reporting in 2019. The ESPs reported that situational awareness reporting enabled them to create and develop strategies for preparedness and to develop efficient response and recovery plans.

Critical Infrastructure (95%)

Critical infrastructure was one of the strongest capabilities for ESPs in 2021 and was also the highest capability in 2019. As ESPs are responsible for the critical infrastructure which is vital in ensuring the continuity of essential services during an emergency, this result benefits the entire EM sector and the WA community.

All ESPs identify potential hazards to their critical infrastructure. Formal and tested plans to ensure critical infrastructure protection are largely embedded in their organisations.

The owners and operators of critical infrastructure understand that their operations have significant impact upon community safety. Risk assessments are factored into contingency plans, treatment plans and other operational considerations to minimise impact of an outage both to communities and EM agencies.

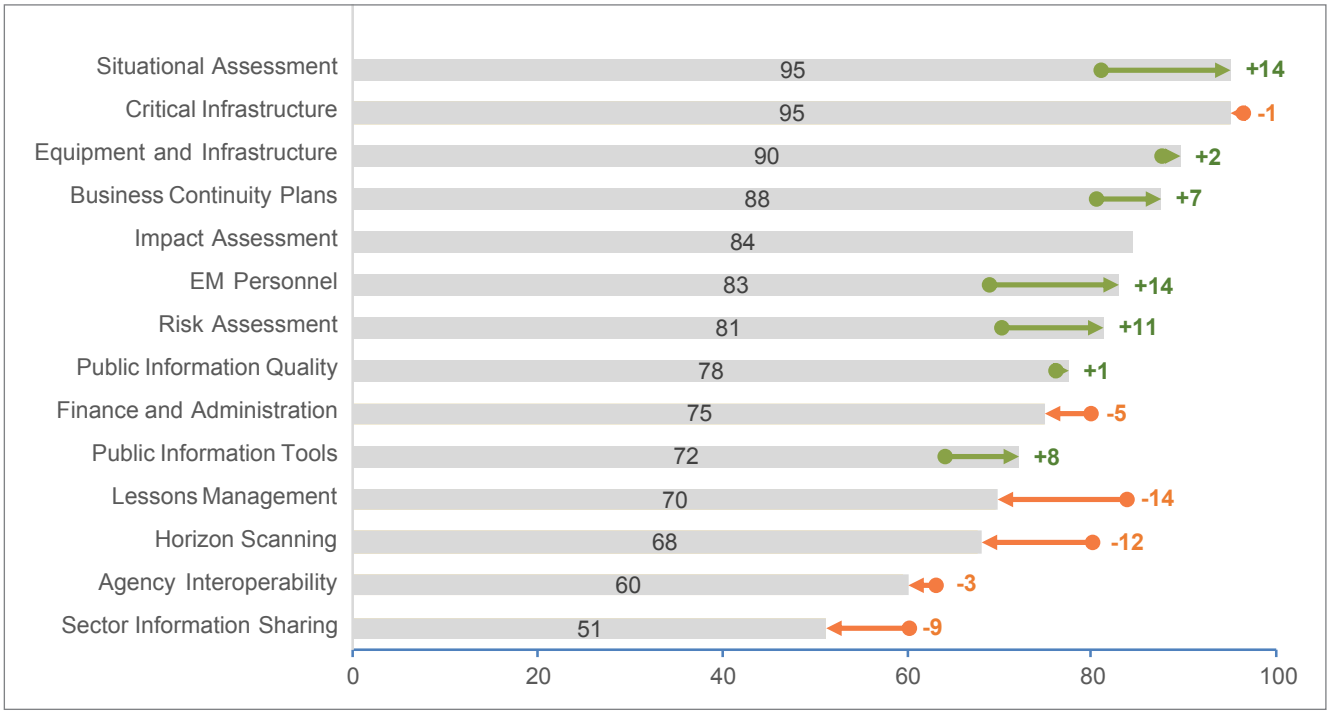


Figure 15: Average 2021 Capability Topic scores for ESPs with change from 2019 indicated

Equipment and Infrastructure (90%)

This was the third highest capability for ESPs. All ESPs reported that they could manage multiple concurrent emergencies of moderate consequences or higher with existing equipment and infrastructure. Most ESPs had formal and effective plans to address equipment mobilisation, peak surges, pre- deployment and outages.

Business Continuity Plans (88%)

Business Continuity Plans is fourth highest reported capability of the ESPs, with the majority having mostly effective and mostly reliable plans largely embedded in the organisation. All ESPs have BCPs that incorporated strategies for fatigue management, while six out of the total eight ESPs addressed EM specific risks in their BCPs. The remaining 2 ESPs noted that while they do not consider specific hazards in their BCP, the plans are consequence focused and as such are applicable to all hazards.

Several ESPs stated that they reviewed their BCP regularly or in response to emergency incidents, citing the COVID-19 pandemic as a recent test for their plans.

Notable Improvements

EM Personnel (+14%)

After showing a reduction in EM personnel capability between 2018 and 2019, ESPs reported improved capability in 2021. This improvement in capability resulted from a majority of the ESPs reporting comprehensive or substantial capability in prevention/mitigation, recovery, and response personnel. Most ESPs (six of eight) reported having sufficient resources, skills and capacity, and strong commitment from the executive for their EM personnel. Regular training, participation in multi-agency exercising and other professional development activities played a considerable role in the improvement of EM personnel capability. ESPs also scored relatively higher on average in this area compared to LGs and HMAs, which scored 52% and 63% respectively.

Risk Assessment (+11%)

This is the third highest capability improvement for the ESPs in 2021. This capability is assessed on the extent of risk assessment skills of the ESPs and whether the findings from those risk assessments are used to improve processes and/or implement treatments. All ESPs reported substantial skills in conducting risk assessments and the majority used the findings from those assessments to inform treatment strategies and process improvement.

Three ESPs reported improved skills in conducting risk assessments in 2021 compared to 2019, resulting in an increase in the overall risk assessment capability. Notably, the number of risk assessments conducted by ESPs doubled from 37 in 2019 to 75 in 2021, with growth in both the number and range of hazards assessed. Five of the eight ESPs also conducted risk assessments for human epidemic in 2021, while none reported doing so in 2019.

Public Information Tools (+8%)

Organisations often use a mix of media tools to provide emergency and hazard information to the public. These encompass traditional media such as television and radio, social media such as Facebook, Twitter or YouTube, or local media such as pamphlets or public meetings. Between 2019 and 2021, ESPs increased the number of media tools they used to reach the public. The most notable increases were seen in social media, with three of the 8 ESPs newly adopting Facebook as a public information platform, and 2 ESPs newly adopting Twitter.

Priority Improvement Areas

Lessons Management (70%, -14% decline)

A culture of identifying and learning lessons, well embedded in an organisation, facilitates continuous improvement resulting from evidence-based practices. Lessons Management was one of the highest State capabilities for ESPs in 2019, however it had the greatest reduction in 2021.

All ESPs reported evaluating their performance following an incident, emergency or exercise, with the majority reporting that efforts were made to incorporate lessons from post-incident assessments to inform their plans, processes, and procedures. However, some ESPs reported a decrease in the extent to which such findings were incorporated. Although reviewing plans, processes and procedures is substantial following an incident, recovery and response, the findings from exercising and from national/international hazard publications was less frequently incorporated.

Horizon Scanning (68%, -12% decline)

Monitoring of incidents/events and reviewing the relevant hazard information are critical in broadening our understanding of emerging risks and the effectiveness of existing controls. This was the second largest reduction in ESP capability from 2019 to 2021, due mainly to one or more ESPs who did not report their capability in this area, noting that the

resulting zero score for no response impacts the average of all respondents. Of those who did respond, most reported that they undertook substantial monitoring of relevant intrastate and interstate incidents/events and recent hazard information such as research, journal articles or reports. One ESP reported that they regularly attend training, exercises and workshops at local and national levels, while another ESP reported that it has embedded a culture of continuous improvement both at operational and business level and is represented at multiple state and national bodies. A potential area for improvement is the monitoring of international incidents and events relevant to the ESPs, which showed some reduction from 2019 to 2021.

Agency Interoperability (60%)

This was the second lowest reported capability for ESPs for 2021. Agency interoperability reflects the extent to which organisations establish clear and effective arrangements with other organisations to assist or collaborate during large-scale emergencies. All ESPs reported that they have protocols and structures established for emergencies that define the interrelationships between stakeholders. However, compared to 2019, fewer ESPs reported in 2021 that their coordination structures and communication systems in emergencies were effective and interoperable with other agencies. Also, fewer ESPs found their coordination structures to be manageable, serviceable, and considerate of recovery implications.

Sector Information Sharing (51%, -9% decline)

This was the third largest capability reduction, as well as the lowest reported capability for 2021. Knowledge sharing optimises sector efficiency and performance, and this capability topic measures the extent to which ESPs share information about individual risks, vulnerable elements and treatment options with other EM stakeholders. ESPs reported substantial levels of information sharing with State government agencies and some sharing with local governments, but significantly lower levels of sharing with communities and other businesses/ industries. A notable highlight for information sharing is with other ESPs – ESNORG is a key forum.

On the whole, the largest reductions in information sharing by ESPs between 2019 and 2021 were with LGs, indicating room for improvement in this area. One ESP noted their involvement in joint events such as State exercises with State government agencies and Local Emergency Management Committees (LEMC) and District Emergency Management Committees (DEMC) meetings with LGs, and these should be seen as opportunities for ESPs to improve their capability in this area.

4.5 Support Services

This section provides a snapshot of the capability of other agencies and organisations who provide critical EM services in WA.

The EM Regulations and suite of EM documents outline these roles and responsibilities. Some of these many roles and responsibilities are outlined in Table 3.

Most of the organisations listed in Table 3 have other roles (e.g. HMA) under which they answered the survey and are not included in Figure 16. The organisations included are:

- Department of Communities
- Department of Biodiversity, Conservation and Attractions (DBCA)
- St John Ambulance (Western Australia)

Many of the capabilities of these organisations are detailed in the *Protecting People* chapter of this Report.

Department of Communities (Communities)

The EM Regulations prescribe Communities as a Support Organisation responsible for the support function of providing welfare services. As identified in the local government section, while LGs identify appropriate facilities, Communities run the local facility as an evacuation centre if required.

TABLE 3: SUPPORT SERVICES

RESPONSIBILITIES	COMBAT AGENCY
Combat Agencies responsible EM activity for fire suppression	Local governments, DFES and DBCA
Combat Agencies responsible EM activity of providing health service	Department of Health (WA Health) and St John Ambulance (Western Australia) (SJWA)
Support Organisation responsible for the support function of providing welfare services	Department of Communities
Combat Agencies responsible for the emergency management activity of disaster victim identity management	Police Force of Western Australia (sworn police officers) and the Police Service (public servants)
Coordinating animal welfare services in emergencies	DPIRD

Welfare services is the provision of immediate and ongoing supportive services to alleviate, as far as practicable, the effects on people affected by an emergency. Welfare services includes emergency accommodation, emergency catering, emergency clothing and personal requisites, personal services, registration and reunification, and financial assistance.

Disaster Information Support and Care Centres (DISCCs) are established by Communities when requested by an HMA/Controlling Agency, WA Police Force or the SEC as a result of a major emergency.

Department of Biodiversity, Conservation and Attractions (DBCA)

The DBCA is a prescribed Combat Agency for fire suppression. It is responsible for the development and implementation of mitigation strategies and activities, and for responding to bushfires, on all DBCA managed land (e.g. State forest, timber reserves, national parks, conservation parks, nature reserves). DBCA also has a role in search and rescue activities and the provision of specialist resources and skills.

Capability Topic	Selected Org(s) Score (%)
Situational Assessment	97
Equipment and Infrastructure	86
Horizon Scanning	83
Lessons Management	81
Risk Assessment	80
Public Information Quality	79
Agency Interoperability	78
Finance and Administration	73
Remoteness Planning	73
EM Personnel	72
Impact Assessment	67
Sector Information Sharing	65
Business Continuity Plans	62
Public Information Tools	59
Infrastructure Protection	43

Figure 16: Average Capability Topic scores for support services not included elsewhere

St John Western Australia (SJWA)

During an emergency, the role of SJWA will depend on the situation; however, their responsibility will generally be related to pre-hospital management of casualties.

Industry Bodies (IB)

IBs are organisations with non-legislated supporting roles in EM. The agencies within this category are Department of Education (Education), Department of Planning, Lands and Heritage (DPLH), Department of Water and Environmental Regulation (DWER), Forrest Products Commission (FPC), Western Australian Council of Social Services (WACOSS) and Western Australian Local Government Association (WALGA).

4.6 Improving capability: the role of lessons management

In WA, formal inquiries often follow large and devastating events. The inquiries aim to assist government and the community understand what happened and identify improvements to the way that such emergencies are managed. Agencies work hard to implement the recommendations, which can range from tactical to strategic, and regularly undertake internal after-incident reviews following emergency events to inform learning and continual improvement. The findings of these reviews result in agency level changes as well as updates to the State EM arrangements and capability.

Following the Ferguson Inquiry in 2016, the SEMC endorsed the 'OILL' lessons management methodology as shown in Figure 17.

A crucial step in the learning process is closing the loop and demonstrating that the lesson has been learned by embedding the required change in policy, doctrine and practice. This is consistent with the advice from the Ferguson[9] report that: 'A lesson identified is not learned until it is implemented and actioned by current players, built into doctrine for future generations and is subject to a process of periodic review.'

Chapters 5 to 9 of this Report include mini case studies demonstrating the application of lessons learned across certain Impact Areas. These case studies from the 2021 Wooroloo bushfire and other recent events are not a formal post-incident analysis, but rather look at whether previously identified changes have been implemented and whether the changes were successful. The research was undertaken by the Lessons Management Team, which reports to a subcommittee of SEMC. It is important to note that while the case studies focus on DFES as the HMA responsible for the Wooroloo bushfire incident, this does not imply that lessons are not being undertaken by other agencies.

9 "Reframing Rural Fire Management" Report of the Special Inquiry into the January 2016 Waroona Fire, Ferguson, E, 2016 – **semc.wa.gov.au/state-risk-project/state**

Note: On 13 August 2021, the State Government launched an inquiry into the Wooroloo bushfire, led by the Australasian Fire and Emergency Services Authorities Council. The findings of this inquiry are available at **wa.gov.au/government/government-initiatives-and-projects/independent-review-of-the-2021-wooroloo-bushfire**. The report will be considered and addressed by the Government, DFES and other agencies as appropriate.

OBSERVATION

A singular perspective or opinion in the context of a specific incident, exercise, project or report

INSIGHT

A deduction drawn from multiple occurrences of observations

Clearly identifies the gap between the current (problem)state and desired (goal) state of a situation

Does not define the solution

LESSON IDENTIFIED

An action plan that improves performance

Developed through analysis of insights, reaserch and expert subject matter input

LESSON LEARNED

Demonstrated through consistent change in behaviour

Incorporated in to doctrine, training and procedures

Figure 17: OILL method for lessons management

5. Protecting People

'People' is the first of the six State Core Objectives of Emergency Risk Management. Saving lives and avoiding critical injuries to people is the primary aim of emergency management and, in particular, any emergency response. This Chapter explores the risks posed to lives as identified in the State Risk Project, then goes on to delve deeper into three themed sets of capabilities relevant to reducing impacts on people: information, evacuation and health services.

5.1 Understanding the risk

Definition: The loss of life, or critical or serious injury requiring intensive medical intervention and treatment; and/or a demand for medical services that stresses or exceeds the capacity of the health system.

Risk rating is a combination of consequence and likelihood. 'High' risks of people impacts can arise from the following combinations of consequence and likelihood:	Consequence levels – Statewide		Likelihood
	Moderate: more than three deaths or serious injuries and/or health system is at maximum capacity.	&	**Likely:** Occurs one or more times in ten years.
	Major: more than 26 deaths / critical injuries and/or health system is over-stressed.	&	**Unlikely:** Occurs at least once in 100 years.
	Catastrophic: 260 or more deaths or critical injuries and/or health system is unable to cope.	&	**Rare:** Occurs at least once in 1000 years.

State Level Risk Assessment

A major earthquake in Perth or an air crash disaster could have a catastrophic consequence: more than 260 deaths and people requiring medical assistance exceeding the capacity of hospitals[10]. Even though the likelihood of such events is rare, the extent of harm to people means they must be treated as a high risk and the emergency management sector needs to prepare for these impacts. Having the capability to respond effectively to catastrophic events also enables WA to assist when catastrophic events occur elsewhere, such as the assistance provided in the aftermath of the Bali Bombing.

The State Risk Project identified the following hazards as being high risk due to the potential of an emergency event causing more than 26 deaths or critical injuries (major consequence) at least once in 100 years (unlikely): human epidemic, HAZMAT incident, passenger rail crash, road crash, heatwave, tsunami, terrorist act, hostile act and bushfire. Some of these hazards, such as human epidemic and hostile act, may also over-stress the health system.

District Level Risk Assessments

Most districts found that emergency events arising from bushfire and/or severe weather events (e.g. cyclone, storm and flood) could pose a high risk to people, including multiple fatalities and injuries and/or the district's health systems being over-stressed. Eight districts assessed earthquake as being a high risk of causing death and serious injury, including the four metropolitan districts.

The Kimberley, Pilbara and Goldfields-Esperance districts identified human epidemic as a high-risk event as, without sufficient preparation, small health facilities could be overwhelmed in regional and remote locations. The logistical challenges of transporting highly infectious patients adds to the risk.

District assessments also identified the long-term medical impacts associated with some hazardous events including cyclones, floods and storms. The resulting environmental debris could lower water quality and introduce asbestos or other pollutants. The mental health impacts of economic loss on primary producers also increases impacts to people.

10 **https://semc.wa.gov.au/state-risk-project/state**

5.2 Risk and Emergency Information

Shared responsibility is a core principle of emergency management. It means that everyone has a role in keeping themselves and others safe. Personal responsibility is about each individual understanding and managing personal risk. The EM sector can increase levels of personal responsibility in the community by sharing information about risk and preparedness. Three Core Capabilities in the Capability Framework relate to the provision of information about risk and emergencies:

- Risk awareness and understanding
- Public information
- Alerts and warnings during emergencies

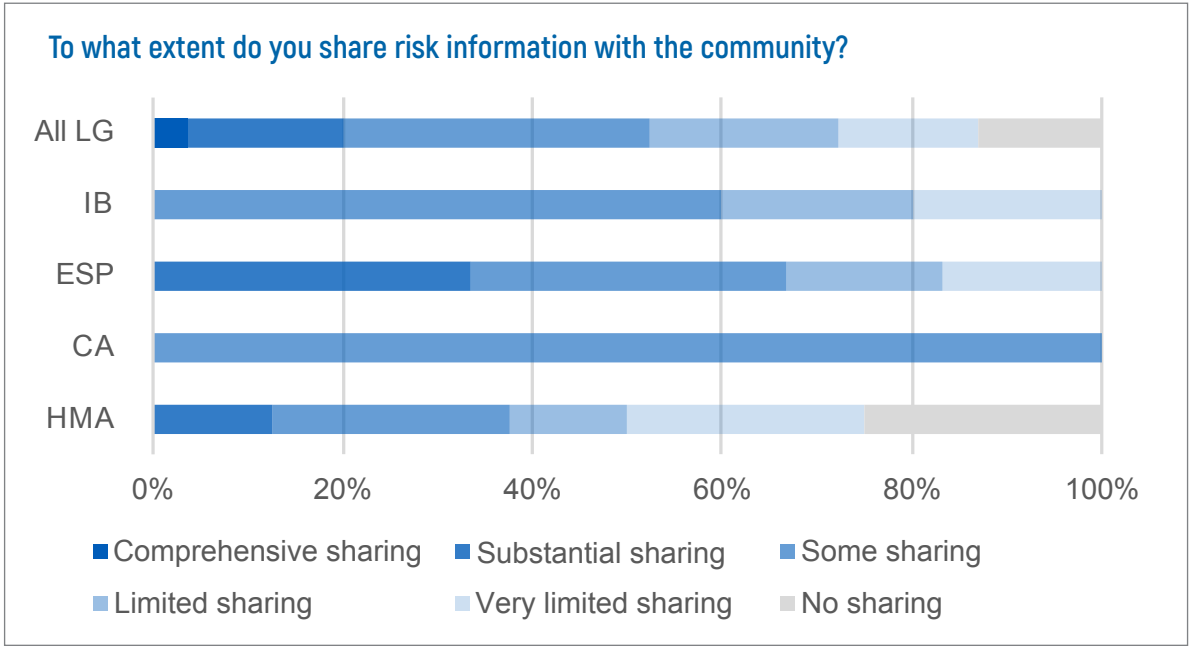


Figure 18: Sharing risk information with the community

Risk Awareness and understanding

Community risk awareness allows community members to make informed decisions that affect their safety. The Capability Survey asks, 'Do you share risk information with the community?' The majority of respondents advise they share some or limited information with the community. There is considerable scope for improvement, particularly for HMAs and some LGs.

Public Information

Public information refers to the information provided to the community about preparedness. It is distinct from Alerts and Warnings that are provided during an emergency threat and response (Figure 19).

Examples of public information campaigns are the annual bushfire and cyclone campaigns which include advertising on TV, radio, print media, social media and billboards. Public health messaging includes initiatives such as the preparedness programs undertaken in schools by Red Cross.

Most Capability Survey respondents scored relatively high in terms of public information, and an upward trend was noted in relation to online information and the use of social media and other contemporary communication tools.

Graph categories are explained in full on **page 14**.

The events of 2020/21 have mentally, physically and economically challenged many West Australians. As the nature of risk changes, preparedness campaigns may need to incorporate a broader focus on individual, business and community preparedness and resilience and the potential consequences of emergencies and disasters.

In responding to the Capability Survey, the Shire of Gnowangerup identified the *Orange Pouch Community Emergency Awareness Project* as an achievement in public information and preparedness. The pouch, sent to all residents in the Shire, is an orange waterproof PVC document wallet that can be used to store important documents like passports, insurance policies, birth certificates etc. Each pouch was filled with educational material to help residents with the process of being prepared and creating a plan.

	Alerts and Warnings	Public Information
WHEN?	During emergency	Before and after emergencies Campaigns linked to higher risk periods
WHY?	Response Information	Preparedness and recovery
WHAT?	Incident specific information	General information about hazards and risks
HOW?	Reactive	Proactive
WHERE?	Location specific	Campaigns linked to higher risk areas

Figure 19: Difference between Alerts and Warning and Public Information

Alerts and Warnings During Emergencies

HMAs have the primary responsibility for managing alerts and warnings during an emergency to keep people safe. In the 2021 Capability Survey, Alerts and Warnings was the highest rating capability for HMAs. This reflects the work undertaken by HMAs over more than a decade to ensure they have capacity to provide timely, accurate and appropriate alerts and warnings via as many channels as possible.

The 2011 Special Inquiry into the Perth Hills bushfires focused on community warnings provided over the radio, which at the time was the preferred method for people to receive emergency information. Proposed areas for improvement included making messages more concise and better targeted to location and time. The Special Inquiry also noted that social media messages could be accessed via mobile phones and foreshadowed that it may, in time, prove to be the preferred medium.

As predicted the public communication landscape has shifted dramatically since 2011. People now have mobile access to both social media and informal networks. Information flows quickly, though not always accurately, through affected communities[11].

Community feedback following the 2016 Waroona fires highlighted that warning messages were long and difficult to understand. The Ferguson Inquiry

11 Simon, T., Goldberg, A., Adini, B., *Socializing in emergencies – A review of the use of social media in emergency situations*, International Journal of Information Management, Volume 35, Issue 5, 2015.

noted that descriptions of geographical areas were confusing and encouraged the sector to make better use of graphical tools and simplified information to make alerts more user friendly.

Emergency WA was launched in October 2016 to provide a single source, single message for warnings using a map-based website with significant improvements over the previous emergency warning system. Hosted by DFES, Emergency WA displays alerts and warnings from DFES, DBCA, the Bureau and WA Health. Some other organisations either have plans to use Emergency WA or are in discussion to develop these plans.

Warnings issued via Emergency WA are automatically distributed via email to a range of traditional media outlets, as well as being automatically published to the DFES Facebook and Twitter accounts and the 13 DFES emergency information line. DFES continues to invest in developing the capacity and reach of Emergency WA and in 2021 will introducing the Australian Warning System which is a new, nationally consistent approach to information and warnings for hazards like bushfire, flood, storm, cyclone, extreme heat and severe weather.

The Bureau notes its contribution to the TC Seroja event as a proud achievement in 2021:

'The Bureau's contribution was significant, with early warning, forecast accuracy and strong collaboration with DFES on public messaging contributing to zero lives being lost as a result of the event.'

WA Health and the Bureau also provide emergency or hazard information to the public via their own channels. The Bureau routinely communicate extensively through briefings to key decision makers, print and broadcast media, as well as via social media channels to keep the public informed and increases communication across all channels during major events. Via its website and app, Transperth alerts passengers of service disruptions related to emergencies. This information also provides alternate routes to avoid impacted areas.

The COVID-19 Information Campaign

Public information (during the reporting period of the survey) for COVID was a mix of preparedness information and specific warnings. It was a highly successful campaign that achieved high levels of community support and compliance with response measures.

Lessons identified relating to the capabilities of the State Government to communicate with the community from this campaign include:

- the power of a well-planned and coordinated approach
- the value of using a trusted leader to convey important messages
- the benefits of positivity in messaging
- the importance of using plain English and providing contextual information
- capacity to extend the reach of messages through stakeholder buy-in and sharing

DPC has now established coordination arrangements with HMAs to support effective public information across all hazards, and to ensure information is accessible throughout the community.

WA Health also reported that throughout the COVID-19 response it worked with the State Emergency Public Information Coordinator to maintain regular media coverage, up-to-date information on health.gov.au and wa.gov.au home pages, and engaging social media coverage. The contact tracing teams also used SMS and email communications as part of the targeted alert strategy.

The Premier's leadership in the provision of information and advice to the community was enabled by the rapid establishment and evolution of arrangements relating to public information coordination for the COVID-19 pandemic.

Inclusion

With the shift to social media it is important to remember that there are segments of the community who may not be well served by current public information processes, such as those without reliable digital connection, those who experience social exclusion, or people with low levels of English literacy or comprehension. At-risk cohorts include older people, people on very low incomes, people experiencing homelessness, people with poor mental health, people with cognitive disabilities and people who speak languages other than English, as well as people who are new to, or not normally resident in, an area. Challenges and constraints to inclusive communications were recognised and addressed during the first twelve months of COVID-19.

Emerging Capability - Recovery Information

The provision of recovery-focused public information online and on social media was first implemented by the DPC after the Yarloop Fires as a way to communicate with residents who were dispersed across the State in temporary accommodation.

In 2017, WA Police Force coordinated a project on behalf of the SEMC Public Information Reference Group. The *Communicating in Recovery Guidelines* was published in 2018 and is available on the SEMC website.

In 2021, DFES trialled the provision of recovery-related information via the Emergency WA platform for the Wooroloo bushfire and TC Seroja.

In the case of the Wooroloo bushfire, a strategic communication plan for recovery was in place on the first day of the recovery. Communications were coordinated across the communications teams of each of the involved LGs and government departments. This included an online and social media strategy; DFES quickly established webpages and Facebook pages as a way to disseminate information to residents, regardless of where they were living. To avoid placing an additional administrative burden on LGs, DFES manages the Facebook page, but collaborates and consults with LGs, support providers, community organisations and other government departments to ensure the information is correct and appropriate. These partners also regularly post and engage with the community through the page.

5.3 Evacuation and welfare support

The operation of evacuation centres is one important strategy for keeping people safe in an emergency when remaining in their home would put them at serious risk of harm, or for people whose homes have been lost. Evacuation powers are prescribed under the *Emergency Management Act 2005 (WA)* (the EM Act) and includes the power to enforce directed evacuation.

There are several agencies involved in capability for evacuation: LGs are responsible for identifying, maintaining and advertising suitable evacuation centres in the local government area; the HMA or Controlling Agency determines when evacuation centres should be opened; the Department of Communities is responsible for managing the operation of the evacuation centres when activated during an emergency, including the provision of welfare and psychosocial support.

During the Norseman West Complex of Bushfires, Norseman was isolated for four weeks due to roads being cut off by bushfire to the north, south, east and west. In addition to the existing evacuation centre, the Shire of Dundas opened extra camping sites for travellers.

During the Wooroloo bushfire, three evacuation centres were opened - Brown Park in the Shire of Mundaring and Beechboro Community Hub and Midland Swan Active in the City of Swan. Additionally, the City of Wanneroo was on standby to open an additional two centres if required to allow for COVID-19 physical distancing guidelines.

Suitability of Evacuation Centres

Prior to the 2020/21 high threat period, a COVID-19 risk was identified in relation to the operation of evacuation centres. Plans were made for the COVID-19-safe operation of evacuation centres. These were required and enacted during the 2021 Wooroloo bushfire, as evacuation centres were opened while Perth was in lockdown. This process required both residents and State agencies to make decisions about the need for safe shelter and transmission risk.

With the onset of TC Seroja, the State Emergency Coordination Group identified concerns, and a lack of data, about the suitability of evacuation centres for the cyclonic event. The SEMC has requested a review of all evacuation centres to determine

their suitability for various natural hazards. It is understood that in regional and rural areas many evacuation centres are older community buildings that may not be a safe refuge from the hazard and may not meet contemporary standards, such as disability access. Over recent years, jurisdictions in other states have required that, where appropriate, new public buildings are designed to provide options for evacuation centres. This may also be a consideration for Western Australia.

Community Liaison and Information

The 2011 edition of the Australasian Inter-service Incident Management System (AIIMS) (3Ed.) included the new role of Community Liaison. DFES activated the Community Liaison Unit (CLU) for the first time during the Prevelly-Margaret River fires in 2011.

DFES has now developed strong capability in this area, supported by staff seconded from other agencies. The CLU provides an important liaison and contact point between impacted community members and the Incident Controller. CLU personnel facilitate regular community meetings and briefings throughout the event, and also engage one-on-one with impacted residents for matters such as property loss.

The Ferguson report in 2016 noted that the presence of the CLU at major incidents had reduced the burden on the Department of Child Protection and Family Services (now Department of Communities) staff and enabled better information and support to impacted community members. The Ferguson report also noted the usefulness of media interviews and reports in providing members of the public with information during a bushfire.

The role of CLU varies for each incident.

- During the Norseman West Complex of Bushfires, CLUs were deployed across a large area in order to provide information to stranded travellers and to ensure the Incident Controller was accurately informed of the needs and wellbeing of travellers.
- During the Wooroloo bushfire, the CLU team leader being based within the Incident Control Centre (ICC) to coordinate community information, and members of the CLU were available to community members at evacuation centres to provide accurate information in an accessible manner. The community response to the CLU during the Wooroloo bushfire reinforced the importance of public meetings and community information hubs during and immediately after a local incident, particularly for those residents who are not connected to social media and rely on printed media, radio or in-person communication.

Community Liaison Unit

Coordinates community liaison activities associated with the incident.

This could include organising and facilitating community meetings and liaising with community to gather local intelligence and knowledge.

'2020-2021 has seen an unprecedented level of activity for Communities' Emergency Welfare teams, the State response to the COVID pandemic and concurrent activations for response and recovery for the Wooroloo bushfire, Mid-West Gascoyne floods and TC Seroja have both tested and matured the Department of Communities' capability to support the people of Western Australia during and after emergencies of significant scale and impact.'

– Department of Communities

5.4 Welfare Support

In response to the Capability Survey, Department of Communities (Communities), Australian Red Cross, WA Health, WA Police Force and 81% of LGs stated they are involved in providing welfare or community services during or after an emergency.

Communities is the lead agency for welfare aspects of the State's EM arrangements, with responsibility across all 28 hazards. While Communities can provide fully for a moderate-level emergency in both Perth and regional WA, it acknowledges significant constraints if the number of people displaced increases to the thousands, or if it is called upon to support concurrent longer-term emergencies.

Prior to 2020 the provision of welfare services was understood to occur over a relatively short timeframe. Over 2020 and 2021, Communities' activation in response to several concurrent emergencies, namely the COVID-19 pandemic, the Wooroloo bushfire and TC Seroja, have changed this understanding. COVID-19 also generated demand for emergency support services that were ancillary to the welfare needs generated by the hazard itself.

As a result, the Communities has reviewed its capability thresholds and identified work needed to update its response plans.

LGs partner with Communities to provide welfare and services to their local community, including food services (eg Meals on Wheels), home and community care programs, animal welfare and in some cases, stepping in as first responders until State government agencies arrive to provide response services. Smaller LGs have very limited capacity in this regard due to low staffing numbers.

The Australian Red Cross plays a number of roles in the State Welfare Plan, including providing psychological first aid (PFA) in evacuation centres and managing the Register.Find.Reunite system to reunite people displaced in an emergency with their loved ones. The Australian Red Cross draws on a network of volunteers and has plans in place to provide support from interstate to a potential significant event in WA.

While welfare services are not core functions for the WA Health and WA Police Force, they play a supporting role to organisations that provide frontline welfare services. WA Health indicated that it can provide welfare services if the emergency overwhelms the capability of first line welfare agencies and WA Police Force works closely with Communities to activate other welfare agencies as required through established State protocols. Additionally, the chaplaincy services and counselling that WA Police Force provide for its own personnel can be extended to other first responders, where WA Police Force is the HMA for that emergency.

5.5 Health Services

In the 2021 Capability Survey, five organisations indicated they have a role in the management of mass casualties and fatalities arising from an emergency.

ORGANISATION NAME	ORGANISATION TYPE	ROLES
Department of Health (WA Health)	Hazard Management Agency (HMA) for biosecurity hazards. Combat Agency (CA) for health services related to other hazards.	Health Response Teams Hospital Services Aero-medical transfer (via RFDS and ESRH) Mortuary services
Department of Communities (Communities)	CA	Establishing Disaster Information Support and Care Centres (DISCC)
St John Western Australia (SJWA)	CA	Pre-hospital mass triage Pre-hospital care Ambulance
Police Force of Western Australia and Police Service (WA Police Force)	CA	Body Recovery Disaster Victim Identification
Department of Defence[12] (Defence)	ESS	Aero-Medical Services Ambulance Health Response Teams Hospital Services

Table 4: Health services roles by organisation

12 Defence does not have a day-to-day role in emergency management in WA. In the following sections, references to Defence capacity assumes that national assistance to the emergency is required and requested through the appropriate channels. Defence has extensive capacity to support States and Territories in emergency situations. A recent focus of Defence has been to improve its capability to assist State and local governments to respond to natural disasters.

Patient Care and Transport

WA Health reports that it has undertaken substantial planning and resources for its responsibilities and has the capacity to manage moderate or major numbers of casualties (up to 2,000 injuries). However, it would face challenges for greater numbers of certain injury types (e.g. burns or paediatrics) and significant constraints in the event of catastrophic casualties exceeding 2,000.

Where the number of casualties exceeds local capacity, arrangements are well-established to request help at the national level from Australian Medical Assistance Teams (AusMAT) and the Department of Defence. Similarly, WA personnel are trained with the AusMAT to provide support to other states, should they require additional capacity.

The CAs also report the capacity and capability to manage a moderate level of casualties in metro (up to 200 injuries) or regional WA (up to 50 injuries). However, a large incident may impact on business as usual activities. All agencies report that while they have personnel and equipment located and maintained across the State, personnel numbers and skills are limited in remote areas and may require support from the metropolitan area. In the event of a major or catastrophic scenario in regional WA, WA Health reports that it would have very limited resources and would rely heavily on either stabilising patients for transport to Perth or mobilising resources to the impacted region.

St John WA (SJWA), the primary ambulance service in WA, reports that it has invested in its EM capability over the past two years. The new approaches include establishing commanders early, engaging with HMAs and pre-deploying for emerging threats. SJWA has a command structure that can work 24/7.

Aero-medical capability is provided by the Royal Flying Doctor Service Western Operations (RFDS WO) and the Emergency Rescue Helicopter Service managed by DFES. RFDS WO has worked with WA Health in the coordinated WA response to COVID 19, including planning for remote area outbreaks, implementing infection control protocols that enable them to evacuate a patient with potential or confirmed COVID-19 for care and assisting with vaccination efforts.

Remoteness Planning

The analysis of health capacity in emergencies highlights the importance of planning for responses in remote locations. In responses to the Capability Survey, remoteness planning scored moderately for the HMAs with an average score of 67%. Given the size of the state and the number of remote communities and mine sites, this may be an area requiring further attention.

Fatality Management

WA Police Force reported in 2021 that it could manage body recovery with existing resources in a moderate to major level emergency, dependant on several factors such as the nature and location of the incident. The Department of Communities and WA Police Force have responsibilities for disaster victim identification under the EM arrangements. Both agencies reported they have capacity for up to 250 deaths, with reduced capacity beyond that level. Established plans exist to request interstate and Commonwealth support should the needs of an incident fall outside usual operating parameters.

WA Health has responsibility for mortuary service and advise that it could manage up to 250 deaths with existing resources, with reduced capacity beyond that level. WA Health is an advisor to the Metropolitan Cemeteries Board on mass fatality and accelerated burial processes, and has plans and triggers to increase mortuary capacity where needed.

Bushfire Smoke

During the 2019/20 season, bushfire smoke affected up to 80% of the nation, with estimates suggesting 900 million metric tons of carbon emissions were likely contributed by the fires. Sydney experienced 81 days of poor or hazardous air quality in 2019 (more than the previous 10 years combined). Some estimates are that the smoke haze travelled all the way around the world at least twice. As climate change increases the number and intensity of bushfires around the world, it is likely that WA will experience increased air quality impacts.

Direct impact of smoke from bushfires on air quality cannot yet be mitigated, although the unintended consequences can be reduced. Efforts to reduce the impacts to communities are underway across a range of strategies, which include:

- The Air Quality Index (AQI) for Western Australia, available on the DWER website, has been updated to implement the short-term PM2.5 health criteria and messaging approved by enhealth nationally. DWER will continue to work with other agencies and organisations to improve circulation of messaging and criteria.
- Consistent public messaging around short-term measures (mask wearing, staying indoors, and efficiency of air filters.
- The Asthma Society of WA received a National Disaster Resilience Program (NDRP) grant to research and develop warning systems.
- The Bureau are expanding the Australian Smoke Dispersal System (ASDS) from Victoria and New South Wales to the remainder of the country.
- CSIRO are developing and deploying the Air Quality Forecasting System (AQFx) nation-wide, which will extend and enhance the capabilities the ASDS. The WA AQFx Implementation working group has members from DFES, DBCA, the Bureau, WALGA and DWER. DFES and DBCA are working on procedures to integrate AQFx modelling to their frameworks for communicating planned burning to the public.

Additionally, projects have begun across the country that will contribute to nationally consistent modelling criteria and messaging for smoke from planned burns and bushfire.

The real and perceived impacts of bushfire smoke are entwined with landscape management through prescribed burning, particularly in the rural-urban interface. It is a complex balance to maximise the safety of the public through mitigation burning with efforts to minimise smoke impacts to the community.

6. Sustaining Economic Activity

Economy is the second of the Core Objectives. In this Chapter it is combined with the fifth objective – Infrastructure – because of their interdependence. The COVID-19 pandemic demonstrated the potential for a disaster to cause widespread economic impacts in ways that were not imagined by industries, businesses and individuals. It also highlighted the relationship between the economy and the wellbeing of people and communities.

This Chapter explores the risks posed to the economy by the prescribed hazards and examines several key themes: essential services, supply chains, business continuity, agricultural risks and financial assistance.

6.1 Understanding the risk

Definition: Financial loss and economic disruption, including direct property loss and/or the consequences of disruption to workforce, consumers, essential services, infrastructure, supply chains, produce or natural resources.

Risk is a combination of consequence and likelihood. 'High' risks of economic impacts can arise from the following combinations of consequence and likelihood:	Consequence levels – Statewide		Likelihood
	Moderate: Decline in economic activity and/or loss greater than $102 million and/or significant industry requiring financial support.	&	**Likely:** Occurs one or more times in ten years.
	Major: Decline in economic activity and/or loss greater than $1 billion and/or significant industry requiring structural adjustment.	&	**Unlikely:** Occurs at least once in 100 years.
	Catastrophic: Decline in economic activity and/or loss of asset value greater than $10 billion - failure of significant industry or sector.	&	**Rare:** Occurs at least once in 1000 years.

State Level Risk Assessments

At the State level, several hazards were assessed as having a high risk of economic impacts of over $10 billion: animal and plant biosecurity, earthquake, electricity supply disruption, gas supply disruption and human epidemic. Major storm and major structural fire were also identified as having high risk of economic impact if they occur in a site or locality with high economic output.

Plant biosecurity was assessed as the highest risk of long-lasting economic impacts, with potential loss of productivity for up to 30 years and impacts extending beyond the agricultural industry to international trade, local communities and downstream industries.

The hazards of gas and electrical supply disruption and human epidemic pose a high risk of major disruption to mining and manufacturing industries, which could result in economic losses greater than $10 billion. Electrical supply disruption would affect not only electricity supply to business and industry, but would also impact water, wastewater, public transport and communications services.

The hazards of hostile and terrorist acts also have the potential to result in high economic costs due to infrastructure and building repair costs, impacts to business activities and potential impacts to the tourism industry.

District Level Risk Assessments

District risk assessments identified that hazards which may cause prolonged disruption to local agricultural and pastoral activities, commercial buildings, mining activities, water supply or sewerage infrastructure and/or transport routes and infrastructure were a high economic risk. These hazards include animal and plant biosecurity, cyclone, earthquake, electricity supply disruption, bushfire, flood, HAZMAT, human epidemic, marine transport emergency, road crash and storm.

Prolonged closure or delay along major transport routes due to road crash, flooding or fire has the potential to create significant economic effects to major industries, particularly in more remote parts of the State where there are no alternative routes, and to the interstate network, as was experienced in the Norseman West Complex of Bushfires. In the Midwest Gascoyne, transport infrastructure is vulnerable to cyclones and flooding, especially towards the south of the district where roads are generally smaller and more susceptible[13]. Similarly, it was identified that in the Wheatbelt, because of the historic nature and construction methods, bridge infrastructure in the EM district may be more prone to damage than elsewhere[14].

Impacts to tourism at the district level were recognised across multiple hazards, with the potential for major economic loss should infrastructure not be restored quickly, recovery activities not implemented rapidly, and facilities not being available during tourist seasons.

13 **https://semc.wa.gov.au/state-risk-project/district/midwest-gascoyne/Documents/MidwestGascoyneRiskReport.pdf**
14 **https://semc.wa.gov.au/state-risk-project/district/wheatbelt/Documents/WheatbeltRiskReport.pdf**

6.2 Protection of essential services, infrastructure and supply chains

Essential services, infrastructure networks and supply chains underpin the economy. Disruption of these not only causes local impacts but can have significant downstream impacts. The Capability Framework includes three Core Capabilities that specifically address these areas:

- Infrastructure protection
- Essential services protection
- Minimise single points of failure

Critical infrastructure is well integrated in emergency planning. Most organisations (Figure 20) monitor and include considerations of critical infrastructure relevant to the hazards. Organisations also include critical infrastructure considerations as part of business continuity planning.

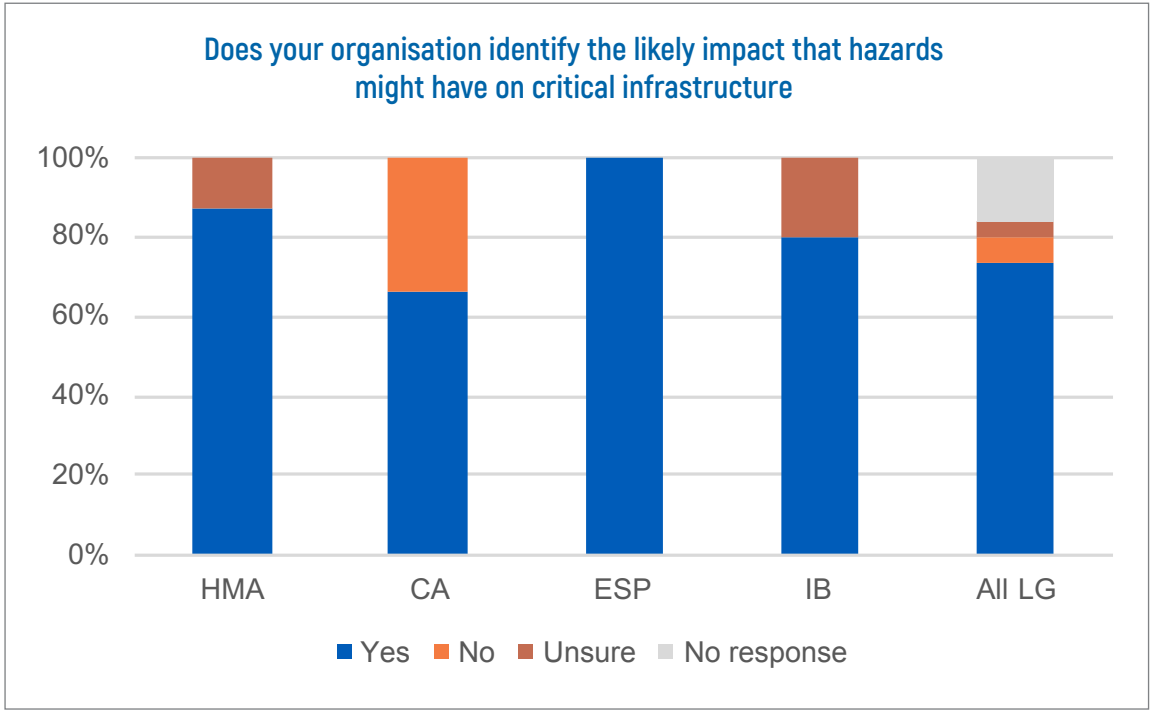


Figure 20: Risk considerations on critical infrastructure

Telecommunications

Poor reliability of communication technology and associated power supply remains a risk for both public information and operations, particularly in remote and rural areas. Increasing dependence on the NBN for phone and data services is a risk identified by many stakeholders given the reliance on power supply to maintain service. Emergency response capability is also impacted in many areas when mobile networks are lost.

DFES has convened a multi-agency working group to reinforce power supply to mobile phone towers with support through the SEMC and Australian Government. There are also national programs in progress to address these vulnerabilities.

Graph categories are explained in full on **page 14**.

Supply Chains

In December 2019/January 2020 the extended closure of the Eyre Highway due to the Norseman West Complex of Bushfires disrupted a number of supply chains in the local area and impacted on Statewide supply chains, such as the supply of perishable foods and the supply of goods and materials that were essential to the operations of some industries. The cost of these impacts is estimated to be in excess of $19M. In addition, scores of travellers were stranded due to the closures without sufficient re-provisioning arrangements for either the travellers or the communities that supported them.

The concurrent closure of the Great Northern Highway highlighted the vulnerability of WA's freight routes due to the reliance on two primary roads into the State, and one primary road between north and south. Hardening road infrastructure, and identification of alternative supply routes, is an ongoing strategy to reduce the risk of economic impacts.

During COVID-19 there was disruption to road transport, air freight and maritime activity due to the quarantine restrictions. Air freight restrictions particularly impacted high value export industries. The intrastate border restrictions also put at risk food supply to remote and regional communities.

A collaborative working group of government and industry representatives was successful in monitoring supply risks and managing a coordinated response during both the Norseman West Complex of Bushfires and COVID-19. It is recommended that arrangements for convening a freight, logistics and food supply working group be established for future events.

6.3 Business Preparedness

Business continuity planning (BCP) is a process by which businesses identify the disruptions that could occur to their business, and their plans around when to continue operating, cease operating or resume services promptly. It includes consideration of all aspects of the business that might be impacted.

Many businesses, including the EM sector, had only a basic understanding of BCP prior to COVID-19, often limited to considerations of IT and data. The direct and indirect impact of COVID-19 to WA industry was immense and required rapid innovation. Many businesses developed their BCPs as they transitioned to work-from-home practices, flexible working arrangements, new customer service models and investing in digitisation and technology to support new practices. They were forced to plan for service continuity with a reduced workforce due to illness and quarantine.

Risk Awareness

Business and industry can better plan for disruption when they are informed about the risks they face. However, the capability of *'sector sharing information'* was second lowest capability for HMAs, suggesting inadequate sharing of knowledge about risks and disaster management with WA businesses. While most HMAs shared at least some information about individual risks, vulnerable elements and treatment options with other State government agencies and business/industry, the levels of sharing with LGs and communities were much lower, with most HMAs reporting limited, very limited or no sharing with these stakeholders.

Across the EM sector, information sharing is asymmetrical: significantly more information is provided to government agencies than they provide to others, as shown at Figure 21. Industry and businesses share more information across all three metrics, and yet they are among the lowest for receiving information. The ratings in Figure 21 are derived from a series of questions asking to whom organisations share information on individual risks, vulnerabilities, and treatment options. Responses are on a scale of *no sharing* (0) to *comprehensive sharing* (5).

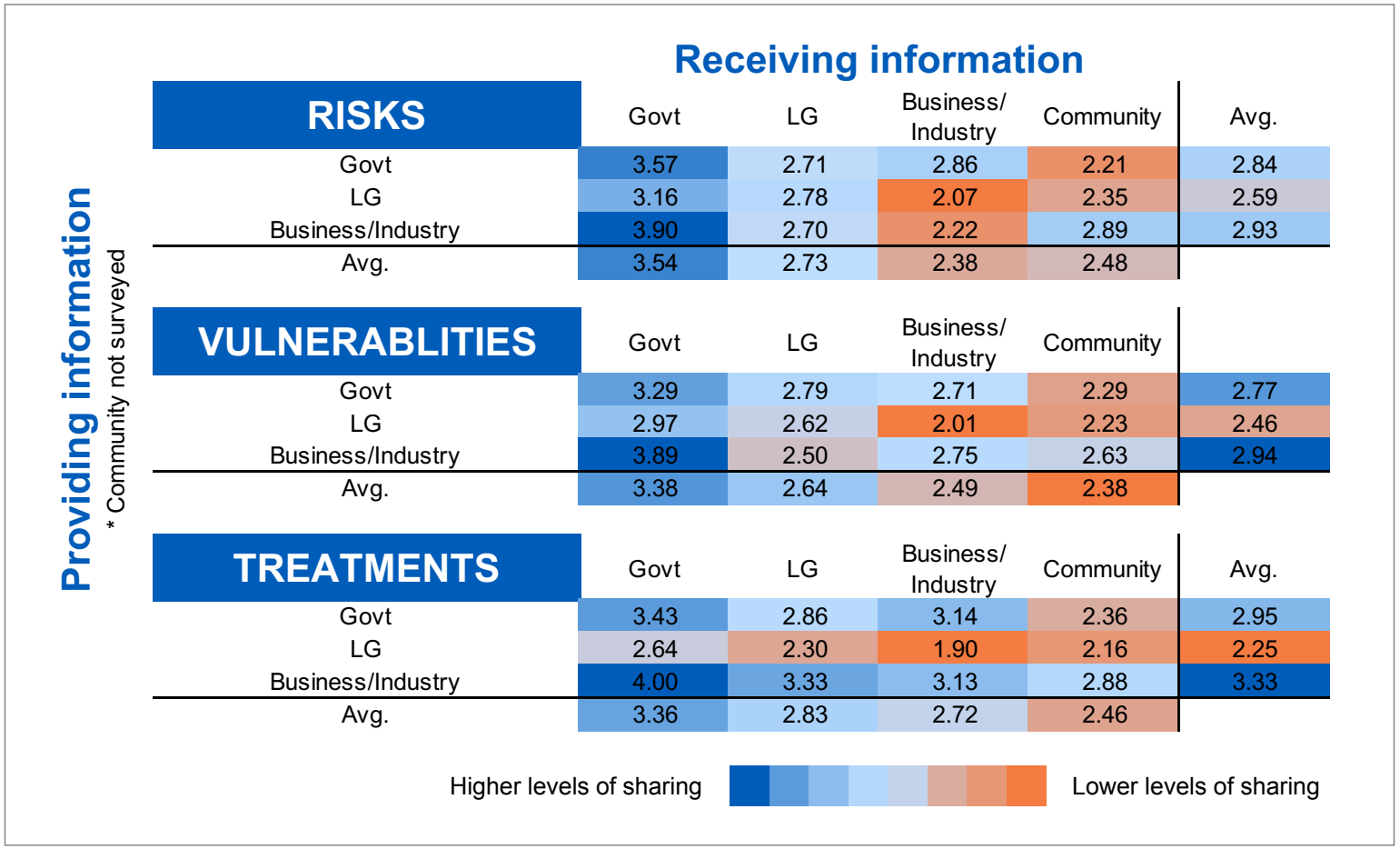


Figure 21: Cross-sector information sharing

For many respondents, treatment options are shared via plans which communicate how risks are being managed. This possibly explains why the sharing of treatment options are generally higher that the other aspects.

6.4 Financial Assistance

The rapid announcement of JobSeeker and JobKeeper payments at the beginning of COVID-19 had numerous benefits for the economy and for the wellbeing of individuals. Local governments also extended support to their communities.

While there is a strong view that financial assistance can erode resilience, emergencies can easily outstrip the financial capacity of business and individuals and early assistance is often fundamental to support recovery.

Following the Wooroloo bushfire and TC Seroja, the capability of State agencies to disburse grants has significantly improved. There is ongoing work to improve coordination and streamline this process, both to reduce fraud and to ensure people have timely access to financial assistance.

There is also a need to develop a clear policy position to ensure equity and efficiency for future events.

'The Shire took a very proactive position during the early stages of the COVID Pandemic and worked closely with the Shire's broader community but also with the local business community, local police, and other State agencies. Provision of economic relief to local business etc was very well received by the community in general.'

– Shire of Dandaragan

7. Environmental Stewardship

This Chapter explores the risks to the core objective of Environment and the core capabilities that assist in managing the impacts.

7.1 Understanding the risk

Risk Definition: The loss of species, landscape and environmental value as a result of a hazard.

Risk rating is a combination of consequence and likelihood. 'High' risks for environmental impacts can arise result from the following combinations of consequence and likelihood:	Consequence levels – Statewide		Likelihood
	Moderate: Significant impairment or loss of ecosystem function to an isolated ecosystem with intensive recovery efforts required.	&	**Likely:** Occurs one or more times in ten years.
	Major: Severe impairment or loss of function to a nationally significant ecosystem or species.	&	**Unlikely:** Occurs at least once in 100 years.
	Catastrophic: Widespread severe impairment or loss of function in significant ecosystem(s). Irrecoverable environmental damage.	&	**Rare:** Occurs at least once in 1000 years.

State Level Risk Assessments

The State Risk Project identified that a marine oil spill poses the highest risk of harm to ecologically significant ecosystems. For example, a spill in the Ningaloo Coast World Heritage area, which is a habitat for numerous rare and vulnerable species, would require a large and coordinated response to prevent permanent and progressive damage.

Spills of hazardous materials and toxic substances were also identified as being a high risk to terrestrial, aquatic and/or riverine ecosystems and vulnerable species in these environments. In the scenarios considered, the scenario of a rail crash near a river highlighted this risk. The potential harm arising from contaminated stormwater run-off after cyclones, storms and floods was also identified.

Scenarios involving plant or animal biohazard were also assessed as having a high risk of loss of vulnerable species and/or impairment of significant ecosystems.

District Level Risk Assessments

The district risk assessments identified high risks of environmental impacts arising from natural hazards - cyclone, earthquake, fire, flood, and storms – as well as biohazards.

The workshops also identified the high risk associated with hazards that may result in the accidental release of toxic substances into the environment such as chemicals, asbestos, raw sewerage, petro-chemicals and other hazardous materials. For example, the metropolitan district identified that earthquakes may cause uncontrolled discharge of chemicals, particularly from the Kwinana strip, which may cause catastrophic contamination and damage to riverine and coastal ecosystems. Marine transport emergencies were also considered a high risk in this regard. Flood hazard scenarios in both the Wheatbelt and South West districts were identified as a high risk of agricultural chemical wash-off significantly affecting riverine systems, as well as the loss of topsoil in affected areas.

7.2 Clean-up and rehabilitation

Clean-up and rehabilitation are key aspects of disaster recovery to prevent, mitigate and address environmental impacts and environmental health. The requirements for clean-up are increasingly complex due to concerns about the impacts of hazardous materials in buildings and infrastructure. In the past ten years there has been significant learning regarding clean-up arrangements and requirements in Western Australia, and there are further lessons being identified.

For example, during the removal of fire-damaged material in Yarloop, historic environmental contamination, including asbestos and heavy metals, was discovered in some areas, posing significant risks to the environment and to human health. In response, a complex and large-scale clean-up and waste management program was coordinated by the State Government.

Following that program, WALGA and Department of Water and Environmental Regulation (DWER) took the opportunity to identify opportunities to plan for future events that might require complex clean-up. WALGA undertook a project to develop Local Waste Management arrangements that could be used by LGs in emergency events, including a panel of suppliers. DWER undertook a project to

identify waste disposal facilities and arrangements for disposal of hazardous waste following an emergency.

In the week after the Wooroloo bushfire, with an estimated 86 houses lost, the two LGs requested support from the State Government to manage the clean-up. DWER agreed to lead the Wooroloo Bushfire Coordinated Residential Clean-up Program, drawing on their learning from previous incidents and the waste disposal project. The Program was jointly funded by the Western Australian and Australian Governments as part of the Disaster Recovery Funding Arrangements. The scope included the removal of debris associated with bushfire-damaged houses, structures, vehicles and trees. Clean-up and waste removal were completed on 132 properties with more than 3.2k tonne of asbestos-contaminated material removed.

A lessons management discussion with the contractors has identified further opportunities to improve these arrangements, in particular the need for a State position on the criteria for State support for clean-up and a full suite of arrangements for a State agency to rapidly procure clean-up and waste disposal services when the clean-up requirements exceed the capacity of LGs. The importance of this capability has been further evidenced following TC Seroja.

7.3 Animal welfare in emergencies

Managing animal welfare in emergencies is an important capability in managing environmental impacts, particularly the devastating effect of fire on wildlife and domesticated animals. Effective animal welfare arrangements can also save lives because there is significant evidence that people are unwilling to evacuate if their animals are not provided for.

DPIRD has undertaken a project to develop the State Support Plan - Animal Welfare in Emergencies. The development of the Plan was informed by lessons learned over a number of emergencies (Figure 22) and by the knowledge and guidance of experts from DPIRD, DBCA, Department of Communities, local government, volunteers, veterinarians and animal welfare groups. The ongoing collaboration of these groups underpins operation of the Plan.

The State Support Plan was activated for the first time during the Wooroloo bushfire in February 2021. The majority of domestic pets, horses and farm animals were safely evacuated, many to stables and kennels who opened their doors to provide temporary accommodation. Skilled volunteers were permitted on site to find animals and bring them to a safe environment or euthanise them if required.

DPIRD provided twelve vets to take care of any injured animals brought into the fire control centre. Following the fires more than 750 pets, wildlife and stock were checked with 11% requiring treatment and less than 2% of animals lost. Most animals and wildlife required only assessment and feed and water supply. Following the fire, a supply of feed was coordinated for animals remaining in the impacted areas.

The Plan has been complemented with changes to arrangements at evacuation centres, with many centres now permitting people to attend with domestic pets.

The success of the Plan is validated by the community's relief that animal welfare was a key component of the response.

2014

Parkerville-Stoneville-Mt Helena Bushfire

Caring for pets was an issue at the evacuation centre, for those trying to return to their homes and those who stayed to defend.

DAFWA led a planning group for animals in emergencies. The review suggested that all LGs consider developing animal welfare support plans.

2015

O'Sullivan Lower Hotham Fires

The Shire was initially not well prepared to deal with animals at the evacuation centre.

DAFWA were able to provide practical and effective support for animal welfare issues.

2016

Waroona/Yarloop Fires

The evacuation centre was able to accommodate companion animals.

Rangers from the City of Mandurah and the Shires of Waroona and Murray undertook welfare checks on animals.

WA did not have specific plans or policies for the management or welfare of animals in emergencies.

2018

SEMC assigned DPIRD with the role and responsibilities with the State EM Framework for coordinating animal welfare in emergencies. The State Support Plan – Animal Welfare in Emergencies was endorsed by SEMC in 2019.

2021

Wooroloo bushfire

The animal welfare plan was activated for the first time. DPIRD, the City of Swan, the Shire of Mundaring and a number of local community groups, associations and volunteers came together to coordinate animal welfare efforts.

Figure 22: Animals in emergency timeline

7.4 Ecosystem Management

Wetlands, coastal zones and bushfire concerns are some of the driving forces of environmental management across the State. Local governments manage large areas of diverse reserves and parks that contribute to the area's natural environment. These are managed to meet multiple objectives including community protection, conservation of natural values, and provision of recreational activities.

Emergency management makes use of the mitigating nature of natural buffers in the environment. Local governments play a key role through planning strategies and management of reserves and parklands. Table 5 provides examples from the City of Karratha as to the wide range of strategies utilising and enhancing natural buffers applicable to their local government area. Other local governments employ strategies tailored for and targeted towards their environment.

FOCUS AREA	NATURAL BUFFER	STRATEGIES
Flooding and storm surge	Wetlands	Protected areas and areas supplemented with reed planting
Collapse - slope instability	Vegetation	Planting plans and specifications and use of design to meet relevant standards
Collapse - coastal erosion	Dune systems	Foreshore plans for renewal, regeneration and maintenance
Heatwave	Vegetation	Tree planting strategy, greening areas and street scapes, City centre planting designs and strategies
Plant and animal biosecurity	Weed management	Partner with Pilbara Mesquite Management Committee to support the management of Weeds of significance
Risk sharing	multiple	Signage at parks regrading protecting environmentally important areas, e.g. 'No Smoking' signs

Table 5: City of Karratha mitigation strategies utilising and enhancing natural buffers

DBCA is a prescribed CA for fire suppression. While it is responsible for the development and implementation of mitigation strategies and activities, and for responding to bushfires on all DBCA managed land (e.g. State forest, timber reserves, national parks, conservation parks, nature reserves), DBCA's responsibility for management of the natural environment is far broader. Specific environmental management requirements are detailed in the applicable state and federal legislation. Land management plans or other relevant guidance and monitoring plans include management of natural buffers.

The Bushfire Risk Management (BRM) program mitigates bushfire risk through hazard reduction, including planned burning, thinning, parkland clearing, mulching, fire break construction and maintenance, slashing and spraying. The works are planned and delivered regionally based on local priorities and conditions. Mitigation works are undertaken as a collaboration between DFES, DPLH, DBCA, LGs and private landowner.

Planned burns are prioritised based on risk and capacity. A number of factors have the potential to impact the extent of hazard reduction burning that can be undertaken each year, including:

- a longer bushfire season is narrowing the optimal period for hazard reduction burning
- the reduced window of opportunity increases demand for resources to undertake the tasks, including specialist personnel and equipment
- public liability insurance costs have priced some contractors out of this work, resulting in reduction in available resources; and
- growing community opposition to fuel reduction burns because of health and ecological impacts

Opportunities exist to engage in traditional land management practices in partnership with Aboriginal rangers and elders. These techniques differ from emergency management centre approaches and vary because of the vegetation, topography and geography of the area.

The EM sector actively engages with Aboriginal land management groups to support engagement in traditional land management. For example, DFES, DBCA and the Martu people are currently planning and conducting planned burning to protect Martu communities, land and cultural sites with results intended to influence the wider BRM project.

As the Royal Commission into National Natural Disaster Arrangements (2020) stated, 'There is a place for Indigenous land and fire management practices to be integrated into the planning and execution of public land management activities across Australia.' (p. 17).

8. Continuity of Public Administration

Public administration is the implementation of government policy. Various organisations, government departments, local governments, business, politics and others all fulfil different functions for the proper functioning of Western Australia. Emergencies can interrupt one or more aspects of this network, leading to a breakdown in the provision of government services.

8.1 Understanding the risk

Risk Definition: Reduced capacity or inability of the governing body / public service to deliver core functions and maintain public order.

Risk rating is determined by consequence and likelihood of something occurring. 'High' risks for Public Adminstration impacts arise from the following combinations of consequence and likelihood:	Consequence levels – Statewide		Likelihood
	Moderate: Governing bodies focus on critical services with reduced delivery of other business functions and services.	&	**Likely:** Occurs one or more times in ten years.
	Major: Governing body is absorbed by managing risks and there is disruption in delivery of critical services and loss of confidence in government.	&	**Unlikely:** Occurs at least once in 100 years.
	Catastrophic: Governing bodies cannot function and/or significant civil disorder.	&	**Rare:** Occurs at least once in 1000 years.

State Level Risk Assessment

The state risk workshops identified high risks of impacts to public administration for a number of hazards including animal biosecurity, human epidemic and earthquake, terrorist act, and hostile act. In these circumstances the State would require assistance from other jurisdictions and the Australian Government.

A large-scale hazard such as an earthquake in Perth or a major population centre has a risk of exceeding the capacity of government agencies, particularly those with key responsibilities for emergency response, community welfare support, healthcare, restoration of essential services and recovery. It is probable that delivery of many day-to-day services and functions of government would be impaired due to impacts on workplaces, disruption of infrastructure and essential services, and the unavailability of employees due to injury or personal impacts, in addition to the increased demand for services.

The human epidemic hazard was also identified as a high risk for public administration because increased absenteeism would limit the capacity of agencies to sustain critical service delivery.

Remoteness was also identified as a risk factor for sustaining public administration during and after emergencies due to the limited services available in these areas, the likely disruption of access and supply routes and the challenging logistics of mobilising response and recovery activities.

District Level Risk Assessments

In the district risk workshops a number of high risks for public administration were identified, primarily arising from the natural hazards of cyclone, fire, flood and storm. Many jurisdictions identified that additional resources from intrastate or interstate would be required after a significant incident, including a major storm or earthquake in the metropolitan district.

Remote districts, including the Midwest-Gascoyne, identified that response and recovery efforts would be overwhelming for small local governments and would require significant external resources. Recovery is community specific. Every community has characteristics that can increase or reduce resilience to a hazard event which, in turn, may enhance or impede recovery. TC Seroja is highlighting challenges in this area.

8.2 Business Continuity Planning

Business Continuity Planning (BCP) is identified as a Core Capability in the Capability Framework. In the 2021 Survey:

- The DPC increased their BCP capability from 47% in 2019 to 93% in 2021
- BCP was a key strength for ESPs, scoring 88% with a 7% improvement on 2019
- HMAs had an average score of 61%, which was a 9% reduction on 2019
- The average score across all LGs was 48%, an improvement of 8% on 2019

DPC reported comprehensive updating of the BCPs across the functional areas of the Department in 2020 as part of the Department's response to the COVID-19 pandemic. DPC also maintains a Continuity of Executive Government Plan in the event an emergency impacts on the functioning of executive government. Since 2019, DPC has established agreements with national, interstate and intrastate organisations to assist during large-scale emergencies.

The majority of ESPs reported having effective and reliable plans that are embedded in the organisation. Most stated that they reviewed their BCP regularly or in response to emergency

incidents, citing the COVID-19 pandemic as a recent test for their plans.

By comparison, the HMAs scored their capability for BCP lower than in previous years. Most HMAs acknowledged that further work was needed on their plans with some noting that their BCP was due for review.

Anecdotal evidence suggests the events of 2020/21 have highlighted the shortcomings of existing plans and the understanding of BCP across the public sector. This feedback was provided by many State agencies in Business Continuity state workshops facilitated by the SEMC and the Public Sector Commission in 2020.

The average score for local governments remains relatively low at 48%, however this is a significant improvement from 2019. It is important to note the variance in capacity associated with size. Small rural LGAs have an average score of only 30%. These LGs typically have very low staffing levels constraining their ability to significantly increase their EM capability or plan for business continuity. State agencies may need to plan to provide higher levels of support in these localities. By comparison, metropolitan and regional centres reported 68% and 61% respectively, which is comparable to the BCP capability of HMAs. Many LGAs have updated their BCPs and built knowledge in this area over the past year. For example, the City of Wanneroo noted the success of their BCP in their COVID-19 response:

'The Crisis Management Team was activated and quickly made decisions around the health and safety of the community and the City staff. The Pandemic Plan, Crisis Management Plan and Business Continuity Plans were all activated.

'The pandemic forced the City to open up a new level of local government agility. We are now more equipped to manage working from home remotely and provide services in more ways than one.'

8.3 EM Personnel

While concurrent emergency events occur in WA most summers, they are usually of relatively short duration. Responding to emergencies and critical incidents is the day-to-day business of DFES and WA Police Force. The businesses are structured with surge capacity that assists in managing the normal resource demands of concurrent events. However, in a major event, or in concurrent events, response agencies may not have enough personnel with the right skills for the response required. In the context of bushfire response, this constraint was identified in several sequential reports as summarised below.

- The 2010 report *A Review of the Ability of the Department of Environment and Conservation Western Australia to Manage Major Fires* concluded that a range of administrative enhancements could be made to support emergency efforts, including multi-agency pre-formed teams and common systems of work.
- The 2015 SEMC report into the O'Sullivan and Lower Hotham fire found that while both DFES and Parks and Wildlife (now DBCA) wished to develop multi-agency pre-formed and flexible Incident Management Teams, progress was impacted by a wide range of confounding factors (such as award conditions, geographical separation, work practices and interoperability of systems).
- The Ferguson Review into the Waroona fires in 2016 identified that while pre-formed IMTs were used and effective, they could be enhanced and expanded.

Ferguson suggested the establishment of a 'network' of Western Australian State Government agency personnel who can be called upon for bushfire and emergency incident management capability within Western Australia, potentially led by the State Emergency Management Committee.

Following the report, DFES, established rostered State Level Three Bushfire Incident Management Teams in conjunction with, and membership from DBCA and LGs. Further, through the Public Sector Leadership Council, a cross-sector working group has been established to support resource sharing across agencies for incident management. The working group developed and endorsed the *Network of Personnel for Incident Management – General Arrangements*. These arrangements allow the HMA or the Controlling Agency, in consultation with the State Emergency Coordinator, to request other government agencies to supply suitable personnel with the knowledge, skills, capability and abilities to fulfil the requested role for a limited term.

The enduring nature of COVID-19 and its impacts across all of areas of the government has again brought personnel constraints to light.

In 2020, the Public Sector Commission established the Switch project to share resources across the government - particularly into WA Health and WA Police Force - in response to the COVID-19 resourcing requirements. More than 250 staff have been mobilised to provided short-term support to agencies dealing with the unprecedented demands that COVID-19 placed upon the public sector. Switch has also been utilised by DFES to establish a Recovery Team for TC Seroja.

In its response to the Capability Survey, WA Health noted:

'The support provided by other agencies to health in the response to the COVID outbreak has been warmly received.' (WA Health)

By the end of 2020, staff across the EM sector were identifying that they and others were fatigued. It was apparent that a cluster of emergencies in the 2020/21 high threat period, together with the risk of a COVID-19 outbreak, would further stretch the resources and capacity of health services, response agencies and the executive. The Department of Communities, for example, has a role across all 28 hazards outside the day-to-day operation of the business, and its resources were fully stretched by the COVID-19 response. The extent of the risk was realised when the Wooroloo bushfire and then TC Seroja, combined with two week-long lockdowns, required the public sector, community sector and volunteers to dig deeper.

It is a credit to the agencies, the public sector generally and non-government partners that service provision has been maintained across these events.

The Public Sector Commission are currently reviewing the Switch project to see what mobilisation needs the public sector may have going forward. While there is a willingness and support for the cross-sectoral sharing of resources, resources are limited, and suitably trained and knowledgeable staff are not always available to be released. This is especially pertinent for protracted events like the COVID-19 pandemic, or recovery efforts which span several years.

It was also acknowledged in 2020 that there was an insufficient understanding of EM arrangements and incident management across government departments. DFES has provided some immediate EM training and support to government agencies and is investigating capacity to further develop training programs to address this gap. Developing this knowledge as a competency and capability of the public service will assist in mitigating surge capacity and fatigue management in the future and ensure better coordination of future emergency responses. The need for this training was identified by respondents in the Capability Survey.

8.4 Agency Interoperability

Effective communication and operability between local and State agencies is fundamental to the State's EM arrangements. In response to the 2021 Capability Survey, many stakeholders note improvements in inter-agency cooperation, communication and collaboration in the response to COVID-19, TC Seroja and the Wooroloo bushfire. Some local government respondents noted strong support from DFES, WA Police Force and other stakeholders, as well as good collaboration across LGs. Efforts are being made to improve on this cooperation and to resolve any remaining interoperability issues.

COVID-19 required extensive collaboration across government departments and the private and community sectors. This delivered many good outcomes and behaviours and overcame some previous barriers to interoperability.

The survey identified some remaining barriers, which includes:

- Ongoing cultural, technical and regulatory limitations on the sharing of information and data
- Inadequate understanding of EM processes across some government agencies and personnel resulting in misunderstandings
- A lag in information sharing between executive decision-making structures and operational structures

A scalable communication structure embedded into EM arrangements and increasing EM knowledge and participation across the public service are likely to assist in addressing these challenges.

WebFusion

Prior to COVID-19, the State Government had commenced a process to utilise WebFusion for sharing of key information across the EM sector. In March 2020 the system was not readily operational because business processes regarding data protection and access controls between agencies remained unresolved. The State Emergency Coordinator Directorate (SECD) accelerated an implementation process creating a platform on which 50 agencies and stakeholders shared information for weekly reporting and situational updates. Many of these agencies have found the platform valuable, providing an efficient and effective platform for information and intelligence sharing to enhance situational awareness and interoperability. Arrangements are being finalised for the ongoing management of the platform, which has the potential to improve sharing of information.

The scale of events in the 2019/20 season necessitated that State agencies and central government take the lead in response and recovery, which are usually areas of responsibility for local governments; however these new arrangements did not facilitate good two-way communication and information sharing between the agencies and local governments. The non-government sector also plays a role in supporting communities during and after emergencies, but are not included in formal information sharing arrangements. Some survey respondents noted that not only can it impact their efficiency, it represents a missed opportunity to utilise a valuable community resource. More robust arrangements are required to support effective information sharing in all incidents, including consideration of access to WebFusion.

Consistency of IT platforms was identified as an area for improvement by some respondents to the Capability Survey. While several platforms exist, the majority of agencies with EM responsibilities currently use the WebEOC platform. Where agencies are considering the implementation of an IMS, interoperability with existing WebEOC equipped agencies should be considered.

9. Supporting Community

Community resilience is fundamental to successful preparation for and recovery after an emergency. An emergency incident can impact social function and community cohesion in many ways and supporting the community to rebuild itself is essential for sustained recovery.

This Chapter summarises the risks identified for the Core Objective of Community and discusses key themes around capabilities.

9.1 Understanding the risk

Risk Definition: The loss of community function and cohesion; loss of items, places or events that have cultural significance to community; reduction in personal and community resilience and hope.

	Consequence levels – Statewide		Likelihood
Risk rating is determined by consequence and likelihood of something occurring. 'High' risks for Public Adminstration impacts arise from the following combinations of consequence and likelihood:	**Moderate:** Community networks and activities are disrupted and/or there is damage to objects/places of cultural significance.	&	**Likely:** Occurs one or more times in ten years.
	Major: Reduced quality of life and social networks are impaired, many people find it hard to cope and/or leave, significant external assistance is required; and/ or damage or loss of multiple objects/ places of cultural significance.	&	**Unlikely:** Occurs at least once in 100 years.
	Catastrophic: Social connectedness is broken such that the community is unable to support itself; and/or widespread permanent loss of objects/ places of cultural significance.	&	**Rare:** Occurs at least once in 1000 years.

State Level Risk Assessment

The State Risk Project recognised the human epidemic hazard as containing numerous high risks to the community including mental, physical and emotional stress, disruption to services including childcare and aged care, and lack of essential goods due to employee absenteeism.

Mental and emotional stress was considered a high/catastrophic risk across a number of hazards, including human epidemic and plant and animal biosecurity. Emotional distress within the community may be beyond the capacity of some social groups to cope with. Elderly people could be particularly vulnerable as aged care facilities may be overwhelmed and unable to provide a minimum acceptable standard of care.

In additional to human epidemic, mental and emotional stress was considered a high risk across a number of other hazards, including hostile or terrorist act, and plant and animal biosecurity.

District Level Risk Assessments

District risk workshops identified that any hazard which resulted in cancellation of community activities, dispersal of remote communities and damage to culturally important facilities posed a high risk for the social setting. Human epidemic was identified as the highest risk in some districts.

A large-scale hazard in Perth, such as an earthquake, could damage or destroy a large number of homes, resulting in thousands of displaced people requiring temporary accommodation well in excess of supply. Such an event would also result in loss of culturally significant buildings, including heritage buildings, churches and other places of worship. The Goldfields-Esperance and Wheatbelt districts assessed this as a high risk in the regional towns, with potential for permanent loss of historic buildings and streetscapes with significant social impacts.

9.2 Preparedness and resilience

The Perth Hills bushfire in 2011 uncovered a range of issues relating to the preparedness and resilience of the community.

It was identified that many people living in the high fire risk area were unaware of the risk and unprepared for an emergency. Since then, DFES has undertaken a significant community education role, in conjunction with local governments and community organisations such as the Red Cross. In high-risk areas, DFES has established Community Preparedness Advisers (CPA) who work with communities, mostly focusing on bushfire preparedness. In the Wooroloo bushfire, the level of community preparedness was far higher, and this can be attributed in part to the fire-ready plans and efforts of the related CPA and Australian Red Cross.

The 2014 Parkerville-Stoneville-Mt Helena Bushfire Review Report highlighted DFES's Bushfire Ready Groups, which foster community preparedness by empowering community members with their own safety. The review also postulated that the high levels of community preparedness was reflected not only in actions taken, but in mental resilience and acceptance of the risks of living in the bushfire prone area.

Community consultation undertaken in the Great Southern and South West regions during 2020 also identified significant uptake of the Bushfire Ready Program and associated community knowledge of and preparedness for bushfire. These communities expressed a view that the program needed to be expanded.

In 2019, the SEMC Recovery and Community Engagement Sub Committee sponsored a NDRP funded project to develop a strategy for community disaster resilience through consultation with community. The draft strategy due to commence community consultation in mid 2021, will make a number of recommendations for further building capability in preparedness. During the initial community consultation for the project, communities made it clear that they want to have more information and be more empowered to help themselves.

9.3 Access to property - traffic management

Traffic management is an element that has a direct impact on the social setting in a number of ways: during the event, people want to defend their homes, return to family members, or to rescue animals and important items. Following the event, people want to return to evaluate damage and provide relief to pets and livestock. Additionally, it is not only residents and business owners who have an interest in entering an impacted area – essential service workers, volunteers and responders must enter impacted areas during and after the event. Unfortunately, in some cases onlookers or people with nefarious intent may also seek to enter the area. Traffic management has an important role to play to ensure that people are not going into unsafe areas, and that only people who are authorised are entering the impacted area.

A short timeline of the efforts in this area:

2011 Following the Perth Hills bushfire, the inquiry came to the conclusion that some people felt that the denial of access for residents who wanted to return to their properties exacerbated the trauma they experienced. Accordingly, it was recommended that WA Police Force and the Fire and Emergency Services Authority jointly develop a traffic management system with attention paid to access and egress by bona fide residents. In 2012, a working group established to investigate the issue deemed that the Victorian system suggested was too cumbersome to implement in WA.

2014 DFES initiated a temporary Restricted Access Permit (RAP) System for use at the Parkerville-Stoneville-Mt Helena fire. This permit allowed for residents' re-entry into areas deemed safe. Feedback from some indicated that this was a good initiative but response by waiting residents for permits overwhelmed the resources available to issue them, thus resulting in a long queue of frustrated, angry people. The Parkerville Review recommended that a RAP system based on the arrangements developed should be finalised.

2015 The Shire of Manjimup nominated traffic management as the biggest single issue to arise for the Shire during the O'Sullivan incident. The issues related to the magnitude and dynamic nature of the task and the time taken to obtain permits and approval to proceed through the vehicle control point. The Shire reported that it had two teams based in Pemberton, each undertaking 12-hour shifts to manage permit arrangements.

2016 During the course of the Ferguson Special Inquiry the single most common complaint was around the operation of Vehicle Control Points (roadblocks). People already traumatised by the damage the fire had caused were obstructed from returning to their homes to start dealing with stock and property losses. Others were thwarted from carrying out their livelihood. The RAP system implemented by DFES for the Waroona fire was inconsistent and inefficient.

2021 Following the Wooroloo bushfire, the RAP process was again undertaken, however issues continued to exist. There was little publicly available information on how and where to apply for the RAP. DFES's CLU noted that the main queries they were receiving were around traffic management. Opportunities that DFES have identified include:

- community education about why people are not allowed access to some areas
- providing RAP information at evacuation centres
- streamlining the RAP application process
- clear ownership and responsibility for the policy within DFES

The RAP has developed from an idea that was deemed too cumbersome in 2012 to a working system in 2021 that is being further refined and better communicated to the public. Noting the dynamic nature of major emergencies, the successful application of a RAP process requires careful risk assessment to ensure the safety of community and responders is maintained.

9.4 Recovery Coordination

Disasters impact all individuals and communities differently. Response and recovery arrangements need to be flexible enough to enable solutions appropriate to the area, and to address the impacts and consequences on a community beyond the impacts of the event itself.

Federally funded recovery programs are determined by a dollar value of the impacts, and do not necessarily consider the size and financial capacity of the impacted communities. This was highlighted in the Shire of Dundas following the Norseman West Complex of Bushfires. Although the monetary value of the impacts appeared relatively small, it represented a significant sum in the context of the Shire's budget and resources. The long-term financial impacts may exacerbate the impacts and make recovery more difficult.

The events of 2019/20 resulted in significant impacts across all jurisdictions – regional, State and national, unlike most natural hazards which are more localised. While the resultant State-led recovery arrangements were a necessary and appropriate response, they demonstrated that more work is required to address the gap between State and local government.

The aim of recovery is to restore and rebuild community function across social, economic, built and natural environments. While recovery funding is heavily weighted towards rebuilding and economic recovery, equally important social recovery does not have clear funding arrangements. In the immediate aftermath of a disaster, a small community may not have the finances or personnel to commence community recovery. Arrangements to meet these needs and support communities are largely unaddressed in the current EM arrangements, so responsibility for leadership of social recovery needs to be clarified and support arrangements put in place to ensure best practice outcomes.

Arguably, there is a need to reframe recovery and welfare provision with a consequence-management focus recognising the long-tail nature of DFES, LGs and the Department of Communities' responsibilities.

10. Effective EM Ecosystem

The EM Framework consists of the Emergency Management Act 2005 (the EM Act), the Emergency Management Regulations 2006 (the EM Regulations), the suite of State EM documents - including the EM policy, plan, hazard plans, support plans, procedures, and guidelines – and national arrangements.

Related to the EM legislative framework, but not included in it, are arrangements such as the Security and Emergency Committee of Cabinet arrangements and work on interjurisdictional coordination arrangements for cyber incident response.

Organisations operate their business under a wide range of legislation and regulations. Each organisation maintains organisational policies and procedures that seek to comply with both the EM arrangements and the arrangements that govern their day-to-day activities. While the EM Framework seeks to be flexible enough so that organisations can comply in ways that make sense for their business requirements, some trade-offs exist.

A wide range of capabilities contribute to the effective functioning of the ecosystem. Tension arises because the systems and structures used by organisations to conduct business differ. This includes adequate finance and administrative arrangements; lessons management and continuous improvement processes; ensuring that the right people, equipment, and resources are available at the right times; and that the command, control and coordination structures are in place to enable multi-organisational prevention, preparedness, response and recovery.

The arrangements were tested in 2020 like no other time since the EM Act was introduced: for the first time a State of Emergency was declared in March 2020. Given that these arrangements had never been utilised before, they served the State remarkably well. However, stakeholder interviews highlighted a number of risks and issues specifically related to the State of Emergency arrangements and the consequences on government agencies for such a protracted event.

Some of the issues mentioned:

- Consideration of the need for separation of powers between the role of SEC with responsibility for coordinating response across all of government and the role of Commissioner of Police as leader of an active EM agency.

State of Emergency:

Extraordinary measures are required to prevent loss of life or harm to the health of people or animals, property or the environment.

- Coordination of overlapping command structures in the case of multiple events occurring during a State of Emergency.
- The need for the DPC to be involved in a Statewide emergency had not previously been defined or understood. This role could be clarified for future events. Importantly, DPC's role as a liaison between the Commonwealth and the State was a crucial function in maintaining a coordinated response between National Cabinet and the State.
- The SECD was created to provide support to the SEC. Clarity on the roles and responsibilities of the HMA, SECD and DPC in a State of Emergency provides prompt activation of necessary support for the SEC.

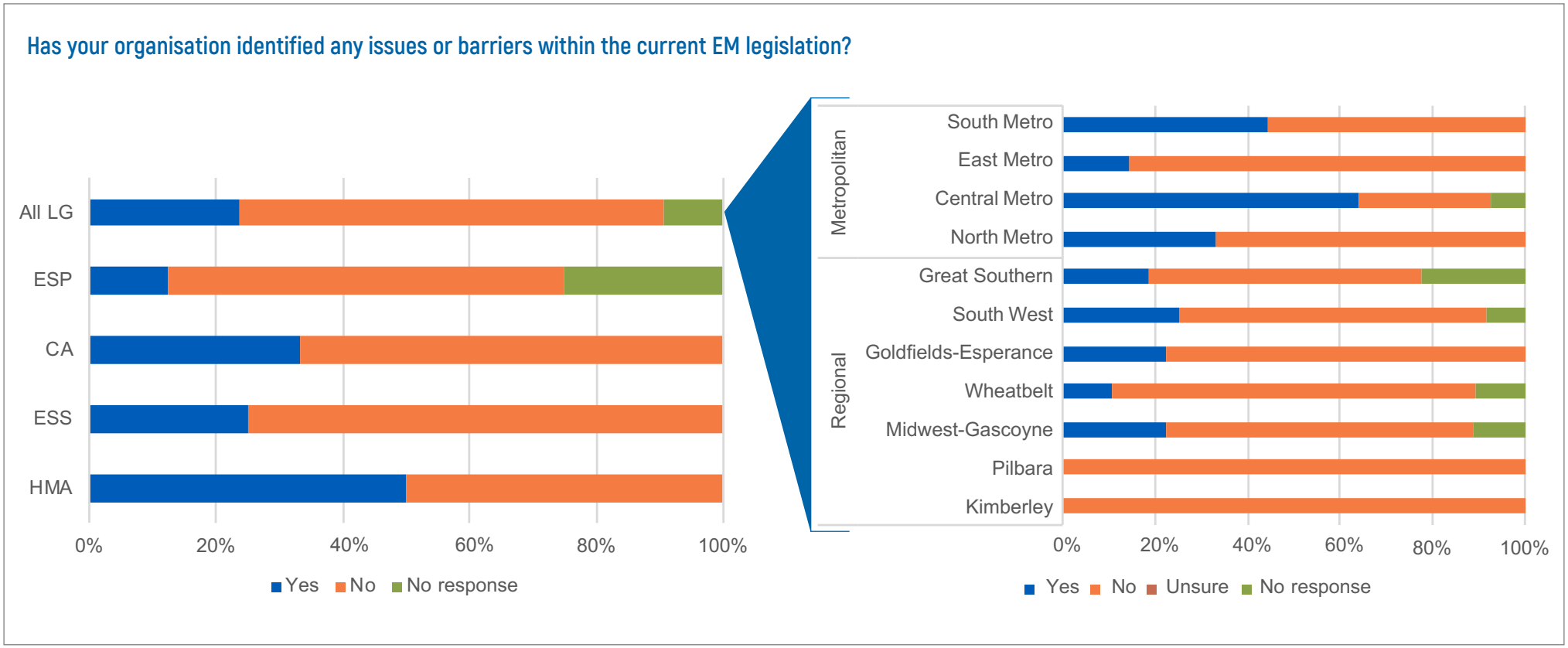


Figure 24: Legislative review

- Effective protocols for inter-agency operability, communication, and coordination between structures to enable efficient response and to maintain the trust of community and staff.
- Critical decision-making sits with a small executive group. There is a need to plan for the sustainability of these roles, including fatigue management, back-up, and succession in the context of an enduring hazard such as COVID-19.

The SEC's role has been particularly noticeable in this emergency, but also through bushfires and cyclones, with the highest number of SECGs held during the year helping build expertise across a number of agencies in achieving that group's role and functions.

Graph categories are explained in full on **page 14**.

Notwithstanding the significant insights that the sector has gained through the COVID response (including responding to other emergencies such as the Wooroloo bushfire and TC Seroja under COVID conditions) there are long-standing barriers and issues with the legislation. In 2019, multiple organisations noted issues or barriers within the current EM legislation. These largely centred around conflicts with legislation other organisations operate under and the silence regarding critical infrastructure. Concerns have been raised that legislative changes that guide Emergency Management Agencies' core business have not been reflected in the EM Framework.

In 2021, agencies that identified the need for change largely spoke to the same issues. However, role clarity in respect of recovery was also raised by multiple agencies, as was the need to progress the review of the EM Act.

In 2016 an Amendment Bill was presented to parliament, but due to the 2016 election was not progressed. Agencies feel that the sector would benefit from the amendment bill being reviewed for currency – especially given the deeper understanding that the sector now has of the high level of coordination and administration that a State of Emergency entails.

Local governments also see a need for a review of the EM legislation (Figure 24). Regional local government concerns largely centre around the 'one size' approach to local government arrangements. Smaller local governments are concerned that the framework does not consider the risk profile or resources to determine the EM arrangements each LG requires. Metropolitan LGs are mainly concerned about the LEMA approval process.

The SEMC is partnering with WALGA on a LEMA review project. The co-design project aims to deliver a new approach for LEMA that meets the needs for local government and communities.

Focus Areas

A review of the EM Act is recommended post the cessation of the State of Emergency for COVID-19. Undertaking the EM Act review post the cessation of the State of Emergency will enable lessons learnt from the protracted COVID-19 emergency as well as other emergencies, the review of the state arrangements for recovery including long tail recovery operations and the outcomes of the LEMA review project to also be included. The SEMC Strategy Plan 2021 - 2024 includes a holistic review of the emergency management framework and would consider the following, as well as a number of other relevant aspects:

- a more flexible approach with restrictions and limitations added as needed
- a consequence-based approach rather than hazard driven
- a review of roles, responsibilities and expectations to make them clearer
- standard plans and standard operating procedures for response and recovery
- interoperability – consider the Bureau's comment: 'During major weather and flood events, all agencies come together via the State Emergency Coordination Group or Regional Operations Centre, and situational awareness and information sharing is high during these periods'
- building broader and stronger networks across agencies to share hazard and risk intelligence prior to an event, thus contributing more towards planning and preparedness activities
- more consistency in equipment interoperability
- more consistency in IT/GIS platforms utilised for situational awareness
- a greater involvement and collaboration with the non-government sector, infrastructure service suppliers and the community at all stages
- continuing to increase the focus on mitigation and preparedness, reducing the need to focus on response activities

11. Conclusion

The Black Summer Bushfires and COVID-19 pandemic tested emergency management capability across the country and have driven a new national agenda for reform and cooperation. Western Australia was further tested in 2021 with the devastating impacts of the Wooroloo bushfire and TC Seroja.

These events have tested many of our arrangements in unexpected ways. Not only within the emergency management sector, but communities, individuals and organisations have had to come to terms with a new way of living and working with a long-term disruptor. COVID-19, for example, highlighted the interconnectedness of our systems and society, with snowball effects that have taken a significant coordinated and systematic approach to recognise, manage and resolve.

This report highlights that across many capability topics, improvements have been reported between 2019 and 2021. Many organisations also reported that where capability decreased, this reflects not a change per se, but rather reflects the organisation's deeper understanding of what capability looks like.

This insight by agencies that confidence in planning is enhanced by the application of the plan highlights the importance of exercising and testing plans.

Reporting via the capability survey showed that while in many cases plans are in place, not all plans are tested, embedded and resourced. Renewed focus on exercising – and on identifying insights and lessons through this process – may provide a more complete picture of the State's preparedness.

Testing and exercising provide a 'safe way to fail' and is a key component of continuous improvement. Where exercising identifies limits on capability or capacity, these issues can be addressed to ensure that the sector's ability to respond to and communities' ability to recover from emergencies is as effective and efficient as possible.

The events over the last 2 years have highlighted the strengths and capability of the sector, as well as areas for improvement. Learning and continuous improvement are core principles in emergency management: our task now lies in ensuring that the observations, insights and learnings from these experiences are captured and incorporated into improved plans, and shared to build more capability.

SEMC has recently developed a strategic plan for 2021-2024 that responds to these observations and insights. The Strategic Plan is also informed by ongoing change in the environment, community, workforce and in technology, and in national arrangements for emergency management. The Plan is structured to address risks and opportunities that may arise from these changes.

The Strategic Plan will inform the agenda for the SEMC in the coming period and guide investment in strategic projects. It is also used to establish or develop workplans for the sub-committees and reference groups of SEMC, and the District and Local Emergency Management Committees to undertake the SEMC's strategic goals: Collaborative leadership, effective governance, a capable sector and a resilient community.

What is clear is that response to major emergencies, and preparation for, require a well-coordinated multi-agency shared responsibility approach. No one agency can do it alone.

Appendix A
SEMC Emergency Management Capability Framework

A.1 The Capability Survey

The Capability section of this Report is based on responses to the *Annual and Preparedness Report Capability Survey*. The DFES State Capability Team conducts this Survey on behalf of the SEMC.

Organisations that make up the EM sector in WA complete a self-assessment based on the SEMC Emergency Management Capability Framework (the Framework) as shown in Figure 25: The SEMC Emergency Management Capability Framework. A full copy of the Framework is available at **semc.wa.gov.au/emergency-management/portal/capability**

The Framework describes the State's collective ability and capacity to prevent, plan for, respond to and recover from emergencies, with capability divided into seven overarching core capability areas.

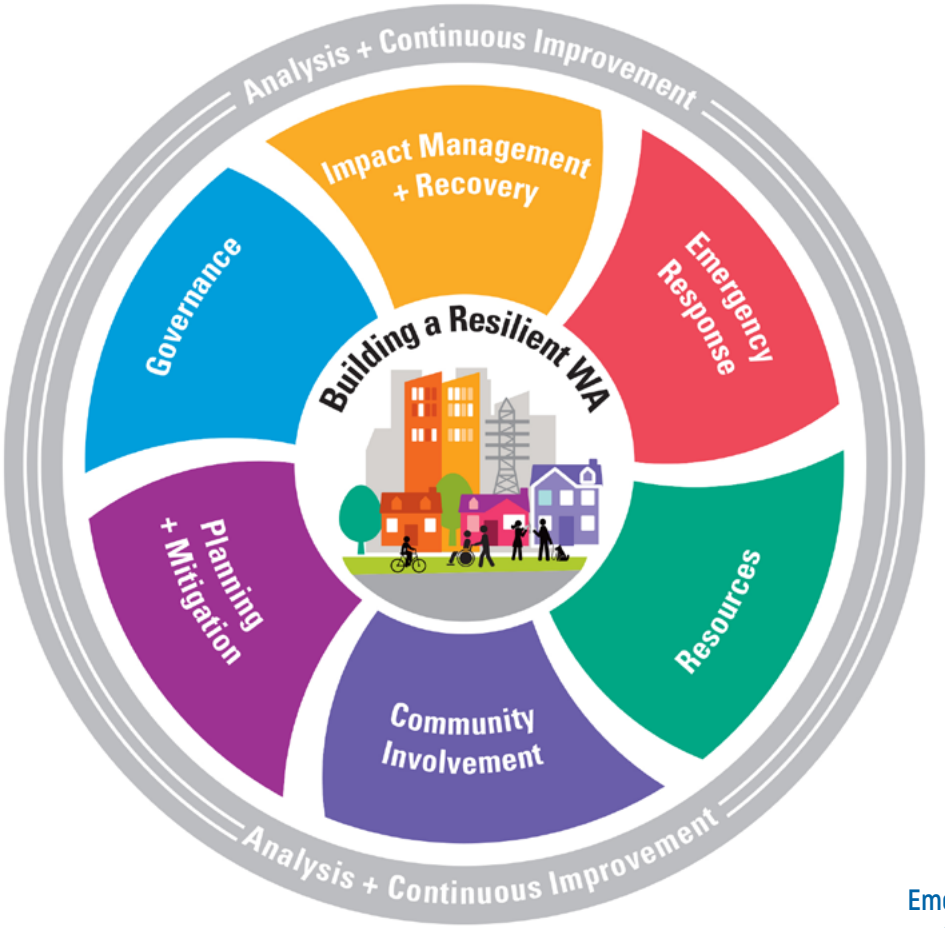


Figure 25: The SEMC Emergency Management Capability Framework

Analyses are drawn from the 2021 Survey, and year-on-year comparisons are drawn between the results of the 2021 and 2019 surveys. (The Survey was not conducted in 2020 due to the impacts of the Covid-19 pandemic).

The 2021 Survey was open from April to June 2021 and distributed to:

- 8 Hazard Management Agencies (HMA)
- 8 Essential Service Providers (ESP)
- 3 Combat Agencies (CA)
- 4 Emergency Support Services (ESS)
- 6 Industry Bodies or Other Organisations (IB)
- 127 local governments (LGs). Ten local governments were excluded from the 2021 Survey due to the impacts of TC Seroja.

A.2 Capability Topics

To assess EM capability, relevant survey questions are grouped to create the Capability Topics. These mostly align with Core Capabilities of the SEMC Emergency Management Capability Framework.

Table 6 displays the descriptions for each capability topic assessed using the Annual Preparedness Report Capability Survey, and the organisation type(s) to which it applies.

Framework Capability Area	Capability Topic	Topic description	HMA	CA	ESP	LG	ESS	IB
Analysis and Continuous Improvement	Risk Assessment	Extent of risk assessment skills, and use of findings[15].	●	●	●	●	●	●
	Horizon Scanning	Keeping informed of best practice through review of recent hazard information and monitoring events that occur intrastate, interstate and internationally.	●	●	●	●	●	
	Hazard Information	Keeping informed of best practice through review of recent hazard information.						●
	Lessons Management	Evaluation of performance following an incident, emergency or exercise. Assess and/or amend plans, policies and procedures based on recent hazard information, incidents, response, recovery and exercises. Review and monitor effectiveness of amendments.	●	●	●	●	●	●
Community Involvement	Alerts and Warnings Quality	Procedures. Ensure alerts and warnings are coordinated with other agencies, timely, reliable and actionable.	●					
	Alerts and Warnings Tools	Emergency/hazard information is provided to the public during response using radio, television, SMS/text messaging, bulk email, websites, Facebook, Twitter, emergency alerts and the Emergency WA website.	●					
	Public Information Quality	Availability of communications personnel. Procedures ensure emergency/hazard information is coordinated with other agencies, timely, reliable, actionable, clear, consistent and accessible. Information caters for culturally and linguistically diverse groups, people with a disability/special needs, those with lower skills in literacy and numeracy, the elderly and tourists.	●	●	●	●	●	●
	Public Information Tools	Emergency/hazard information is provided to the public during prevention, preparedness and recovery using radio, television, newspapers, SMS/text messaging, bulk email, websites, Facebook, Twitter, Instagram, YouTube, newsletters, pamphlets/brochures, public talks/meetings.	●	●	●	●	●	●
	Sector Information Sharing	Extent of information sharing about individual risks, vulnerable elements[16] and treatment options with state government agencies, LG, business/industry and communities.	●	●	●	●		●

Table 6: Capability Topic by organisation group

15 ESS are not asked about use of risk assessments

16 Examples include, but are not limited to, social groups (such as the elderly, and culturally and linguistic diverse groups), endangered species, areas of scientific significance, essential services and critical assets.

Framework Capability Area	Capability Topic	Topic description	HMA	CA	ESP	LG	ESS	IB
Planning and Mitigation	Natural Buffers	Natural buffers[17] that aid community protection are identified, protected, maintained/ enhanced and monitored.				●		
	Infrastructure Protection	Identification of likely impacts hazards might have on critical infrastructure and important community assets. Plans are in place to protect critical infrastructure, important community assets, residential properties, assets supporting livelihood and cultural places[18].		●		●		
	Critical Infrastructure	Identification of likely impact that hazards might have on critical infrastructure. Plans are in place to protect critical infrastructure.			●			●
	Essential Services Protection	Plans to protect the continuity of these essential services for their organisation: power, telecommunications, water, sewerage, road networks, fuel, food distribution and shelter/ accommodation.	●					
	Essential Services Protection	Plans to protect the continuity of these essential services for their organisation: power, telecommunications, water, sewerage, fuel, food distribution, shelter/accommodation and LG services. Plans to protect road networks and LG services for the community.				●		
	Remoteness Planning	Planning for emergencies that occur in remote areas[19].	●	●				
	Business Continuity Plans	Effectiveness of the Business Continuity Plan, and whether it considers EM hazard-specific risks and fatigue management.	●	●	●	●	●	●
Resources	EM Personnel	The extent to which prevention/mitigation, response and recovery personnel within the organisation are trained, capable, supported and sufficient in number.	●	●	●	●		
	Finance and Administration	Funding for proactive measures/mitigation, response and recovery is available, sufficient and accessible. Ability to track expenditure for particular emergencies (e.g. individual cost codes).	●	●	●	●		
	Equipment and Infrastructure	Ability to manage multiple concurrent emergencies with existing equipment and infrastructure. Plans in place to address equipment mobilisation, pre-deployment, peak surges and outages.	●	●	●	●		

Table 6: Capability Topic by organisation group

17 The natural environment can provide natural buffers that mitigate the impacts of hazards and protect the community. Examples include mangroves or wetlands that may mitigate flooding or storm surge, vegetation to protect against slope instability or dune systems that may mitigate coastal erosion.

18 E.g. heritage sites, memorials, churches, sporting facilities, etc.

19 Remote areas are those places that are difficult to access. They can include remote Aboriginal communities, pastoral stations, offshore communities, etc.

Framework Capability Area	Capability Topic	Topic description	HMA	CA	ESP	LG	ESS	IB
Emergency Response	Situational assessment	Extent to which situational assessments are effective, and if they determine the nature and extent of the hazard, the vulnerable elements and the resources required.	●	●	●	●	●	●
	Evacuations	Ability, plans and sufficient resources to support directed and recommended evacuations. Pre-emergency evacuation planning is included in their LEMA.				●		
	Evacuation/ Welfare Centres	Evacuation/welfare centres have redundancies for food, water, shelter and power.				●		
	Agency Interoperability (including MOU)	Availability of intrastate, interstate, national and international agreements for assistance during large-scale emergencies. Protocols /structures define the interrelationships between stakeholders. Coordination structures are effective, interoperable, functional, manageable/serviceable, and consider recovery implications. Communication systems are effective and interoperable with other agencies.	●	●	●	●		
	Emergency MOU	Availability of intrastate, interstate, national and international agreements for assistance during large-scale emergencies.					●	
Impact Management and Recovery	Community Welfare	Community services are available, timely and sufficient. Plans are in place to manage directly impacted persons, family and friends of impacted persons, and short-term and ongoing mental health/wellbeing support. Extent of strategies for re-establishment of community activities.				●		
	Impact Assessment[20]	Ability to contribute to a Comprehensive Impact Assessment. Findings are used to inform recovery coordination, EM planning and prevention/mitigation priorities.	●	●	●	●		
	Recovery Resources	Availability of resources to support the reconstruction/restoration of built, social, economic and natural environments.				●		
	Recovery Skills	Availability of skills to support the reconstruction/restoration of built, social, economic and natural environments.				●		
	Sustained Recovery	Sufficiency of resources to sustain a recovery response for 3, 6, 12 and 18+ months.				●		
	Recovery Plans	Recovery Plans include input from HMAs, combat agencies/supporting organisations, ESPs, other LGs, NGOs, business/industry and communities.				●		

20 HMAs were also asked about their ability to coordinate comprehensive impact assessments.

Table 6: Capability Topic by organisation group

Appendix B
State Risk Project

The State Risk Project (the Risk Project) was undertaken during 2013-2021 in order gain a better understanding of the most significant risks facing the State. The outcomes of this work can assist the State Government and LGs to understand and prioritise risk management activities and the development of capabilities to manage high risks.

B.1 Methodology

The Risk Project is based on the National Emergency Risk Assessment Guidelines (NERAG) which provides a risk assessment methodology consistent with the AS/NZ ISO 31000:2018 but relevant to the context of emergency management. The Risk Project generated an integrated and comprehensive understanding of the multiple risks related to each prescribed hazard.

The NERAG risk assessment process includes three steps – Identify, Analyse and Evaluate, illustrated at Figure 24.

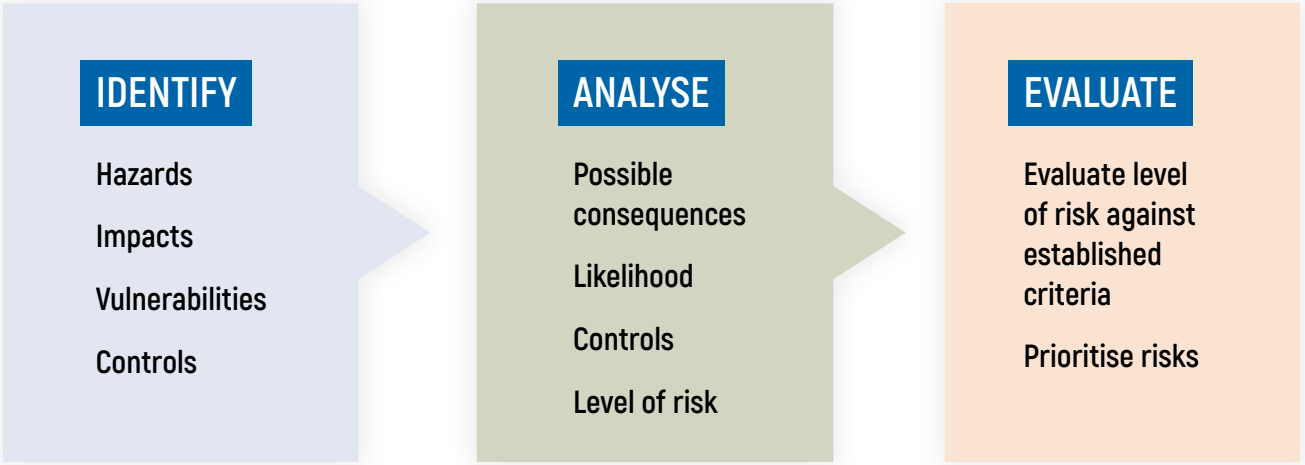


Figure 24: NERAG risk assessment process

The Risk Project involved the creation of credible worst-case scenarios for the 28 prescribed hazards. The scenarios were used as a tool for identifying and analysing possible risks. While hazards might often eventuate as localised incidents more frequently, worst-case scenarios were designed to occur with a calculated probability ranging between being 1/50yr to 1/200yr events, depending on the relevant context in question.

'High risks' are identified using a correlation between the severity and likelihood of the anticipated consequences and the overall likelihood of the hazard occurring, with consequences

considered proportionately based on the population and economy of the area in question.

Consequence and likelihood are determined for each risk statement to identify the highest risks. While the statements and risk rating are specific to the scenario that was tested, the outcomes provide useful insights into underlying risks and vulnerabilities arising from the prescribed hazards.

Risk ratings are identified using a correlation between consequence of the risk occurring, likelihood of the risk occurring, and overall likelihood of the hazard occurring. Risk consequences are based proportionately on the location being considered and therefore vary when considering risk at a State, district, or local level.

Risk workshops were conducted to assess scenarios for all 28 hazards at a State level. District-level workshops assessed between 5-7 hazards each, depending on which hazards were considered to be the greatest risk to that district. Local risks are currently being determined using the same methodology.

Individual hazards were defined using 1-2 credible worst-case scenarios, generally defined as 1:100-year events. Analysis of the risks associated with the credible worst-case scenario provided a baseline qualitative risk analysis consistent with contemporary EM practices.

STATE LEVEL	DISTRICT LEVEL	LOCAL LEVEL
Risk assessment workshops were conducted to assess State level risk for all 28 hazards.	Between 5-7 hazards were assessed per district, depending on which hazards were considered to be the greatest threat for that district.	Between 3-7 hazards are assessed per local government, depending on which hazards are considered of greatest threat for that local government area.
Risks were assessed using 1-2 scenarios per hazard.	Risks were assessed using 1-2 scenarios per hazard.	Risks are assessed using 1 localised scenario per hazard.
Risks are categorised into 6 themes as defined by NERAG 2010: people, economy, infrastructure, public administration, environment, and social impacts.	Risks are categorised into 5 themes as defined by NERAG 2015: people, economy, public administration, environment, and social impacts.	Risks are categorised into 5 themes as defined by NERAG 2015: people, economy, public administration, environment, and social impacts.

Table 8: Risk scenario scoping for State, district and local levels

B.2 Findings

The Risk Project found that the hazards of human pandemic and animal or plant biohazard posed the highest risk to the State because they could impact human health, economies, social settings and the environment across the entire State. This assessment was completed prior to the COVID-19 pandemic and the forecast impacts have proven to be realistic.

The Risk Project also found that the occurrence of a large-scale natural disaster in Perth, such as an earthquake, poses a high risk of death or injury, displacement of people and disruption to economy, administration, and community.

Although cyclones, floods, storm, and fires occur every year, they were not rated as the highest risks to the State because they tend to cause local or district-level impacts rather than Statewide impacts.

These hazards were, however, rated as a higher risk in district and local risk assessments, reflecting the significant impacts they can cause for local communities.

The findings of the Risk Project enable the EM sector to understand the capabilities and controls required to mitigate and manage higher risks and to ensure we are prepared to manage the emergency itself, as well as the impact and consequences of the emergency. Risk assessment is therefore an important tool to inform investment in mitigation, capability, and preparedness.

B.3 Risk Controls

Western Australia has implemented numerous controls to reduce the likelihood and severity of impacts from hazards.

There are different types of risk control:

- Controls to prevent the hazard occurring, such as hazard reduction burning and transport safety regulations
- Controls to protect or defend people and places or assets of value from the impacts of a hazard, such as fire breaks, flood levies, building and planning controls, as well as fire fighting
- Controls to *reduce the impact* of the hazard, such as evacuation

Western Australia has implemented numerous controls to reduce the likelihood and severity of impacts from our more frequent hazards. In areas that are prone to certain risks - such as fires, storms, cyclones and floods - community warning systems, planning regulations and building codes all assist in managing the risks posed. The potential impacts of these hazards are therefore more likely to be controlled.

By comparison, there is considerable uncertainty around exactly where and when hazards may occur and the harm they may cause. Accordingly, the State needs a range of controls and powers that can be used to mitigate the hazard itself and/or its impacts.

TC Seroja is an example of using controls appropriate to the occurrence of a hazard. It occurred in an area that does not typically experience cyclones, and hence preparedness through building standards and community education was low. The focus was therefore on keeping people safe and restoring order post-event. The COVID-19 pandemic is another example. It could not be prevented in advance but the State used legislative powers to manage impacts by controlling the spread of the virus.

The Risk Project involved identification of controls that could manage or reduce the identified risks. Understanding risks and controls assist the sector to understand the capabilities needed to manage risks and implement effective controls.

Appendix C Local Government Types and Emergency Management Districts

This section provides information on how local governments (LGs) are grouped for analysis in this Report.

Figure 27 shows the grouping of LGs into LG types using a modified version of the Australian Classification of Local Governments[21].

There are 137 LGs surveyed across WA, of which only 127 were surveyed in 2021 due to the impacts of TC Seroja. Of these, 117 (92%) completed the Survey.

Of the LGs who did not submit a survey, all were country LGs. Most (8 out of 10) were small agricultural LGs.

In this analysis, all LGs who did not submit a survey were treated as having scores of zero across all Capability Topics. While this slightly underestimates capability levels across the State, it ensures that capability gaps are captured in the data, and that a consistent base of measurement is used for all levels of analysis.

21 Note: Local Government National Report 2014-15, Australian Government Department of Infrastructure and Regional Development. regional.gov.au/local/publications/reports/2014_2015/LGN_REPORT_2014-15.pdf

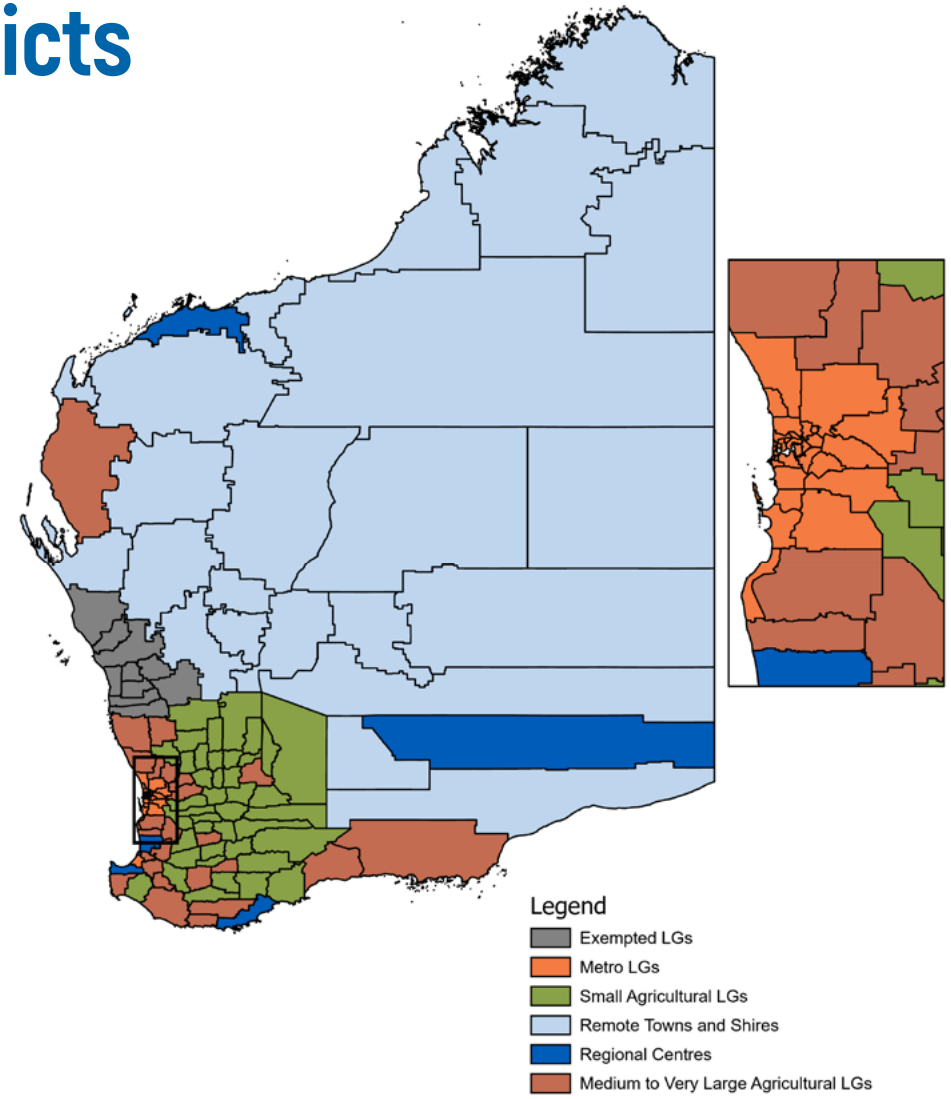
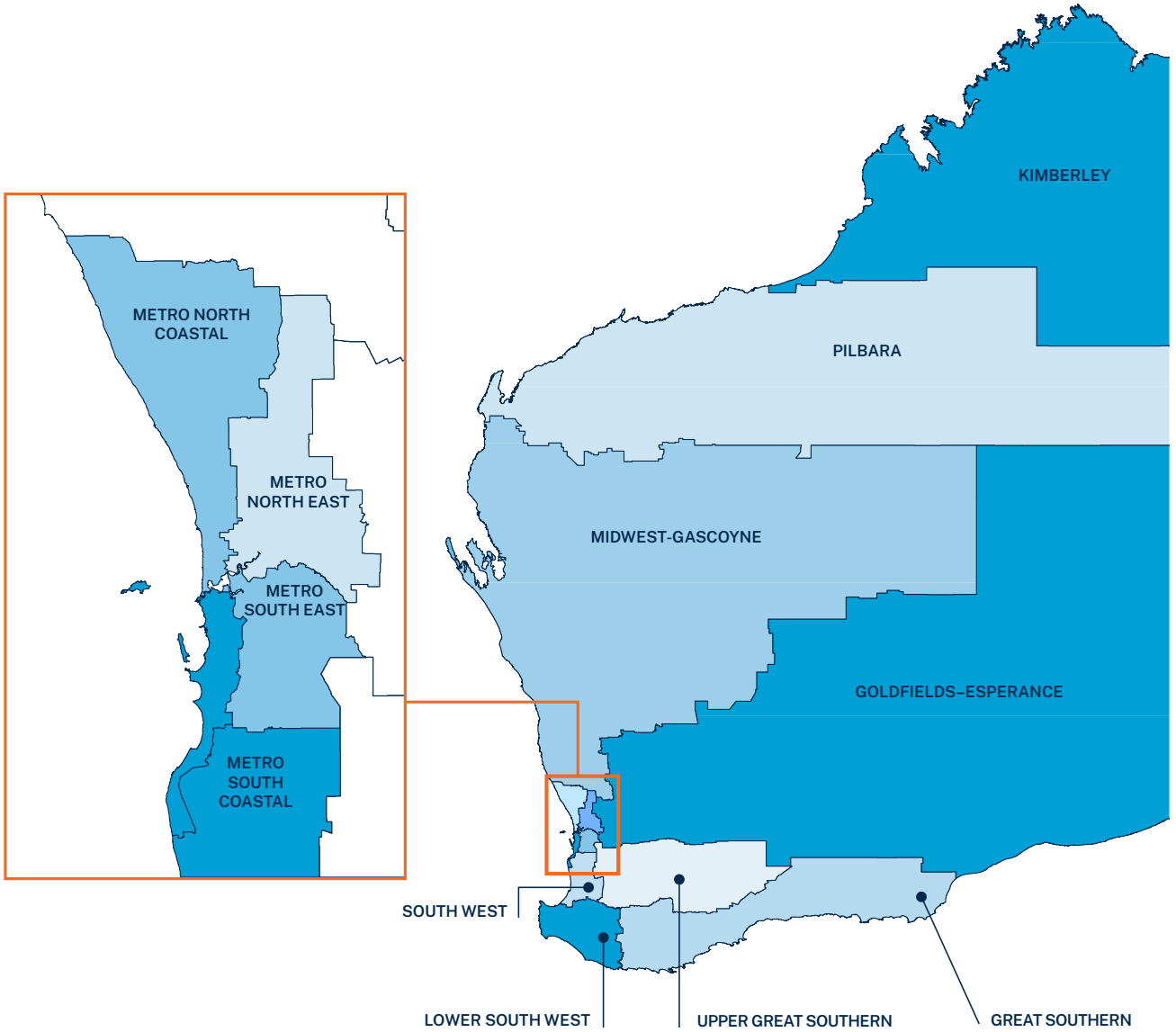


Figure 27: Australian Classification of Local Governments (Combined) 2014-2015

C.1 EM Districts

The map below shows the EM districts used for reporting and analysis by the SEMC.



C.2 LG Types

The table below shows the list of local governments surveyed along with their LG type and EM district.

LOCAL GOVERNMENT NAME	EM DISTRICT	LG TYPE
Esperance	Goldfields-Esperance	Medium to Very Large Agricultural LGs
Boddington	Great Southern	Medium to Very Large Agricultural LGs
Denmark	Great Southern	Medium to Very Large Agricultural LGs
Katanning	Great Southern	Medium to Very Large Agricultural LGs
Kojonup*	Great Southern	Medium to Very Large Agricultural LGs
Narrogin	Great Southern	Medium to Very Large Agricultural LGs
Plantagenet	Great Southern	Medium to Very Large Agricultural LGs
Ravensthorpe	Great Southern	Medium to Very Large Agricultural LGs
Carnarvon	Midwest-Gascoyne	Medium to Very Large Agricultural LGs
Irwin#	Midwest-Gascoyne	Medium to Very Large Agricultural LGs
Northampton#	Midwest-Gascoyne	Medium to Very Large Agricultural LGs
Murray	South Metro	Medium to Very Large Agricultural LGs
Waroona	South Metro	Medium to Very Large Agricultural LGs
Augusta-Margaret River	South West	Medium to Very Large Agricultural LGs
Bridgetown-Greenbushes	South West	Medium to Very Large Agricultural LGs
Collie	South West	Medium to Very Large Agricultural LGs
Dardanup	South West	Medium to Very Large Agricultural LGs
Donnybrook-Balingup	South West	Medium to Very Large Agricultural LGs

- LGs with an asterisk (*) did not submit a survey and have been recorded as a zero (0) score for all questions.
- LGs marked with a hash (#) and shaded were heavily impacted by TC Seroja and are not included in the analysis. All impacted LGs are in the Mid-west Gascoyne EM District.

C.2 LG Types continued

The table below shows the list of local governments surveyed along with their LG type and EM district.

LOCAL GOVERNMENT NAME	EM DISTRICT	LG TYPE
Manjimup	South West	Medium to Very Large Agricultural LGs
Chittering	Wheatbelt	Medium to Very Large Agricultural LGs
Dandaragan	Wheatbelt	Medium to Very Large Agricultural LGs
Gingin	Wheatbelt	Medium to Very Large Agricultural LGs
Merredin	Wheatbelt	Medium to Very Large Agricultural LGs
Moora	Wheatbelt	Medium to Very Large Agricultural LGs
Northam	Wheatbelt	Medium to Very Large Agricultural LGs
Toodyay	Wheatbelt	Medium to Very Large Agricultural LGs
York	Wheatbelt	Medium to Very Large Agricultural LGs
Bassendean	Central Metro	Metro LGs
Bayswater	Central Metro	Metro LGs
Cambridge	Central Metro	Metro LGs
Claremont	Central Metro	Metro LGs
Cottesloe	Central Metro	Metro LGs
Kalamunda	Central Metro	Metro LGs
Mosman Park	Central Metro	Metro LGs
Mundaring	Central Metro	Metro LGs
Nedlands	Central Metro	Metro LGs

C.2 LG Types continued

The table below shows the list of local governments surveyed along with their LG type and EM district.

LOCAL GOVERNMENT NAME	EM DISTRICT	LG TYPE
Peppermint Grove	Central Metro	Metro LGs
Perth	Central Metro	Metro LGs
Subiaco	Central Metro	Metro LGs
Swan	Central Metro	Metro LGs
Vincent	Central Metro	Metro LGs
Armadale	East Metro	Metro LGs
Belmont	East Metro	Metro LGs
Canning	East Metro	Metro LGs
Gosnells	East Metro	Metro LGs
Serpentine-Jarrahdale	East Metro	Metro LGs
South Perth	East Metro	Metro LGs
Victoria Park	East Metro	Metro LGs
Joondalup	North Metro	Metro LGs
Stirling	North Metro	Metro LGs
Wanneroo	North Metro	Metro LGs
Cockburn	South Metro	Metro LGs
East Fremantle	South Metro	Metro LGs
Fremantle	South Metro	Metro LGs

C.2 LG Types continued

The table below shows the list of local governments surveyed along with their LG type and EM district.

LOCAL GOVERNMENT NAME	EM DISTRICT	LG TYPE
Kwinana	South Metro	Metro LGs
Mandurah	South Metro	Metro LGs
Melville	South Metro	Metro LGs
Rockingham	South Metro	Metro LGs
Capel	South West	Metro LGs
Kalgoorlie-Boulder	Goldfields-Esperance	Regional Centres
Albany	Great Southern	Regional Centres
Greater Geraldton#	Midwest-Gascoyne	Regional Centres
Karratha	Pilbara	Regional Centres
Bunbury	South West	Regional Centres
Busselton	South West	Regional Centres
Harvey	South West	Regional Centres
Coolgardie	Goldfields-Esperance	Remote Towns and Shires
Dundas	Goldfields-Esperance	Remote Towns and Shires
Laverton	Goldfields-Esperance	Remote Towns and Shires
Leonora	Goldfields-Esperance	Remote Towns and Shires
Menzies	Goldfields-Esperance	Remote Towns and Shires
Ngaanyatjarraku	Goldfields-Esperance	Remote Towns and Shires

LGs marked with a hash (#) and shaded were heavily impacted by TC Seroja and are not included in the analysis. All impacted LGs are in the Mid-west Gascoyne EM District.

C.2 LG Types continued

The table below shows the list of local governments surveyed along with their LG type and EM district.

LOCAL GOVERNMENT NAME	EM DISTRICT	LG TYPE
Wiluna	Goldfields-Esperance	Remote Towns and Shires
Broome	Kimberley	Remote Towns and Shires
Derby-West Kimberley	Kimberley	Remote Towns and Shires
Halls Creek	Kimberley	Remote Towns and Shires
Wyndham-East Kimberley	Kimberley	Remote Towns and Shires
Cue	Midwest-Gascoyne	Remote Towns and Shires
Meekatharra	Midwest-Gascoyne	Remote Towns and Shires
Mount Magnet*	Midwest-Gascoyne	Remote Towns and Shires
Murchison	Midwest-Gascoyne	Remote Towns and Shires
Sandstone	Midwest-Gascoyne	Remote Towns and Shires
Shark Bay	Midwest-Gascoyne	Remote Towns and Shires
Upper Gascoyne	Midwest-Gascoyne	Remote Towns and Shires
Yalgoo	Midwest-Gascoyne	Remote Towns and Shires
Ashburton	Pilbara	Remote Towns and Shires
East Pilbara	Pilbara	Remote Towns and Shires
Exmouth	Pilbara	Remote Towns and Shires
Port Hedland	Pilbara	Remote Towns and Shires
Brookton	Great Southern	Small Agricultural LGs

LGs with an asterisk (*) did not submit a survey and have been recorded as a zero (0) score for all questions.

C.2 LG Types continued

The table below shows the list of local governments surveyed along with their LG type and EM district.

LOCAL GOVERNMENT NAME	EM DISTRICT	LG TYPE
Broomehill-Tambellup	Great Southern	Small Agricultural LGs
Corrigin	Great Southern	Small Agricultural LGs
Cranbrook*	Great Southern	Small Agricultural LGs
Cuballing	Great Southern	Small Agricultural LGs
Dumbleyung	Great Southern	Small Agricultural LGs
Gnowangerup	Great Southern	Small Agricultural LGs
Jerramungup	Great Southern	Small Agricultural LGs
Kent	Great Southern	Small Agricultural LGs
Kondinin*	Great Southern	Small Agricultural LGs
Kulin	Great Southern	Small Agricultural LGs
Lake Grace	Great Southern	Small Agricultural LGs
Pingelly*	Great Southern	Small Agricultural LGs
Wagin	Great Southern	Small Agricultural LGs
Wandering	Great Southern	Small Agricultural LGs
West Arthur	Great Southern	Small Agricultural LGs
Wickepin	Great Southern	Small Agricultural LGs
Williams*	Great Southern	Small Agricultural LGs
Woodanilling	Great Southern	Small Agricultural LGs

LGs with an asterisk (*) did not submit a survey and have been recorded as a zero (0) score for all questions.

C.2 LG Types continued

The table below shows the list of local governments surveyed along with their LG type and EM district.

LOCAL GOVERNMENT NAME	EM DISTRICT	LG TYPE
Carnamah#	Midwest-Gascoyne	Small Agricultural LGs
Chapman Valley#	Midwest-Gascoyne	Small Agricultural LGs
Coorow#	Midwest-Gascoyne	Small Agricultural LGs
Mingenew#	Midwest-Gascoyne	Small Agricultural LGs
Morawa#	Midwest-Gascoyne	Small Agricultural LGs
Perenjori#	Midwest-Gascoyne	Small Agricultural LGs
Three Springs#	Midwest-Gascoyne	Small Agricultural LGs
Boyup Brook	South West	Small Agricultural LGs
Nannup*	South West	Small Agricultural LGs
Beverley	Wheatbelt	Small Agricultural LGs
Bruce Rock	Wheatbelt	Small Agricultural LGs
Cunderdin	Wheatbelt	Small Agricultural LGs
Dalwallinu	Wheatbelt	Small Agricultural LGs
Dowerin	Wheatbelt	Small Agricultural LGs
Goomalling	Wheatbelt	Small Agricultural LGs
Kellerberrin	Wheatbelt	Small Agricultural LGs
Koorda	Wheatbelt	Small Agricultural LGs
Mount Marshall	Wheatbelt	Small Agricultural LGs

- LGs with an asterisk (*) did not submit a survey and have been recorded as a zero (0) score for all questions.
- LGs marked with a hash (#) and shaded were heavily impacted by TC Seroja and are not included in the analysis. All impacted LGs are in the Mid-west Gascoyne EM District.

C.2 LG Types continued

The table below shows the list of local governments surveyed along with their LG type and EM district.

LOCAL GOVERNMENT NAME	EM DISTRICT	LG TYPE
Mukinbudin	Wheatbelt	Small Agricultural LGs
Narembeen	Wheatbelt	Small Agricultural LGs
Nungarin*	Wheatbelt	Small Agricultural LGs
Quairading	Wheatbelt	Small Agricultural LGs
Tammin	Wheatbelt	Small Agricultural LGs
Trayning*	Wheatbelt	Small Agricultural LGs
Victoria Plains	Wheatbelt	Small Agricultural LGs
Westonia*	Wheatbelt	Small Agricultural LGs
Wongan-Ballidu	Wheatbelt	Small Agricultural LGs
Wyalkatchem	Wheatbelt	Small Agricultural LGs
Yilgarn	Wheatbelt	Small Agricultural LGs

LGs with an asterisk (*) did not submit a survey and have been recorded as a zero (0) score for all questions.

GOVERNMENT OF WESTERN AUSTRALIA

SEMC
STATE EMERGENCY MANAGEMENT COMMITTEE

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