

Emergency Risk Management **Framework**

July 2017



Emergency Risk Management Framework

Executive Summary

Recent disaster events and government reviews have highlighted the need to effectively manage emergency risks in a proactive manner. There is recognition that investment is not being effectively allocated with too much expenditure on recovery and not enough on disaster mitigation, resulting in significant opportunity costs.

In the past, there have been several iterations of Emergency Risk Management (ERM) within NSW, combined with evolving hazard-specific approaches to managing emergency risks. A scoping study on emergency risk management in NSW has recently been completed, which highlighted areas of strength in the current hazards-based approaches and a number of weaknesses.

Currently, local government undertakes broad all-hazards emergency risk assessments as part of the development of Local Emergency Management Plans (EMPLANS). In addition, councils, Bush Fire Risk Management Committees and some Functional Areas (e.g. Health Services, Agriculture and Animal Services) undertake specific risk management processes to manage flood, coastal, bush fire, health and biosecurity risks. Whilst some existing hazard-specific risk management approaches are often acknowledged as best practice (e.g. Floodplain and Bush Fire Risk Management), processes for assessing risk and making mitigation investment decisions lack effective integration and governance. There are also hazards that lack robust risk management processes (eg. earthquake, heatwave and storm) despite the fact they may present significant liabilities to the state.

As a result of these deficiencies it is impossible to know whether public money is being prudently directed towards managing the highest risks, or whether the

funds being spent are effectively addressing the risks. It is also important to ensure that the risk landscape is being constantly scanned to ensure that emerging risks are identified and managed.

The existing culture of the emergency management sector is described as response orientated rather than focused on proactively assessing and managing risk. There is recognition that this culture requires change to support a greater level of maturity and sophistication in the state's emergency risk management approach.

An integrated ERM framework will focus on enhancing risk based decision-making and inform the allocation of resources to proactively manage current and future emergency risks and strengthen emergency management capability and capacity. This will contribute to the overall vision of creating a safer, more disaster resilient NSW. The ERM Framework will form a key pillar of the Emergency Management Disaster Resilience Review.

Implementing an integrated risk management system will bring significant benefits at both state and local levels.

To progress this ERM Framework and facilitate a shift towards proactive and systematic emergency risk management across all hazards and agencies, detailed action plans, targets and milestones will be developed for the key outcomes identified. A series of principles have been articulated to guide the implementation of the framework (see Figure 3).

Vision

A New South Wales which is safer and more resilient to disasters.

Mission

To build an integrated emergency risk management system that informs decision making and the allocation of resources to proactively manage current and future emergency risks and strengthen emergency management capability and capacity.

Audience

This framework has been developed to provide a common approach and principles for the Emergency Management sector and NSW Government for emergency risk management. It also serves to inform non-government stakeholders regarding the direction and envisaged outcomes in this area, which will be advocated through relevant initiatives and relationships.

Guiding Principles

Emergency risk management **protects the safety and wellbeing of NSW communities** through proactively mitigating and effectively responding to risks.

Strong governance drives the management of emergency risks across all hazards through identified responsibilities and accountabilities.

Emergency risk management is an **integral** part of government and organisational planning, **and** its application is **tailored** to the NSW context.

Emergency risk management is an essential part of **decision making** and informs **prioritisation** of investment **and** addresses **uncertainty**.

Decision-making in emergency risk management is based on the **best available information and common approaches** are used to ensure compatibility.

Emergency risk management is **transparent and inclusive**, involving government agencies, infrastructure operators, businesses, non-government Organisations and communities.

Emergency risk management is **locally driven** to encompass the required detail, local knowledge, and enable community participation.

Emergency risk management **builds on** the current **strengths** of hazard-specific approaches, **and facilitates continual improvement**.

Emergency risk management is **integrated, coherent, systematic**, structured and timely.

Emergency risk management is **dynamic, iterative and responsive to change** and considers current and future risks to the safety and wellbeing of NSW.



Outcomes

The ERM Framework is designed to deliver outcomes across four priority areas: Governance, Methodology and Standards, Engagement and Communication, and Capability and Planning. Detailed action plans, targets and milestones will be developed for each area.

Governance and Strategy

1. Legislation, plans and policy reflect clear roles and responsibilities across prevention, preparedness, response and recovery phases.
2. Treatments to mitigate against current and future emergency risks and improve preparedness are implemented using a consistent and proactive approach.
3. Emergency risk management is integrated into land-use planning, infrastructure strategic planning and asset management.
4. Local government, agencies, businesses and communities are supported and empowered to manage priority emergency risks threatening their communities.

Methodology and Standards

5. Current and future risks are identified and prioritised using common approaches across all hazards using contemporary qualitative and quantitative data.
6. Management of emergency risk is monitored and reviewed through a process of Quality Assurance that includes evaluating risk treatments and is supported by information systems.

Engagement and Communication

7. Information sharing between agencies and with infrastructure operators, supported by efficient information management systems, ensures that the best information is available to decision makers.
8. A strong focus in the emergency management sector on continual improvement, proactive mitigation and management of emergency risks is engrained using a change management approach.

Capability and Planning

9. An emergency management sector capability and capacity framework is developed across all hazards and all agencies to proactively prepare for and effectively respond to current, and future, emergency risks.
10. Integrated all-hazards emergency risk management plans are established leveraging from the continued development and implementation of hazard specific risk management approaches.

Context and drivers for change

NSW is exposed to a broad spectrum of natural and technological hazards that threaten the safety and wellbeing of communities, causing significant death and destruction. Between 1966/67 and the 2013/14 financial years, natural disasters in NSW alone have resulted in normalised¹ insurance losses of some \$22.4 billion (updated from Crompton and McAneney, 2008).

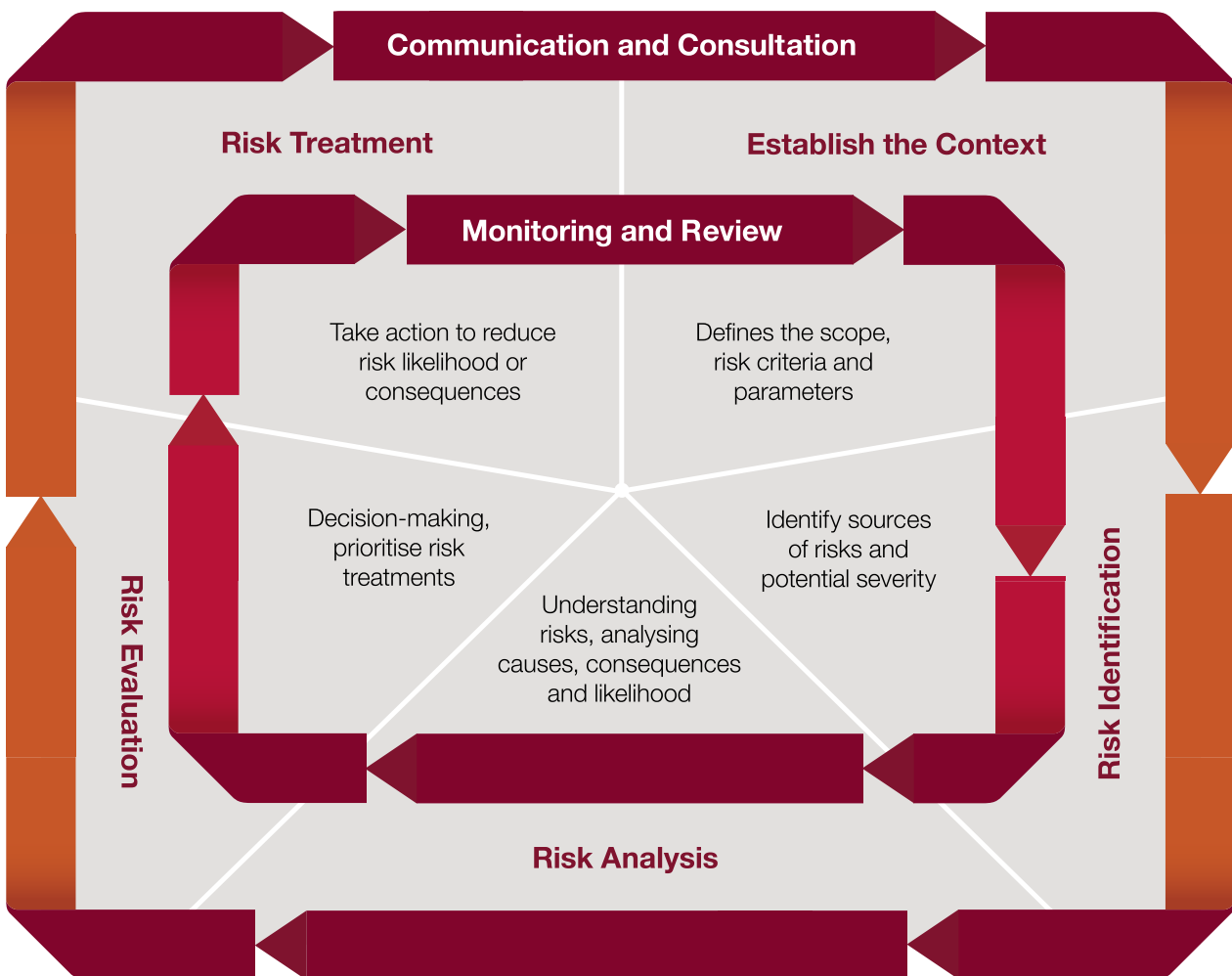
The direct economic cost of these events is unknown but likely to be between two and three times this figure. Natural disasters have also killed some 337 people in NSW between 1990 and 2015. These impacts have been forecast to rise as a result of increased population exposure to emergency events and the possible impacts of climate change on the frequency and severity of natural hazards. Other influences such as changes in cultural diversity, demographics and technology

will also influence emergency risks. This significant and diverse risk profile necessitates implementing effective risk management to strengthen the safety and resilience of NSW.

Emergency Risk Management

The purpose of ERM is to build safer, more resilient communities that can withstand, adapt and thrive when threatened by emergencies. The NSW State Emergency Management Plan defines ERM as “a systematic process of identifying, analysing, evaluating and treating emergency risks. Risk treatments include the reduction in frequency or consequence through prevention measures, and preparation, as well as provision for response and recovery should an emergency event occur.”

Figure 1: Risk Management Process



¹ Normalised losses effectively account for changes in population, wealth and inflation as well as improvements in construction standards.

The Australian Government Productivity Commission (2014) concluded that effective ERM involves:

- owning risk — taking responsibility for managing and funding risks
- understanding risk — identifying which risks are faced and their likely consequences
- treating risk — making decisions on how to best manage risks, such as through mitigation, insurance or by retaining risks.

The risk management process is illustrated in Figure 1. This is informed by the National Emergency Risk Assessment Guidelines (NERAG), which are consistent with the International Standard on Risk Management (ISO 31000).

Risk management involves: establishing the context; identifying risks; analysing the causes, sources, consequences and likelihood of risks; evaluating risks to assist with decision-making and prioritisation; and treating risks to reduce their likelihood or consequences.

Monitoring and review, and communication and consultation with stakeholders occur throughout the entire process.

International and Australian context

International and domestic policies for ERM place increasing emphasis on resilience and risk reduction, the need for strong governance, accountability and stakeholder involvement, and the importance of coherent and integrated systems that enable information sharing and collaboration. Table 1 summarises policies and strategies that are important in the NSW context.

Table 1: International and National Policy Context

Policy name	Sendai Framework for Disaster Risk Reduction (2015-2030)	National Strategy for Disaster Resilience	Natural Disaster Funding Arrangements	National Risk Assessment Guidelines (NERAG)
Author	United Nations	Council of Australian Governments	Productivity Commission	Attorney General's Department
Scope	International	National	National	National
	<p>The purpose of the framework is to:</p> <p>“prevent new and reduce existing disaster risk through the implementation of integrated and inclusive economic, structural, legal, social, health, cultural, educational, environmental, technological, political and institutional measures that prevent and reduce hazard exposure and vulnerability to disaster, increase preparedness for response and recovery, and thus strengthen resilience”</p> <p>(United Nations, 2015; p 12)</p>	<p>The strategy provides high level guidance. Key points include:</p> <ul style="list-style-type: none"> – risk assessments are undertaken for priority hazards and widely shared among at-risk communities, stakeholders and decision makers – consistent methodologies and data frameworks are applied in risk and disaster impact assessments to enable information sharing and accurate interpretation – costs and benefits associated with hazard management inform risk reduction activities. <p>(Council of Australian Governments, 2011; p.7)</p>	<p>The Productivity Commission recommends:</p> <ul style="list-style-type: none"> – funding for disaster mitigation be gradually increased – mitigation projects be supported by evaluations that are consistent with state risk assessments. – enhanced emergency risk management of public assets – increased transparency and accountability of state expenditure and asset management <p>(Australian Government Productivity Commission, 2014, p.36)</p>	<p>The guidelines encourage government agencies to develop and maintain an emergency risk management framework consistent with ISO 31000.</p> <p>The NERAG aims to:</p> <ul style="list-style-type: none"> – enable consistent and rigorous emergency-related risk assessments – increase the quality and comparability of risk assessments – improve the national evidence base on emergency-related risks <p>(Attorney General's Department, 2015)</p>

Current NSW Context

In NSW, recent disaster events and government reviews have highlighted the need to effectively manage emergency risks. An Emergency Management and Disaster Resilience Review has recently commenced, which will examine five key pillars, one of which includes ERM. ERM will form the nucleus of capability and capacity development and planning to address existing and future priority risks for the state. This reflects the priority to proactively understand, prioritise and manage emergency risks.

Local governments are also undertaking broad all-hazards emergency risk assessments as part of the development of Local Emergency Management Plans (EMPLANS). In addition, councils, Bush Fire Risk Management Committees and some Functional Areas are undertaking specific risk management processes to manage flood, coastal, bush fire, health and biosecurity risks.

There are hazard-specific approaches for a number of hazards in NSW, and some of these approaches are acknowledged as best practice, for example floodplain and bush fire risk management. This ERM Framework respects the strength and maturity of hazard-specific approaches. It does not attempt to replace these but to leverage these in an integrated fashion to address weaknesses in the current system. Drawing on the 2011 NSW State Natural Disaster Risk Assessment and the scoping study, a range of issues have been identified, including:

- lack of clarity in roles and responsibilities
- limited focus on proactive hazard/risk mitigation work
- some hazards lack robust risk management processes (e.g. earthquake, heatwave and storm) despite the fact they may present significant liabilities to the state
- lack of effective sharing of information on current risks and management measures
- gaps in regulatory and legislative arrangements impacting on emergency risk management of hazards
- lack of integration between risk assessment and all agencies capability planning
- lack of strategic monitoring and review of emergency risk management plans.

As a result of these issues, it is difficult to confirm whether the investment of public monies is being prudently directed towards managing the highest priority risks, or whether monies being spent are effectively addressing the risks.

Emergency Risk Management Framework

The purpose of an all-hazards ERM Framework is to build systems, capacity and culture to continually identify, assess, analyse and manage emergency risks in a systematic and integrated manner. It will enable:

- consistent and rigorous assessment of existing and future emergency risks across all hazards
- defensible prioritisation of the different risks
- improved decision-making regarding the allocation of scarce resources with a focus on mitigation.

Figure 2 illustrates the integrated ERM Framework. Importantly, this ERM Framework will build on and leverage the strengths of current approaches to improve the understanding, prioritisation, effectiveness and efficiency of risk management in NSW.

Benefits

There are significant benefits in developing an integrated ERM approach at both state and local levels. These include:

- re-orientating ERM towards a proactive, mitigation focus rather than a reactive response approach to yield an increased return on investment in the future
- understanding and prioritising risks, including the influence of societal, technological and environmental changes
- enabling horizon scanning by looking at current and future risks
- enhancing the public and private sectors understanding of and participation in emergency risk management activities
- understanding implications of infrastructure regulation and interdependencies between essential services
- prioritising mitigation activities and ensuring mitigation investment is efficient and prioritised to address the most significant risks facing communities
- understanding emergency management capability, capacity and preparedness gaps and investment priorities
- a consistent and cohesive approach to risk locally via the inclusion of ERM in the Local Government Integrated Planning and Reporting Framework
- meeting Commonwealth Government requirements for risk information
- reducing the potential costs of disasters by investing in mitigation

- improving the information base to inform and integrate emergency risk based land-use planning
- increasing community knowledge of emergency risks and their management
- enhancing the governance of emergency risks at all levels through better visibility of risks and their management
- understanding interdependencies between emergency risks and subsequent impacts on communities
- ensuring communities are better protected by planning and considering risk treatments for hazards that currently do not have specific risk management frameworks
- enhancing risk-based emergency response planning.

Principles

The ERM Framework provides an overarching structure to ensure ERM investment and prioritisation is based on the best available information for all hazards and risks that threaten NSW communities. It also ensures that ERM across the state is integrated, systematic, and efficient. The ERM Framework principles outlined in Figure 3 will guide organisations and agencies in NSW to conduct effective risk management and invest efficiently in risk mitigation.

Figure 2: Emergency Risk Management Framework



“Figure 2 illustrates the integrated ERM Framework. Importantly, this ERM Framework will build on and leverage the strengths of current approaches to improve the understanding, prioritisation, effectiveness and efficiency of risk management in NSW.”

ERM Framework Principles (Figure 3)

Protects the safety and wellbeing of NSW communities	<ul style="list-style-type: none"> • Ensure the safety and wellbeing of NSW communities by proactively mitigating and effectively responding to emergency risks.
Strong governance	<ul style="list-style-type: none"> • Roles and responsibilities are clearly defined in legislation, plans and policies for all hazards and across preparedness, prevention, response, and recovery phases.
Integral and tailored	<ul style="list-style-type: none"> • ERM is integrated throughout the planning, processes and practices of organisations and governments. • ERM is tailored to meet the needs of NSW and its communities.
Decision making, prioritisation and uncertainty	<ul style="list-style-type: none"> • ERM helps decision makers to proactively identify and prioritise current and future emergency risks, make informed choices, and prioritise investments and actions in the context of uncertainty.
Best available information and common approaches	<ul style="list-style-type: none"> • Decision making is based on information from a range of sources and takes into account any limitations of the data or modelling. • Common approaches across hazards are used to enhance compatibility of information.
Transparent and inclusive	<ul style="list-style-type: none"> • Stakeholders, communities, infrastructure operators, businesses, government agencies, and NGOs are involved in decision-making processes. • Justifications for decisions are clear.
Locally driven	<ul style="list-style-type: none"> • Local knowledge and community participation drive ERM. • Local governments, agencies and communities are empowered to manage risks threatening their communities.
Builds on strengths, facilitates continual improvement	<ul style="list-style-type: none"> • ERM builds on the strengths of hazards-based approaches. • Monitoring, review, and quality assurance foster improved emergency risk management. • Change management and capability and capacity planning help the emergency management sector to continually improve.
Integrated, coherent, systematic	<ul style="list-style-type: none"> • Assessments, prioritisation and planning consider all hazards and all agencies. • Information management systems are developed to support information sharing, monitoring and analysis.
Dynamic, iterative, and responsive to change	<ul style="list-style-type: none"> • ERM is responsive to changes to hazards, risks and NSW communities. • Monitoring and reviews are undertaken to understand changes and facilitate improvements. • Horizon scanning is used to determine and evaluate emergency risk evolution.

Outcomes and Actions

The ERM Framework is designed to deliver outcomes across four priority areas: Governance, Methodology and Standards, Engagement and Communication, and Capability and Planning. Detailed action plans, targets and milestones will be developed for each area.

Governance and Strategy

This priority area considers the strategic direction for ERM and the governance of risk in NSW. There are four key outcomes.

1. Legislation, plans and policy reflect clear roles and responsibilities across prevention, preparedness, response and recovery phases.

- Roles and responsibilities for all government agencies and departments, local government, functional areas and all stakeholders are clearly defined and understood across prevention, preparedness, response and recovery phases
- 'Risk Owners' are identified for each hazard and support a systematic and integrated approach to risk management. Risk Owners are responsible for assessing the risk and co-ordinating risk management measures across the spectrum of prevention, preparedness, response and recovery
- Clear criteria are used to determine the escalation of risks to Regional and State levels.

2. Treatments to mitigate against current and future emergency risks and improve preparedness are implemented using a consistent and proactive approach.

- Mitigation and preparedness continue to be key priorities for the emergency management sector
- Mitigation investments are targeted and prioritised based upon the level of risk and the cost effectiveness of the proposed risk treatments
- Risk assessments are used to inform practical mitigation and preparedness work.

3. Emergency risk management is integrated into land-use planning, infrastructure strategic planning and asset management.

- ERM is integrated into land-use planning to ensure consistent consideration of all hazards
- ERM is embedded in the asset management planning and risk management practices of local and state governments, departments and agencies

- Current arrangements for emergency risks faced by private infrastructure owners/operators are reviewed and understood.

4. Local government, agencies, businesses and communities are supported and empowered to manage priority emergency risks threatening their communities.

- ERM is informed by local knowledge about hazards, risks and communities
- Communities, businesses and other stakeholders actively participate throughout the spectrum of prevention, preparedness, response and recovery
- Communities and local stakeholders have access to local risk information and are supported to develop risk-based local emergency risk management plans outlining mitigation priorities.

Methodology and Standards

This priority area considers assessment, prioritisation, and monitoring in ERM. There are two key outcomes.

5. Current and future risks are identified and prioritised using common approaches across all hazards using contemporary qualitative and quantitative data.

- Common approaches to assess and prioritise risks are used across all hazards, enabling the identification of the top risks facing NSW. This ensures that investment and resource allocation decisions are robustly justified
- A common all hazards risk assessment criteria is developed to facilitate information sharing and strengthen decision-making and investment prioritisation
- An analysis of existing risk assessments identifies knowledge gaps on a state-wide scale and prioritises research needs, including developing enhanced risk assessment techniques
- Emergency risk assessments consider climate change and future societal changes.

6. Management of emergency risk is monitored and reviewed through a process of Quality Assurance that includes evaluating risk treatments and is supported by information systems.

- Governance of emergency risks at all levels is enhanced through better visibility of risks and their management

- Monitoring and review ascertains whether risk treatments have been efficient and effective, and identifies lessons and areas for improvement
- Integrating ERM through the local government Integrated Planning and Reporting Framework to enhance overall monitoring and governance of emergency risk management activities
- Systematic and structured monitoring is supported by an overall information management system for ERM and a software solution to enable monitoring of risk assessments and treatment plans.

Engagement and Communication

This priority area considers issues related to information sharing and building an integrated and cohesive emergency management framework. There are two key outcomes.

7. Information sharing between agencies and with infrastructure operators, supported by efficient information management systems, ensures that the best information is available to decision makers.

- Hazard data is made available across stakeholders and communities to enable improved risk management to the greatest extent possible
- Analysis is undertaken to understand interdependencies between emergency risks and subsequent impacts on communities
- An information management system is developed to allow agencies and organisations to securely share information
- Intellectual property issues are resolved to enable sharing of risk information to the greatest extent possible
- Continue taking an all-hazards, all agencies approach to information sharing to enable analysis and identify gaps in the provision of spatial data, e.g. vulnerable facilities
- Continue to prioritise collecting and collating vulnerability data to improve risk understanding.

8. A strong focus in the emergency management sector on continual improvement, proactive mitigation and management of emergency risks is engrained using a change management approach.

- Support change management across the emergency management sector to build cross-agency collaboration and introduce an emphasis on proactive mitigation and preparedness work

- Changes are supported by an information management system that facilitates cross-agency collaboration and continual monitoring and review of emergency risks
- Communication, engagement and support to enable these changes is required, including: leadership and sponsorship from the top, clear goals and defined performance benchmarks, legislated roles and responsibilities, ERM training, funding and resourcing, sharing of guidelines, tools, cases studies and lessons learnt, and clearly defined linkages between different processes.

Capability and Planning

Ensuring that capability and planning encompass all hazards and all agencies is an important aspect of developing an integrated Emergency Risk Management Framework. There are two key outcomes.

9. An emergency management sector capability and capacity framework is developed across all hazards and all agencies to proactively prepare for and effectively respond to current, and future, emergency risks.

- Future capability and capacity planning and preparedness activities are prioritised based on risks
- An all hazards, all agencies capability planning framework is established that enables the continual assessment of capacity and capabilities against targeted levels based on current and future risks.

10. Integrated all-hazards emergency risk management plans are established leveraging from the continued development and implementation of hazard specific risk management approaches.

- All-hazards plans should build on existing hazard specific risk management approaches without duplication, draw on common metrics for risk assessments and evaluations, as well as facilitated information sharing between agencies
- Risk treatments for hazards that currently do not have hazard-specific risk management frameworks are considered and planned where appropriate
- Mitigation investments in NSW should be readily prioritised across all hazards and continually improve our risk understanding will continue to improve
- Emergency risk management plans will be available to the community.

Next Steps

The ERM Framework, principles, outcomes and key actions define the pathway to strengthen emergency risk management in NSW and build systems, capacity and culture to identify, assess and treat emergency risks in an integrated manner. To progress the implementation of this ERM Framework and facilitate a shift towards proactive and systematic risk management across all hazards and all agencies, detailed action plans, targets and milestones will be developed for each of the ten outcomes.

Figure descriptions

Figure 1: Risk Management Process

The risk management process is informed by the National Emergency Risk Assessment Guidelines and the International Standard on Risk Management.

Figure 2: Emergency Risk Management Framework

The integrated Emergency Risk Management Framework builds on current hazard specific risk management approaches to inform investment and prioritisation.

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