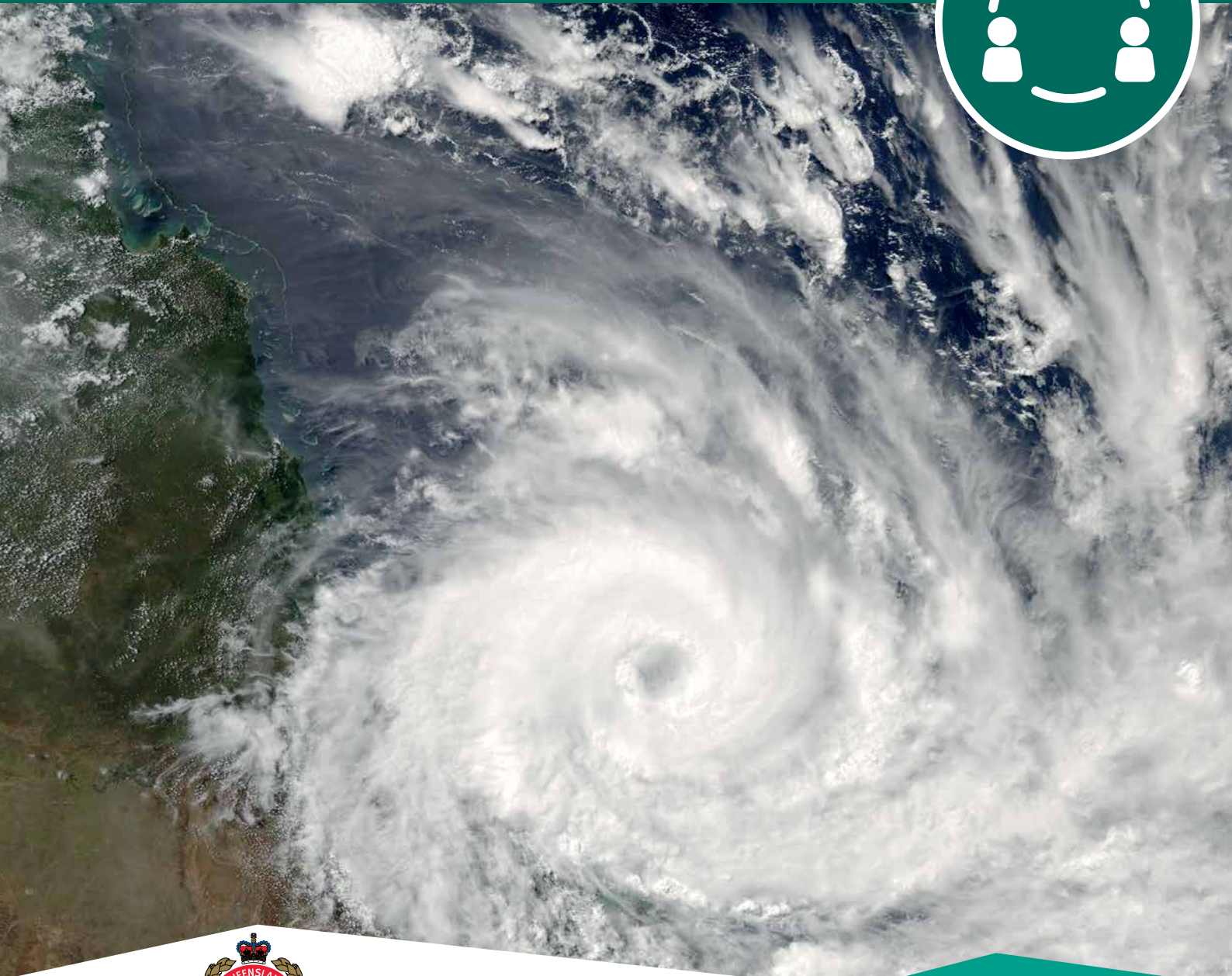Queensland Climate Adaptation Strategy

Emergency Management Sector Adaptation Plan for climate change

Queensland Government

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Foreword

The emergency management sector must constantly examine the risks that it is being challenged by now and scan the horizon for what may be emerging. This will ensure that it continues to be ready to deliver efficient and effective disaster management using the comprehensive approach of prevention, preparedness, response and recovery.

As identified in the 2017 State Natural Disaster Risk Assessment, Queensland is exposed to a range of hazards that can lead to significant consequences for our community. The impacts of these hazards will vary depending on local factors, such as geography, condition of the built and natural environment, resilience of the community, as well as organisational risk management and preparedness.

The changes in the frequency, intensity, distribution and duration of climate extremes resulting from climate change, coupled with the intensification of population growth and urban development in hazard-prone areas are likely to increase exposure and risks to Queensland communities and infrastructure. The implications for emergency and disaster management due to the variation in climate projections means risk management strategies must be continuously enhanced. We need to remain agile for dealing with climate-related disasters that have a high-level of impact on the delivery of sector services and, long term climate shifts that have the potential to erode capacity and capability over time.

The World Economic Forum ranked 'failure of climate change mitigation and adaptation' as its highest risk in terms of impact and third highest in terms of likelihood (2016). As such, the Emergency Management Sector Adaptation Plan (EM-SAP) envisages 'an adaptive emergency management sector that is fully engaged with the risks and opportunities of a changing climate, building resilience together with the communities of Queensland.' This is consistent with the over-arching

Queensland Government's Climate Adaptation Strategy (Q-CAS) 2017-2030 vision of 'an innovative and resilient Queensland that manages the risks and harnesses the opportunities of a changing climate'. It also provides a platform for the Queensland Disaster Resilience Strategy commitment to 'identifying adaptation opportunities following disasters and in anticipation of climate change' and 'making Queensland the most disaster resilient state in Australia'.

The eight priorities within the EM-SAP seek to further engrain climate change into sector strategic investment and disaster management planning at all levels, positioning the sector to remain a trusted broker of climate related risk data and information for communities. This approach will enable Queensland to more deeply understand its current and future disaster risk, strengthening governance and investment in line with the Sendai Framework for Disaster Risk Reduction 2015-2030 and Sustainable Development Goal 13 for Climate Action.

Queensland Fire and Emergency Services has already commenced examining methods to incorporate climate projections into the Queensland Emergency Risk Management Framework (QERMF) ensuring Queensland's Disaster Management Arrangements are supported by contemporary and forward-looking climate science. Robust and scientifically based risk assessments, including climate data and information, enables decision makers at all levels of disaster management groups and the sector to reflect anticipated climate change in disaster management plans.

The EM-SAP has been developed and designed by the sector for the sector, both government and non-government alike. As the sector prepares to move into the next phase of implementation planning, we encourage sector organisations to examine what they can do to contribute to these priorities and apply the principles in practice.

Finally, we would like to take the opportunity to thank all stakeholders who have and continue to support resilience building within the emergency management sector and communities of Queensland.

Hon. Craig Crawford MP
Minister for Fire and Emergency Services

Katarina Carroll APM
Commissioner, Queensland Fire and Emergency Services

Executive summary

The Emergency Management Sector Adaptation Plan (EM-SAP) has been developed to support the sector to manage the risks associated with a changing climate, and to harness the opportunities provided by responding to the challenges. Led by the emergency management sector, the EM-SAP ensures relevance and the participation of sector stakeholders, encourages sector leadership, and promotes adaptation initiatives. The plan is built on existing disaster management arrangements and other state government planning in Queensland, to establish key directions for action and inform future planning by the sector in alignment with the Queensland Climate Adaptation Strategy (Q-CAS).

In order to support the sector to understand these climate-related risks and plan for adaptation, the EM-SAP aims to:

- establish the climate hazard and emergency management sector context

- identify and confirm the broad climate change impacts on the services provided by the sector

- identify existing adaptation initiatives occurring across the sector

- identify priority adaptation issues and needs for the sector, including critical gaps, barriers to adaptation and future challenges and opportunities

- undertake broad adaptation planning and policy recommendation within the sector.

Substantial stakeholder engagement was undertaken during its development. Stakeholders included those from the emergency management sector and organisations that support Queensland's Disaster Management Arrangements, volunteer organisations, public and private infrastructure operators, and experts from research and academia. Input was also obtained from identified key cross-sectoral stakeholders, including the Queensland Council of Social Service and NRM Regions Queensland.

This plan forms the foundation for further collaborative implementation planning to be conducted in 2018–19, which will aim to detail how the EM-SAP will be implemented and by whom. This will continue to be sector-led, in consultation with sector stakeholders.

Vision

An adaptive emergency management sector that is fully engaged with the risks and opportunities of a changing climate, building resilience together with the communities of Queensland.

Principles

This SAP aligns with principles identified in the Q-CAS, led by three principles specific to the sector:

1. Adaptation should address the comprehensive approach to disaster management—prevention, preparedness, response and recovery.

2. Adaptation should be considered using a systems approach, ensuring that it is responsive to local conditions and the needs of the entire community.

3. Adaptation should address both acute major events and continuous incremental change.

4. Adaptation programs should be risk-based and people-focused.

5. A healthy natural environment is fundamental to successful adaptation, providing critical ecosystem services and support for community wellbeing.

6. Adaptation involves continuous improvement.

7. Adaptation responses should be evidence-based, effective, flexible, equitable, inclusive, and able to respond to new information.

8. Adaptation is best achieved through collaboration, with responsibility shared across all levels of government, industries and communities.

9. Adaptation, resilience and risk management should be integrated into all levels of policy, planning and implementation.

10. Adaptation must be sustainable and avoid perverse outcomes, including detrimental impacts on communities, other sectors, the economy or the natural environment.

11. Adaptation action is complementary to mitigation action, and should avoid maladaptive outcomes.

The rationale for the sector-specific principles are:

- *Principle 1*—within the emergency management sector, there is a long-standing framework for planning and operational activity called the comprehensive approach. The comprehensive approach recognises four phases of emergency management—prevention, preparedness, response to events, and recovery. Adopting an additional principle that explicitly acknowledges this framework connects adaptive policies and actions to existing sector policies and actions, and frames climate adaptation communication and messaging in familiar terms for participants in the emergency management arrangements.

- *Principle 2*—future demand on sector services will be largely influenced by overall resilience of the community and other sectors (e.g. infrastructure, health and wellbeing, ecosystems and biodiversity). It will also be influenced by a number of existing issues relating to emergency management that will be amplified by climate change (e.g. aging population, increased urbanisation, reliance on infrastructure and supply chain systems, future land-use planning and legacy issues). This makes it important that the interactions between these other sectors and the different pressures are understood and accounted for by taking a holistic systems view. Further, it is also recognised that climate change impact will vary locally, and therefore adaptation of the sector needs to be scalable and contextual.

- *Principle 3*—climate change will potentially increase the frequency, intensity, duration and distribution of extreme events such as bushfires, heatwaves and coastal inundation. It will also create more challenging conditions for longer term stresses such as sea-level rise, drought and higher average temperatures. All have the potential to impact on elements of the sector, including the health and wellbeing of the sector workforce due to the reduction of recovery time between concurrent extreme events and degraded conditions of the operating environment. It is critical that adaptation measures across both acute and long-term stresses are considered.

Priority Adaptation Measures

Eight Priority Adaptation Measures have been developed in response to the needs and priorities identified during consultation with stakeholders, and through evaluation of existing leading practice climate adaptation measures.

To lay the foundation for implementation planning, the rationale, identified actions, outcomes and challenges that inform each priority have been outlined.

Priority 1: Sector-led awareness and engagement about climate change

Rationale

- Behavioural and attitudinal change regarding climate change cannot be achieved without increasing awareness and understanding of climate change science within the sector and the broader community.
- The emergency management sector is uniquely positioned as a trusted source of information due to its role in disaster management, its presence during times of community stress, and its pre-existing community engagement programs.

Identified actions

- Build on existing community education and engagement programs within and outside the sector to include climate change science and associated impacts, and create awareness and engagement where they don't exist.
- Incorporate or provide access to climate change education and training for the emergency management workforce.
- Partner with schools, tertiary institutions and professional peak bodies to incorporate climate adaptation and emergency management as a consistent theme in curriculum and professional development training and education programs.

Outcomes

- A community that is informed about climate change, is aware and accepting of the science and its shared responsibilities.
- A sector that is supporting community awareness through education and engagement programs.
- A sector workforce with a strong awareness of climate change, equipped with the knowledge to address anticipated challenges effectively.
- Development of expertise within the sector to assist sector organisations in identifying risks associated with climate change and support the identification of adaptation needs and priorities.

Challenges

- An overall low level of pre-existing community education and awareness of climate change risks.
- Misunderstanding or low level of awareness among the sector workforce about climate change, the projected impacts on the sector, and adaptation options.

Priority 2: Integration of climate change into sector governance and policy

Rationale
- The need to adapt to a climate change-affected future is being advocated by the state government, making it an important consideration for all sectors.
- Increasingly, climate change is being viewed by the finance sector (e.g. banking, insurance, investment) as a corporate governance obligation and, due to the strong links between the emergency management sector and insurance and finance, the sector must ensure it is considering climate-related risks appropriately.
- As a leader in reducing or managing climate change impacts, sector organisations need to ensure that they have clearly agreed policy positions for advocacy, and for internal and cross-sector planning.

Identified actions
- Implement clear and long-term policy on climate adaptation within sector organisations.
- Facilitate integrated planning across the sector and within government for the management of climate change and adaptation activities.
- Influence legislative reform that supports a consistent approach to climate change at all levels of government.
- Examine sector procurement policy to understand future sustainability and adaptability to climate change, and where possible, to drive appropriate change in supply chains.

Outcomes
- The sector has clear direction and accountability regarding climate adaptation, and is taking a consistent approach.
- The sector provides leadership and best practice to foster effective climate adaptation across other sectors, and the community more broadly.
- Procurement practice within the sector contributes to increased climate adaptation practice and develops more resilient and sustainable supply chains.

Challenges
- Moving away from a perception of the sector being response and recovery focused, with a view to achieving a better balance between prevention and preparedness.
- Achieving a consistent long-term policy position on climate change across the sector that goes beyond traditional business and political cycles.
- Maintaining a consistent message with competing sector and organisational leadership priorities.

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Priority 3: Enhancing the sector's understanding of climate change risk and its ability to adapt

Rationale

- The sector needs to understand and plan for potential climate-related risk to its organisations given the pivotal role they have in supporting the community during disaster events, which will be exacerbated by climate change.

- In order for the sector to position itself as a 'trusted broker' for evidenced-based climate change information, it needs to ensure it is adapting to climate change appropriately.

- The sector needs to remain agile and have the ability to adapt to climate-related risk as it becomes apparent in the near and long term.

Identified actions

- Incorporate climate change consideration into organisational resilience practices, including enterprise risk management, business continuity planning, crisis management, emergency management and security management.

- Develop an approach consistent with the 'State Government pathway' that enables a consistent evaluation of climate risk across sector organisations.

- Incorporate climate change into emergency risk management approaches that enable risk-informed emergency management planning practice based on likely and credible worst-case scenarios.

- Work with local governments, disaster management groups and natural resource management groups to manage 'natural infrastructure' to reduce harm from natural disaster events.

- Deliver the necessary data, tools and information to disaster management groups about climate change.

- Examine the feasibility of a review that conducts an assessment of existing and planned sector facilities and their interdependencies against future climate change projections, with the aim of reducing future climate risk.

Outcomes

- Sector organisations are aware of the risks posed by climate change to their functioning and ability to deliver goods or services, and are actively planning and implementing solutions.

- Climate change is incorporated into organisational planning in the sector across assets and operations.

- The sector has a robust understanding of its holistic position in relation to climate change.

- Emergency management planning is enhanced through the appropriate consideration of, and planning for, anticipated climate change at a local, district and state level.

- The unnecessary creation of previously unforeseen risks posed by climate change is avoided or minimised.

- The sector has the collective capacity and capability to manage future complexities and demands amplified by, or arising from, climate change.

- The emergency management system is well connected and effective, including all levels of government, and relevant private sector and community organisations.

Challenges

- Misunderstanding or preconceived perceptions of climate change and its impact on sector organisations, assets and services due to limited education opportunities or access to information.

- Effectively and efficiently incorporating climate change into existing risk management processes.

- Availability of relevant data and effective interpretive processes for decision-making.

Priority 4: Research and development of new knowledge and supporting tools

Rationale

- Climate change science and adaptation approaches are continuing to evolve and mature and, as such, need to constantly be resourced, reviewed and applied in sector decision-making and planning.

- Climate change research into sector-specific applications also requires the ongoing support of end-users to ensure that projects and outputs are continually informed by practitioners and can be practically applied.

Identified actions

- Provide support and partnerships for research projects that inform sector climate adaptation, such as those that explore climate change science, application-ready data for activities such as risk assessment, and development of innovative adaptation solutions.

- Provide access to data and decision support tools for understanding local-scale climate change risks.

- Use advanced technology to support sector activities and decision-making in climate change applications, such as enhancement of personal protective equipment to cater for anticipated climate change, use of remote sensing and imagery, and evolving mitigation options.

- Develop a dynamic suite of guidelines and tools that foster information sharing and provide examples of sector approaches or case studies of better practice for climate adaptation.

Outcomes

- The sector is well positioned with contemporary knowledge and science to enable adaption to climate change, and is addressing emerging needs with new and innovative approaches.

- The sector workforce has access to fit-for-purpose guidance helping it to adapt to climate change effectively and consistently with leading practice.

- Sector stakeholders have access to applicable and localised datasets for decision-making and climate adaptation action down to a local level.

Challenges

- Climate futures present a range of complexity and variation as to how natural hazards and projections will manifest.

- Research and development can take time to conduct well, and may not materialise in the required timescales for decision-making.

- The resourcing of sector organisations has a number of variables and competing priorities, which may reduce the investment in climate change-related research and development.

Priority 5: Allocation of resources to support sector adaptation

Rationale	• Adapting to climate change will require significant financial commitment and is likely to challenge the allocation of resources.
	• Appropriate resourcing will be required to enable the sector to adapt to climate change, and will serve to enable the other priorities identified in this plan.
	• Targeted funding will enable a focus on climate change, and seed projects that seek to embed adaptation within sector organisations.
Identified actions	• Influence funding stream alignment within and beyond the sector where possible to allow for climate adaptation initiatives.
	• Encourage sector organisations to allocate resources for research and development, risk assessment and planning, and capacity and capability enhancement for the purposes of climate adaptation.
	• Forge partnerships that foster investment in climate adaptation between and beyond sector stakeholders, particularly those that support cost-sharing or sharing of other resources.
	• Identify opportunities across all levels of government to enhance the coordination of resources targeting climate adaptation.
Outcomes	• The sector is positioned well for the future projected resourcing demands anticipated by climate change.
	• Climate adaptation is engrained in regular sector organisation planning, and therefore budgetary processes.
	• Sector and non-sector stakeholders are provided with a range of supplementary resourcing options that allow for appropriate and innovative climate adaptation initiatives.
	• Funding opportunities for climate adaptation are aligned and available.
	• The allocation of resources to address climate change-related concerns is occurring organically within organisations as part of organisational resilience practices.
Challenges	• Grants-based funding does not necessarily provide the long-term investment required for climate adaptation.
	• Due to the potential size and complexity of some climate adaptation requirements, funding may continue to be finite.
	• Knowledge sharing about available funding streams within and beyond the sector can be variable.

Priority 6: Increasing the resilience of infrastructure critical to the sector and community

Rationale	• The sector will need to continue to operate under the future conditions that climate change will present, which will require the resistance, reliability, redundancy, response and recovery of infrastructure and systems that it relies on.
	• The same rationale applies to infrastructure that the broader community relies on to function, which, on failure, creates an increased demand on the sector.
Identified actions	• Understand infrastructure interdependencies and the vulnerability of the sector, and plan and implement adaptation solutions.
	• Influence the incorporation of climate scenarios into land-use planning for essential infrastructure and communities.
	• Foster partnerships and joint planning between the sector and infrastructure operators and owners.
	• Where possible, ensure sector organisations are involved in land-use and infrastructure planning processes and are resourced to effectively contribute.
Outcomes	• The sector is involved in the prioritisation of infrastructure planning and investment, helping to reduce future risks posed by climate change.
	• Providers of essential infrastructure services that support the sector understand their risks from climate change and are managing them.
	• Demand on sector services is reduced due to enhanced infrastructure resilience and continuity of lifelines to the community.
Challenges	• The ability of the sector to operate beyond its traditional paradigms and influence infrastructure owners/operators, land-use planners, building code custodians, developers and so on.
	• Land-use and infrastructure planning decisions are made by multiple stakeholders with competing priorities, which may result in poor emergency management outcomes and future risk associated with climate change.
	• Adequate sector resourcing to provide appropriate influence and input into relevant processes varies across the sector.

Priority 7: Promoting and enabling community resilience building and self-reliance

Rationale

- Increased frequency, intensity, duration and distribution of some extreme events are predicted under different climate change scenarios, which will put communities at risk, resulting in increase of demand on sector goods and services.

- Assisting and enabling the community to understand climate change impacts and how they can be better prepared, and to assume shared responsibility, will contribute to fostering community resilience.

- It is envisaged that increasing the resilience of communities and levels of 'self-reliance' will assist in managing any unnecessary increase in demand on the sector.

Identified actions

- Continue to advocate for and facilitate activities that foster community resilience.

- Influence land-use and urban planning through incorporation of climate change scenarios and risk information.

- Undertake engagement activities that incorporate community self-reliance and resilience-building activities in preparation for, and use during times of disaster.

- Work closely with other government and non-government organisations to increase the resilience of the community to climate change.

Outcomes

- The community has increased resilience to the effects of climate change and extreme events, and reduced reliance on immediate support from the sector.

- Fewer developments and land use that allow for activities and homes in areas at risk from future events exacerbated by climate change.

- The sector is collaborating with other sectors to ensure that activities to increase community resilience are implemented effectively and consistently.

Challenges

- Existing social issues and vulnerabilities have the potential to be amplified by climate change.

- The capacity and capability of communities varies significantly across the state, which will require diverse and dynamic approaches to climate adaptation and resilience building.

Priority 8: Volunteerism, volunteering and workforce management

Rationale	• The sector workforce is set to be affected by climate change on a professional and personal level given it will influence the health and wellbeing of individuals at work and at home.
	• Volunteering, which is already under pressure, will also experience influence from climate change as the population potentially relocates, or conditions prevail that will limit those who are able to perform functions and tasks effectively.
	• The coupling of these issues with an anticipated increase in demand on services, and the sector's high reliance on its volunteer workforce, presents an issue for the sector.
Identified actions	• Evaluate the impact of climate change on the availability of volunteers across the sector to continue to deliver goods and services across the state.
	• Incorporate climate change risks into volunteering and workforce strategies and planning across sector organisations, and in emergency management planning.
	• Foster partnerships between sector organisations, the community and beyond to enhance collaboration and cross-utilisation of the existing and future volunteer and paid workforce.
Outcomes	• Volunteers remain a key component of the sector service delivery model, and provide the diverse workforce and skills required.
	• New and emerging approaches are used to harness the community in spontaneous, short and long-term volunteering opportunities.
	• The sector has a sufficient and multiskilled workforce to enable it to continue service delivery and meet the needs of the community under future climate conditions.
	• The sector has partnered where appropriate to deliver tailored and bespoke approaches to support its workforce in communities across the state in the near and long term.
Challenges	• Increased demand on sector workforce coupled with the pressures of an aging population and downturn in volunteering.
	• The need for cross-sectoral collaboration to address volunteering issues and climate adaptation.

The identified Priority Adaptation Measures have been mapped across the four distinct phases of emergency management (prevention, preparedness, response and recovery). This provides a guide to sector organisations about how each of these adaptation measures can be contextualised using this model. Many of the Priority Adaptation Measures fall in the areas of prevention and preparedness. *Refer to the full SAP version for further details.*

Contributors to the EM-SAP development process

Australian Red Cross	Local Government Association of Queensland
Australian Volunteer Coast Guard Association	Mackay Regional Council
BMT Consulting	Metro South Hospital and Health Services
Brisbane City Council	National Broadband Network
Bureau of Meteorology	National Climate Change Adaptation Research Facility
Cairns and Hinterland Hospital and Health Services	Private building contractor
Cairns Regional Council	Queensland Ambulance Service
Cassowary Coast Regional Council	Queensland Council of Social Services
Cath Moran Ecological Consultancy	Queensland Farmers' Federation
Central Queensland Hospital and Health Service	Queensland Fire and Emergency Services
Climate and Health Alliance	Queensland Health
Commonwealth Scientific and Industrial Research Organisation (CSIRO)	Queensland Police Service
Department of Agriculture and Fisheries	Queensland Reconstruction Authority
Department of Communities, Disability Services and Seniors	Queensland Urban Utilities
Department of Environment and Science	Seqwater dam operations
Department of Natural Resources, Mines and Energy	Somerset Regional Council
Douglas Shire Council	Tablelands Regional Council
Geoscience Australia	Torres Strait Island Regional Council
Gladstone Regional Council	Torres Strait Regional Authority
Griffith University	Visionstream/Telstra
Inspector-General Emergency Management	Volunteering Queensland
Livingstone Shire Council	Wujal Wujal Aboriginal Shire Council

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