APPENDICES

CLIMATE RISK MANAGEMENT GUIDELINE FOR QUEENSLAND GOVERNMENT DEPARTMENTS

QUEENSLAND CLIMATE READY PROGRAM
SUPPORTING GOVERNMENT CLIMATE RISK MANAGEMENT

Griffith UNIVERSITY
Queensland, Australia

Queensland Government

APPENDICES

These appendices are designed for use only in conjunction with the Climate Risk Management Guideline for Queensland Government Departments. It is not intended to be used as a stand-alone document.

RESOURCES

Part 1: Templates developed under the Queensland Climate Ready Program

* Please see the Queensland Climate Ready Program Excel spreadsheet attachment for Appendices 6-9.

Part 2: Supplementary resources

This document is not government policy. It is a guideline produced by the Climate Ready Initiative at Griffith University under the QCR Program. The Department of Energy and Climate (DEC) takes responsibility for ongoing review and updates to the Guideline.

Disclaimer

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Griffith UNIVERSITY
Queensland, Australia
Climate Action Beacon

CLIMATE READY INITIATIVE
Shaping a climate ready future

PART 1: TEMPLATES DEVELOPED UNDER THE QUEENSLAND CLIMATE READY PROGRAM

* Please see the Queensland Climate Ready Program Excel spreadsheet attachment to this Guideline, for Appendices 6-9.

Appendix 1. Template: Baseline Assessment

Note: The baseline assessment template provides information on how to structure the department's climate risk profile. This is supported by an Excel spreadsheet that lists a series of prompts and questions to step departments through the risk identification process and how to prioritise risks. It also provides information on how to assess departmental climate risk management capacity and provides prompts on identifying capacity building opportunities and strategic and operational responses.

Summary

The goal of a Baseline Assessment is to capture a preliminary understanding of a department's current climate risks and the actions that are being taken to manage these risks. This Baseline Assessment template can be used to support Step 2 of the *Climate Risk Management Guideline for Queensland Government Departments* (the Guideline).[1]

Undertaking a Baseline Assessment should be seen as an iterative process, as the risks posed by climate change can change over time, as can departmental or government priorities or strategic objectives. The initial Baseline Assessment process, which can take around 12 months to complete, can be used to prioritise where further work is needed. It can also enable the reporting and monitoring of risks to identify where risk impact levels have been reduced.

The Baseline Assessment involves the following steps:

1. Developing a profile of the department's governance structures, core business areas, and data types related to climate risk management (CRM), and outlining the approach towards undertaking the Baseline Assessment
2. Identifying and mapping climate risks as they relate to the department's core business areas and assessing current activities that address climate risks
3. Identifying capacity gaps and opportunities to improve CRM within the department
4. Developing a Strategic Action Plan and Next Steps to address ongoing CRM

This document provides departments with a template including explanatory notes to assist them when undertaking a Baseline Assessment and producing a report. The assessment will help departments to consider and manage climate risks and identify the capacity and capability they require to manage the risk accordingly. Departments will likely need to adapt the template to fit their unique circumstances.

This Baseline Assessment template was developed by Griffith University as part of the Queensland Climate Ready (QCR) Program, a four-year partnership project between Griffith University and the Department of Environment and Science (DES) to strengthen institutional understanding and capacity for CRM within the Queensland Government.

[1] The *Climate Risk Management Guideline for Queensland Government Departments* (2023) was developed in partnership between DES and Griffith University as part of the QCR Program. It provides a foundation for ongoing CRM, through improved capacity and systems. The document is a "how-to" guide for Queensland Government departments to consider and embed climate risk into their departmental business. It is designed to progress institutional strengthening and capacity building to effectively consider and embed climate risk within strategic and operational functions.

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Introduction

Queensland Climate Policy Framework

With the intensity and frequency of climate-related events set to increase in coming years, climate change is creating growing risks for Queensland Government assets, services, policies, programs, and staff. Effective climate risk management (CRM) will support the Queensland Government to continue to deliver quality frontline services, create jobs, build a strong economy, protect the environment, and build safer, more resilient communities.

The Queensland Climate Action Plan 2020–2030 (QCAP) sets the agenda to prepare Queensland for the climate-related opportunities and risks of the future. The QCAP includes the *Queensland Climate Adaptation Strategy 2017–2030* (Q-CAS), which aims to support Queenslanders to understand climate risks, use the best available science to inform adaptation, integrate adaptation into policy and processes, and collaborate to achieve climate change adaptation.

Purpose of a Baseline Assessment

The purpose of a Baseline Assessment is to capture a preliminary understanding of how climate risks will affect a department, how these risks are being addressed, and how capacity to manage these risks can be improved. Specifically, it helps departments to conduct an internal review of their governance structures and core business areas for CRM; to identify and map climate risks; and to assess their CRM approach. This document is designed to be an evolving one, which will be updated over time.

The Baseline Assessment includes the following sections:

1. **Strategic Scope**: This section is used to present information on strategic documents and plans for the department that are relevant to climate change; to outline the data types that are being used to assess the baseline position of the department; and to give an overview of the scope/approach that the department is taking towards the Baseline Assessment process.
2. **Climate Risk Profile**: This section involves undertaking a desktop review to develop a profile of the department's governance structures and core business areas, identifying and mapping climate risks as they relate to the department's core business areas, and assessing current activities that address climate risks.
3. **Climate Risk Management Capacity Analysis**: This section involves identifying capacity gaps and opportunities to improve climate risk management within the department.
4. **Strategic Action Plan and Next Step**s: This section outlines the strategic priorities identified from the department's climate risk profile and capacity analysis. It can be used to outline short-, medium-, and long-term actions that can be taken forward for continued CRM support.

How to use this document

This document provides a template for a Baseline Assessment. The template is structured into four sections, and includes suggested headings, sub-headings, and tables. Explanatory notes are inserted within the template to assist departments when undertaking a Baseline Assessment and producing a report. Each department should adapt the template to suit their unique circumstances.

1. Strategic Scope

1.1. Strategic Documents and Plans

This section of the Baseline Assessment can be used to establish how the department is strategically managing climate risks. It identifies and lists key departmental documents and plans that should or could be used to identify and address climate change and/or CRM. It can be useful to hyperlink these documents when a list is compiled.

These documents and plans will be reviewed for coverage of climate change and CRM in later sections of this Baseline Assessment.

Key departmental documents that should be considered include, but are not limited to, the following:

- Ministerial Charter Letter
- Service Delivery Statement
- Department Annual Report
- Strategic Plan
- Risk Register

1.2. Data Types and Sourcing

This section can be used to add information on sources and types of data that are currently used and/or could be used in CRM decision making and reporting. This includes all documents currently used under risk management processes and procedures.

1.3. Scope and Approach

This section can be used to add information on the approach the department will take to complete the Baseline Assessment, including scope, any guiding principles, and the process. This will assist in planning the work required to complete the Baseline Assessment for the department. It could include details of the Working Group that has been established; any technical expert presentations and workshops or divisional workshops; the process for coordinating and performing the baseline assessment; engagement with executive leadership; and sign off. Some suggested sub-headings are set out below.

1.3.1. Scope

Outline the scope of the Baseline Assessment and the approach that the department will take.

1.3.2. Guiding Principles

Outline any guiding principles for the Baseline Assessment. This could include ones set by the department or those outlined in the *Climate Risk Management Guideline for Queensland Government Departments* (the Guideline) under Section 2.3.

1.3.3. Project Management

Outline how the Baseline Assessment will be managed, including who is leading the work, details of the process taken to form a Working Group, and the regularity of meetings.

1.3.4. Awareness Raising and Communications

Outline the approach taken to engage the department and raise awareness of climate risks, such as through presentations and workshops, email updates, and articles in the department newsletter. This section can also be used to describe the communications procedure for the Working Group when providing progress reports to the department and updates to executive leadership.

1.3.5. Staff Engagement

Outline how staff will be engaged and the extent and level of engagement. For example, will the Baseline Assessment process only involve those at executive level or will operational staff (those who will be more involved in undertaking CRM) be included? Will the process of identifying climate risks and assessing capacity be undertaken using divisional workshops or will the process be more selective? How will links be made to those who work in risk management for the department?

1.3.6. Reporting and Endorsement

Outline the timeline and key milestones towards the successful completion of the Baseline Assessment. Planned meetings and engagement with executive leadership can be included in this section, as well as the plans for Executive Leadership Team (ELT) endorsement and sign off by Directors-General. Departments may also include milestones such as completion of a draft, performance of validation processes, and review workshops or other feedback mechanisms that are aimed to ensure all requirements are captured.

2. Climate Risk Profile

2.1. Departmental Governance Structure

This section can use information from the department's Service Delivery Statement (SDS). Note that the section can be adjusted to suit the department, and headings can be edited or removed if there is any overlap. It is important to understand the governance structure of the department when undertaking a Baseline Assessment to ensure that a complete picture of the current CRM position is captured.

2.1.1. Portfolio Statement

State the vision and purpose set out in the SDS and identify any relevant links for climate change and CRM.

2.1.2. Minister and Leadership

State who the Minister is, and how long they have been in this position.

2.1.3. Audit and Risk Management

Outline the corporate risk management process, whether it currently includes climate risk, or is considering climate risk for inclusion; and consider the role of the audit and risk committee.

2.1.4. Organisational Structure

Outline the department's organisational structure, including divisions, executive leadership structure, and governance committees.

2.1.5. Delivery Priorities

Identify the department's delivery priorities in relation to CRM and be mindful of these priorities throughout the Baseline Assessment. This section could include outlining the Queensland Government objectives for the community that the department serves.

2.1.6. Key Services

Outline the key services that the department is responsible for, according to the SDS. This can include industry-facing services, if appropriate.

2.1.7. Budget overview

Provide a breakdown or summary of the budget.

2.1.8. Infrastructure and Assets

Include a breakdown or summary of the infrastructure and assets and, if appropriate, include associated value.

2.1.9. Market Relationship

Outline the primary public or sector-facing activities of the department. This includes any economic sectors and markets that the department is linked to, as well as its direct links to community and education. This section could also be used to note any secondary, indirect activities that the department is linked to, such as to industry and government-owned corporations.

2.2. Envisioning

This section can be used for departments to explore and decide on the climate projection timeframes to be used from the Queensland Future Climate Dashboard. These projections will be used to inform a high-level climate risk assessment in the following sections. When considering climate risk for a department, it is useful to consider past, current, and future climate trends. For future climate change, you could consider near term (2030), mid-term (2050) and/or long-term time frames (2070, 2100) depending on the decision lifetime of the assessment.

Departments can also consider different scenarios for future emissions of greenhouse gases and the resulting degree of climate change. Refer to Appendix 6 (Baseline Assessment Envisioning Scenarios and Timeframes) and Key Action Area 3.2 of the Guideline for more information on interpreting climate projections and scenarios. As a first pass, the 2100 timeframe could be selected along with the precautionary scenario of RCP 8.5, which represents a high risk threshold against which to manage risk. If resources allow, more than one scenario and timeframe can be selected for undertaking the climate risk assessment.

Table 1: Selected timeframe and climate change scenario for the Baseline Assessment

Envisioning	**Justification**
Selected timeframe(s)	
Selected scenario(s)	

2.3. Climate Risk Identification

This section can be used to identify and discuss physical and transition climate risks for the department. Table 2 can be used to provide a simple high-level summary of the results, which can be grouped by key physical and transition climate risks. Climate risks should be assessed for all the department's work areas/sections, but a high-level approach to this can be taken for the Baseline Assessment. Appendix 7 (Baseline Assessment Risk Identification) of the Guideline will help guide the completion of this section.

Table 2: Key climate risks identified for the department

Key climate risks (physical and transition)	Description of risk	Service delivery area impacted

For more detailed climate risk assessments and to determine a risk rating, a department may wish to consider prioritising the identified climate risks in line with the department's existing risk management approach. Appendix 9 (Climate Risk Assessment and Prioritisation Example) of the Guideline can be used to help formulate ideas for how to do this. This is a longer process than identifying climate risks at a high level.

2.4. Climate Risk Management Profile

This section can be used to review the current climate risk management profile of the department and to identify whether climate change is being integrated into existing strategies, initiatives or mechanisms. This assists in understanding the current position on managing climate risks, which can be used to identify gaps and opportunities. Some examples of how climate risk may be incorporated into existing initiatives or mechanisms include whether climate change is referenced in the corporate risk register, risk management framework and guidelines, the existence of any Working Groups for risk management and/or sustainability/climate change, business continuity planning, and disaster recovery and management planning. Documents identified in section 1.1 of this template can be used to inform this section. The department should consider the following:

1. Is there specific reference to climate change or climate risk and achievements to date, including use of future projections on climate change?
2. Is there indirect reference to climate change or climate risk, such as general risk management, sustainability, and environmental management processes?
3. Is there no reference to climate change/risk?

Table 3 can be used to organise and present this information. However, it should be adjusted to suit the department's circumstances.

Table 3: Department climate risk management profile

Department existing initiative or mechanism	**Description**	**Coverage of climate change and resulting risks** (Physical and transition) 1. Specific reference 2. Indirect reference 3. No reference	**Related service area** (Operations, policy, and regulation, legal, financial funding, and financial insurance)	**Opportunity to further incorporate climate change and resulting risks**
Strategic policy (e.g., climate change as strategic risk for the department, policy on disaster recovery)				
Enterprise risk management (e.g., the risk management framework, corporate risk register)				
Governance committees and leadership (e.g., working groups)				
Division specific (e.g., policies, procedures, projects)				

3. Climate Risk Management Capacity Analysis

3.1. Key Capacity Gaps

This section can be used to describe the department's key capacity gaps for CRM, based on the capacity requirements identified. This is important, as improving capacity can strengthen CRM across a department, and this section of the Baseline Assessment can be used to identify gaps and opportunities to take forward for the Strategic Action Plan (Section 4). A table could be used to outline the key capacity types and gaps. Departments can utilise the Capacity Assessment Workbook Template (Appendix 8 of the Guideline), which could be attached as an appendix to this Baseline Assessment.

Table 4: Summary of CRM capacity gaps

Capacity level	Capacity type	Capacity gap
Enabling environment		
Organisation		
Individual		

3.2. Capacity-Building Opportunities

This section can be used to describe the opportunities for building capacity, based on the gaps that have been identified. Note that opportunities in this section may be best outlined at a high level and can be explored in more detail under Section 4 on Strategic Action Planning and Next Steps. Opportunities for building capacity could include the following:

- Empowering leadership and decision making
- Ensuring alignment between the strategic priorities and organisational structure
- Tracking performance against Queensland Government climate targets
- Enhancing engagement and collaboration
- Building a community of practice
- Establishing a Working Group or climate champions
- Developing and strengthening the skills and resources of the department
- Training to improve and enhance ability of individuals and the department to deliver CRM
- Initiating mentoring schemes
- Sourcing knowledge management and sharing
- Delivering action plans for climate risk,
- Enhancing sustainable procurement
- Supporting programs and activities that improve the resilience of assets and facilities

See Appendix 8 (Capacity Assessment) of the Guideline to help guide this process.

4. Strategic Action Planning and Next Steps

This section can be used to plan actions, monitor progress, and report on performance for CRM activities. It may also support a brief to the ELT to continue work on CRM.

Departments may wish to consider any benefits, drawbacks, dependencies, and lead-in work that may be required for the different actions identified. Other considerations may include a rough estimate of the cost, whether additional information is required through more detailed assessments, and whether external support/engagement from experts or consultants would benefit the process.

The content of this section should be linked to all the information gathered in this Baseline Assessment and any subsequent findings. Below are some examples of headings and topics that could be utilised for Strategic Action Planning and Next Steps. This section could also be set out as a roadmap or by identifying short-, medium-, and long-term actions using the table in Section 4.6. It is important to remember that this is a first pass, so this section can be kept at a high level.

4.1. Summary of Key Climate Risks and Capacity Gaps

This section can be used to summarise the key climate risks, the status of the risk management profile, and the capacity gaps that have been identified.

4.2. Summary of Climate Risk Management Opportunities

This section can be used to summarise key management opportunities for climate risk, including ideas to incorporate climate risk into the risk management profile of the department, and capacity building opportunities.

4.3. Strategic Actions

This section can be used to identify strategic actions for climate risk. These could be related to specific climate risks at a divisional level, or at a more strategic level. departments should consider the adaptation and transition actions for CRM that were identified in Section 2.3.

4.3.1. Strategic Priorities for the department

This section can be used to outline priority areas for the department on CRM, such as governance, people, infrastructure investment, asset management, research and innovation, and procurement. It may be useful for the department to consider the key principles for building a successful strategy. This could include climate change and CRM being “everyone's business”, climate risk being embedded as business as usual and coordinated across all areas of the business and operations, and for the department to be financially sustainable and responsible for its climate risk.

4.3.2. Establishing effective climate risk management leadership and governance

This section can be used to outline ways a department may incorporate CRM into the leadership and governance structures of the department. Climate change is a strategic risk that requires executive leadership to identify and manage in the same way as any other strategic risk does. This will help to ensure the department properly assesses and manage climate risks and opportunities, makes appropriate strategic decisions, and sets and reports on relevant goals and targets. This could include the establishment of climate champions, a sub-committee that reports to executive leadership, and/or a Working Group.

4.3.3. Understanding climate risk and incorporating it into the risk management process

This section can be used to outline how climate risk can be incorporated into the existing risk management process, including how risks are identified. Operational responses to CRM could incorporate what work needs to be done to measure, assess, and report climate risks, linking to the current risk management system/process and outlining treatments.

4.3.4. Advancing climate risk monitoring and reporting

This section can be used to outline some strategic ideas around incorporating climate risk into existing departmental monitoring and reporting mechanisms. This can include ways to strengthen data collection, reporting and monitoring, and establishing a timeframe for reviewing the Baseline Assessment.

4.4. Resources

This section can be used to summarise the human and other resources needed to implement the Strategic Action Plan. The Plan will become more detailed over time as the Baseline Assessment is reviewed and updated, and as more detailed climate risk assessments are undertaken.

4.5. Communication and Engagement

This section can be used to outline how the Baseline Assessment process, findings and identified actions could be communicated, and staff further engaged. This may include reporting requirements, regularity of meetings to check progress, and points of engagement with divisional staff and executive leadership. It can also include any education and awareness-raising workshops and seminars that the department recognises may be important to include, as well as communication and updates via departmental email, newsletters, and online forums that the department utilises.

4.6. Strategic Action Plan Timeline

This section can be used to pull together all the strategic actions that have been identified into a summary table that outlines the timescale, a brief description, service area responsible, and any further comments that a department may wish to provide. An example is provided in Table 5, and this could be expanded to included required resources and notable milestones.

Table 5: Summary of strategic actions, timescale, and responsibility for CRM activities identified in the Baseline Assessment

Action	**Timescale (short, medium, or long term)**	**Description**	**Service area responsible**	**Comments** This could include identifying any benefits/ drawbacks/ dependencies/ lead-in work that would be required

4.7. Learnings and Reflections

This section can be used to reflect on the Baseline Assessment process: What worked well, what didn't, and what other resources were needed? What was the time commitment required? Use this section to outline any key lessons and reflections from the Baseline Assessment process. These can be considered when the Baseline Assessment is reviewed and updated.

4.8. Next Steps

This section can be used to outline the approach to take the Action Plan and Next Steps to executive leadership for discussion and approval. departments could consider the proposed timeline for this and what they hope to achieve. A brief may also be required to support this step.

Appendix 2. Template: Terms of Reference Template for a Working Group

This Appendix provides an example term of reference that can be used by departments when developing a working group for the completion of a Baseline Assessment. It can be modified and adjusted to suit the department's needs.

Working Group
Terms of Reference

Version:

<table>
<tr><th>Item</th><th>Description</th></tr>
<tr><td>1. Chair</td><td>Name:

Position:</td></tr>
<tr><td>2. Membership and governing hierarchy</td><td>The Working Group shall be comprised of:
<table>
<tr><th>Member</th><th>Role</th></tr>
<tr><td></td><td>Chair</td></tr>
<tr><td></td><td>Member</td></tr>
<tr><td></td><td>Member</td></tr>
<tr><td></td><td>Member</td></tr>
<tr><td></td><td>Member</td></tr>
<tr><td></td><td>Member</td></tr>
<tr><td></td><td>Member</td></tr>
<tr><td></td><td>Advisor</td></tr>
</table>
The governing hierarchy:
• Report to executive leadership every ___ months.</td></tr>
<tr><td>3. Secretariat</td><td></td></tr>
<tr><td>4. Purpose of the Working Group</td><td></td></tr>
<tr><td>5. Proxies to Meetings</td><td>•</td></tr>
</table>

Item	Description
6. Background to Working Group	•
7. Meeting frequency	Frequency: Expiry date of working group:
8. Agenda Items, Minutes and Meeting Papers	• Baseline Assessment update: ♦ Awareness raising and education ♦ Workshop planning ♦ Risk identification ♦ Risk management profile ♦ Capacity analysis ♦ Action plan/strategy development • Engagement with executive leadership • Communication and engagement • Any other business
9. Critical Success Factors, Constraints and Risks	•

Appendix 3. Template: Detailed Workplan for a Working Group

This Appendix outlines a sample workplan that can be edited and modified to suit the departments needs and status when preparing a workplan for executive leadership approval for the Baseline Assessment process. It can be used to help secure resources and set out timeframes for review and approvals.

Detailed workplan

This workplan provides a breakdown of the tasks required for the completion of the Climate Risk Profile and Capacity Baseline Assessment for the department. It provides the expected timeframes for completion and indicates roles and responsibilities.

Purpose of the Baseline Assessment

The purpose of the Baseline Assessment is to capture a preliminary understanding of how climate risks will affect the department's operations, responsibilities, and budget, understand how these risks are being addressed, and explore how capacity to manage these risks can be improved.

Roles and responsibilities

The department is in the best position to identify and describe its governance structure and core business areas, identify and map existing and emerging risks, and assess gaps in the capacity to manage its risks. This will ensure the department can position itself towards building a robust and sustainable climate risk management process. Therefore, the Working Group may be involved in identifying the climate risk for the department and may assist with divisional workshops to draw ideas from others across the organisation.

Use this section to outline the role description of the project coordinator/chair and how others in the Working Group will contribute. If there is an external person involved in the Baseline Assessment process, what is their role: is it to provide support and project management to guide the process and are they assisting with tailoring the Baseline Assessment Template (Appendix 1)?

Communication Protocol

Fill in protocol of communications:

- Frequency of executive leadership briefs to provide updates
- Planned dates for executive leadership to review a draft and receive the final document.
- Departmental reporting processes and protocols
- Frequency of working group meetings

Work Plan

Expand and edit the workplan that has been outlined in the table below.

Deliverable	Task	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month
Baseline Assessment, Strategy and Action Plan	**Governance**										
	Presentation to executive leadership on the project and work plan.										
	Presentation to executive leadership on the Baseline Assessment, project outcomes and action plan.										
	Project Delivery										
	Clarify Baseline Assessment template and the scope and stages of work.										
	Confirm timeline and work plan.										
	Set up Working Group and regular program of meetings and communications.										
	Engage staff through workshops and meetings.										
	Engagement, awareness, and communications.										
	Undertake assessment of agency governance structure.										
	Identification of climate risks.										
	Develop climate risk management profile.										
	Undertake climate risk management capacity analysis.										
	Complete draft Baseline Assessment report.										
	Develop a Strategy Action Plan.										
	Finalise Baseline Assessment report, Strategy and Action Plan.										

Appendix 4. Baseline Assessment Flow Diagram

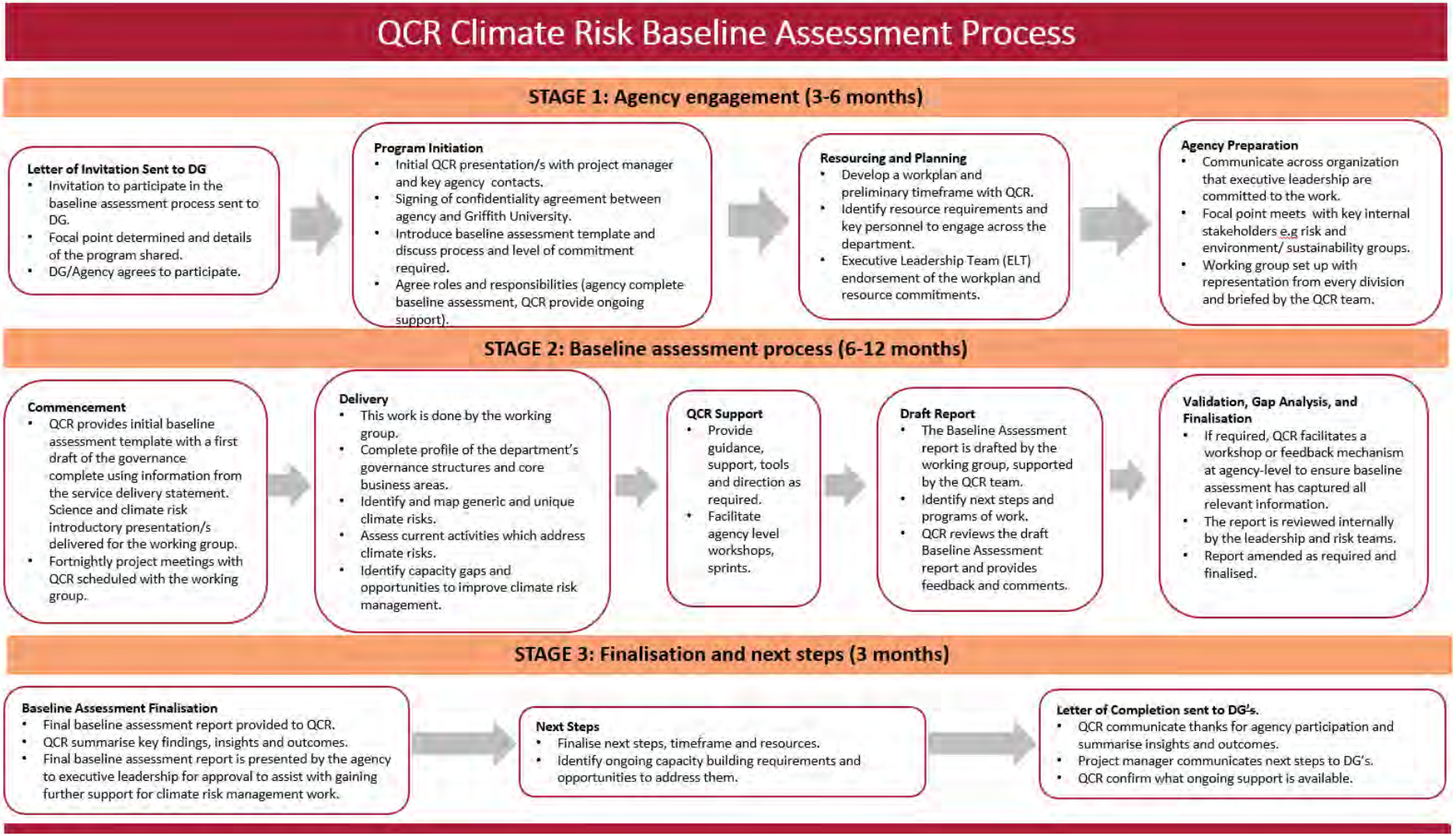

Figure 1: Baseline Assessment flow diagram. This flow diagram can be modified to suit individual department needs and is used as an example of the process that departments have taken towards the baseline assessment under the QCR Program. This flow diagram could be followed if departments would like Griffith University to support the process.

Appendix 5. Checklist Tool for CRM Progress

This is a checklist tool that can be used by a department to monitor and track their progress for each of the Key Action Area under the Framework for Department Climate Risk Management (Section 3 of the Guideline). The guiding questions are listed and can be considered as 'gateway questions' to indicate whether a department is ready to proceed to the next action area. This checklist also has strategic value as it can be provided as an attachment with executive leadership briefs.

Key Action Area	Guiding Question	Considerations for the Key Action Area	Progress Check (Not yet started; underway; completed)
Step 1: Leadership and governance			
1.1	1. What risk does climate change pose to the department?	• Is climate change identified as an activity (such as strategic objective, any evidence of climate change strategy or policies, etc.) or as a risk for a department? • Is climate change identified in any executive leadership briefs? • Has any work been undertaken to assess climate risk to date? • Is climate change currently reported on in the risk management process?	
1.2	2. Is there sufficient departmental understanding and acceptance of climate change and associated risks?	• Has executive leadership been briefed on climate risk management? • Has executive leadership endorsed a Baseline Assessment? • Is there ongoing executive support to manage climate risk?	
1.3	3. Has the department identified or established any governance structures to manage climate risk? 4. Are roles and responsibilities for managing climate risk in place?	• Has executive leadership considered an appropriate committee or structure for climate risk management? • Have clear roles and responsibilities been outlined and secured? • Has a cross-departmental working group been considered and established where appropriate?	
1.4	5. Has a department allocated sufficient resources to manage climate risk?	• Are appropriate resources to advance CRM in place? • If a working group has been established, are there representatives across all divisions?	

Step 2: Baseline Assessment and action planning			
2.1	6. Does the department understand its climate risks and opportunities. 7. Are the priorities and responsibilities identified to manage these risks well understood?	• Is the Baseline Assessment informed by, and adapted according to, the department's core business areas? • Is a clear profile established of the department's governance structures and core business? • Are key stakeholders identified and engaged? • Are physical and transition risks identified? • Is the status of the risk management approach assessed? • Are key capacity and capability building gaps and opportunities identified, including strategic and operational responses? o Key What climate change and CRM capability exists in a department? o Does knowledge and application of climate risk vary across the department's divisions? o Is there limited 'line-of-sight' identifying climate change as a risk (e.g., are climate risks only assessed for a 12-month period, and does the department consider risks that are not material yet may become so in the future)? o What is the capacity of a department to manage identified climate risks?	
2.2	8. Is there an agreed department-wide approach for strategic management of climate risks and opportunities? 9. Does the department have an endorsed strategy and/or action plan for managing climate risk that supports implementation and periodic review (high level strategy/action plan that gets more detailed over time)?	• Does the strategy align to a department's strategic priorities, outline risks and opportunities, provide information on leadership and governance, and consider the coordination of tasks? • Does the strategy include strategic and operational responses to climate risk management? • Does the strategy identify specific, measurable, achievable, relevant, and time-bound (SMART) targets? • Is the action plan developed to evolve and become more detailed over time? • Does the action plan consider: o which regions and assets have the highest risk, and what to do now as opposed to in the future? o how much time and resources should be allocated on adaptation and transition (i.e., are they focused on in equal measure and has the relationship between them been considered)? o how the voices of affected stakeholders and communities can be incorporated?	

		○ how perspectives on risk management and adaptation will evolve over time? ○ the frequency of review and updates?	
Step 3: Integration and implementation			
3.1	10. How is climate risk managed within the corporate risk management process?	• Is climate risk embedded into the corporate risk management process? ○ Is it in the risk register? ○ Is it considered in the risk appetite statement? ○ Is it considered in the risk management guidelines? ○ Is CRM integrated into the department's philosophy and organisational culture? ○ Is CRM integrated into planning, reporting, and decision-making structures at both the strategic and operational levels? • Has the process of embedding climate into the risk management process helped to streamline operational procedures in climate risk reporting and management?	
3.2	11. Have different climate change scenarios and projections been considered to inform risk analyses?	• Are a range of climate projections and scenarios considered in the department's climate risk assessments? • Are different timeframes considered in these assessments (i.e., short, medium, and long term)?	
3.3	12. Are more detailed risk assessments being undertaken in line with the CRM strategy and action plan?	• Since completion of the Baseline Assessment, have more detailed risk assessments been undertaken? ○ Do these include climate risk assessments at the strategy scale? ○ Do these climate risk assessments at the project scale? • Do the more detailed risk assessments include risk ratings and the appropriate prioritisation of risks and management actions? • Are the outcomes of being tracked in a strategy and action plan? • Are the risks being treated? • Has a timeframe been set to review the strategy and action plan?	
3.4	13. Have trigger points and thresholds been considered for	• Are appropriate trigger points and thresholds set for CRM actions? • Are impact chains used to document factors that influence a risk and to plan for management actions based on the uncertainty of climate change?	

	climate risk management?	• Have the strategy and action plan been updated with trigger points and threshold levels?	
Step 4: Monitor, report and evaluate			
4.1	14.Is there periodic and annual departmental monitoring and reporting of climate? 15.Is climate risk being monitored and reported through the corporate risk management process?	• Has the department established how to incorporate climate risk into existing monitoring and reporting mechanisms? • Is the management of climate risks included in the department's monitoring and reporting plan? • What is the reporting and review frequency? • Has the department's climate risk maturity been assessed to identify how far advanced it is and what is needed to reach optimum level?	
4.2	15.Are there regular reviews and updates to the CRM processes within a department?	• Has the approach and management of climate risk been reviewed in line with a department's enterprise risk framework reviews? • Do any elements of the CRM strategy and action need amending?	

Appendix 6.
Template: Baseline Assessment Envisioning Scenarios and Timeframes

Appendix 7.
Template: Baseline Assessment Risk Identification

Appendix 8.
Template: Baseline Assessment Capacity Assessment

Appendix 9.
Template: Climate Risk Assessment and Prioritisation Example

*Please see the QCR Program Excel spreadsheet attachment to this Guideline, for Appendices 6-9.

PART 2: SUPPLEMENTARY RESOURCES

Appendix 10. Climate change in Queensland

The Bureau of Meteorology and CSIRO's State of The Climate 2020[1] report confirms Australia's climate has changed and, without drastic action at a global level, will continue to do so with increasing severity. These changes exacerbate existing risks and create new operational risks as well as opportunities for government departments.

Queensland's climate is already changing, with average temperatures increasing by just over 1°C over the past 100 years (Figure 2). Figure 2 shows the increase in average temperature over time for Queensland's land area and the Great Barrier Reef region. As the climate continues to change over the coming decades, Queensland can expect:

- higher temperatures, with maximum, minimum, and average temperatures projected to rise
- harsher fire weather, reflecting fuel dryness and hot, dry conditions
- more intense rainfall events with high variability in rainfall
- less frequent but more extreme weather events
- more time in drought
- hotter and more frequent extreme heat events
- rising sea level and more frequent sea level extremes
- warmer and more acidic oceans.

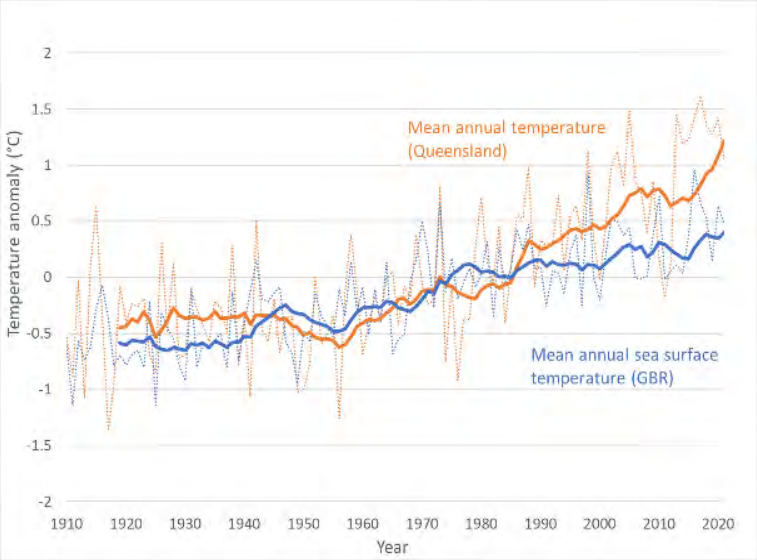

Figure 2: Time series temperature anomalies for Queensland, for mean annual land surface temperature for Queensland (orange) and sea surface temperatures for the Great Barrier Reef (GBR) region (blue). Solid lines show the 10-year running mean while dotted lines show the annual mean anomalies between 1910 and 2021 relative to a 1961-1990 baseline. (Data source: Bureau of Meteorology).

The projected level of change in these climate variables will vary across Queensland's diverse regions. Information on projected climate change in Queensland is available from the Queensland Future Climate website. More information on climate science resources is provided in Appendix 16.

[1] For more information see https://www.csiro.au/en/Showcase/state-of-the-climate

The 6th Assessment Report (AR6) from the Intergovernmental Panel on Climate Change (IPCC) (2022)[2] emphasises the need to accelerate and sustain adaptation in human systems and ecosystems through addressing a range of constraints, primarily financial, governance, institutional and policy constraints. Critical components of effective climate adaptation and transition include:

- strengthening political commitment and follow-through,
- robust institutional frameworks, policies, and instruments which set clear goals and priorities,
- enhanced knowledge on impacts and solutions, mobilisation of,
- access to adequate financial resources, monitoring and evaluation and inclusive governance processes.

Queensland's environment, economy, and communities are already experiencing the physical impacts from a changing climate. Queensland often experiences climate extremes such as floods, droughts, heatwaves and bushfires, and climate change is exacerbating the frequency and severity of these events. Assets and services provided by the Queensland Government are exposed to these climate impacts, and all departments need to prepare for climate risks and their consequences.

Worldwide, evidence is emerging that corporations and institutions have begun a transition away from fossil fuel-based energy sources towards cleaner and more environmentally sustainable energy and practice. By October 2020, 143[3] globally significant financial institutions announced plans to withdraw some form of financing from fossil fuel projects.

Adopting a systems approach to building climate resilience will lead the way across the economy through greater accountability, planning and preparedness, through the promotion of strategic coordination. A systems approach can provide the framework for dealing with a complex set of issues such as climate change. It refers to the need to collaborate with engineers, planners, maintenance and operations personnel, policy makers, financial experts, funding source managers, and the public to work together from the beginning to address the issues of the entire community over a long-term planning horizon.

The wider approach to addressing global climate change is set out under The Paris Agreement[4], summarized in Figure. Shifting global market drivers and preferences for low carbon products have the potential to influence Australia's economy, including through changing demand and prices for resources, manufactured items, and agricultural products. Climate change is an amplifier of existing climate variation and will affect Queensland's diverse communities, regions, and industries in different ways, presenting both opportunities and risks.

The Paris Agreement

The Paris Agreement is a legally binding international treaty on climate change. It was adopted by 196 Parties at CoP 21 in Paris in 2015 and provides a goal to limit global warming to well below 2°C, preferably to 1.5°C, compared to pre-industrial levels. To achieve this long-term temperature goal, countries, like Australia, agreed on the ambition of reaching global peaking of greenhouse gas emissions as soon as possible to achieve a climate neutral world by 2050.

Figure 3: Paris Climate Agreement

2 IPCC, 2022: Summary for Policy Makers, available at https://report.ipcc.ch/ar6wg2/pdf/IPCC_AR6_WGII_SummaryForPolicymakers.pdf , accessed 18/03/2022

3 This figure referenced in January 2021 is increasingly rapidly. For an up-to-date snapshot of financial institution divestment see the Institute for Energy Economics and Financial Analysis: https://ieefa.org/finance-exiting-coal/

4 Paris Climate Agreement, UN, 2022. Available: https://www.un.org/en/climatechange/paris-agreement

Appendix 11. Formation of This Guideline

Griffith University utilised departmental learning and feedback from Phases I and II of the QCR Program to draft this Guideline. Stakeholder engagement workshops were held in May 2022 to identify user needs and expectations for the guideline. This included two climate risk management “expert” meetings, engaging 18 people and three broader cross-agency engagement workshops engaging 97 people across Queensland Government Risk Management Community of Practice, and staff and departments engaged in Phase I and Phase II of the QCR program.

Anonymous feedback was captured on user needs and the proposed content for the Guideline. The included information on what departments would like to see in a climate risk management guideline; critical steps to incorporate climate change into the risk management process; challenges that have been experienced with implementing climate risk management; relevant tools, templates, and resources to draw upon; and types of support and training that would be useful when implementing climate risk management.

The Guideline aims to advance climate risk management in the following ways:

- Provide generic content to allow widespread application and advance actions to address climate risk in the context of all business areas
- Incorporate flexibility to allow individual departments to tailor their approach to meet their needs
- Build on the experience and lessons learnt from departments that participated in Phase I and Phase II of the Queensland Climate Ready Program

This Guideline has been co-designed and tested with departments through a series of engagement workshops that consolidated feedback from agency and departmental stakeholders. 12 Case Studies on how different Queensland Government Departments have been progressing on climate risk management, including learnings and successes, have been incorporated into the Guideline, and are set out in Appendix 0. The Guideline aims to address both climate change adaptation and climate transition risks (reducing greenhouse gas emissions and moving towards a lower carbon society).

The case studies have been developed for internal Queensland Government reference only. These case studies are not available publicly. Queensland Government officers may obtain a copy from the Department of Energy and Climate.

Appendix 12. Climate Compass: A Climate Risk Assessment Methodology

The QCR Program reviewed a range of climate risk assessment tools available at the time and consider the Climate Compass tool a best practice tool available to assist departments to undertake a climate risk assessment. Climate Compass was developed by CSIRO for Commonwealth Government departments but the methodology is equally applicable to state and local governments. Climate Compass refers users to the national climate projection datasets provided by CSIRO and the Bureau of Meteorology, however Queensland Government departments can use the Queensland Future Climate resources for information on climate projections. More information on the Queensland Future Climate website is provided in Appendix 16.

Climate Compass was designed to reflect leading practice in climate risk management and planning for long-term, uncertain, and pervasive climate change. It builds on the best climate change adaptation research and science, and includes step-by-step instructions, guidance, and information to understand climate risks. The risk assessment process described in Climate Compass is based on three main steps or 'cycles' with different purposes and levels of detail:

1. **Scan cycle (first-pass, Baseline Assessment):** This is an initial or high-level first pass to identify climate risks for the department to prioritise further work or scope for the other cycles.
2. **Strategy cycle (detailed risk assessment):** This is a formal climate risk assessment of a particular area of work (such as a policy theme or departmental division) to develop a defensible climate risk management strategic plan that could go into more detail than the Baseline Assessment.
3. **Project cycle:** This is a detailed climate risk assessment that can be used for specific projects, including operational planning and decision-making.

Each cycle contains instructions to help departments identify risks, opportunities, and management options. Climate Compass also includes a technical supplement that provides more detailed information on specific topics. While Climate Compass has been designed to be easy to understand and apply, it is best explored by a team (working group) from across the department that combines knowledge and expertise in risk, business continuity, asset management and strategic planning. Climate Compass provides some helpful tips on how to facilitate a team-based approach to a climate risk assessment.

The Scan Cycle of Climate Compass provides questions that can be undertaken as a survey to help explore how climate risk could be a detriment to a department's business[5]. The questions are summarised below and can be modified/utilised to inform discussion with staff and executive leadership as appropriate, in the context of CRM and a departments risk assessment procedure:

- Do departments need to make decisions with short, medium, and long-term implications, such as land-use or infrastructure planning, and are they aware the effectiveness of these decisions may be undermined in the future if climate change is not considered now?
- Is there an immediate sense of risk and urgency to address department's climate risks because the effects of climate change are already potentially reducing the effectiveness of policies, programs, projects, or assets for which department is responsible?
- Do departments want to identify opportunities from a changing climate as not all climate risk causes negative consequences?
- Are departments complying with a directive, including legislation and regulations (such as work, health, and safety regulations) in the context of climate risk?
- Are departments complying with a directive from management within a department to consider climate risk across all business operations and procedures where appropriate?
- Are departments responding to CRM interest and pressure from outside stakeholders?
- Is climate risk still in the early stages of discussion within the departments do they need something to support these early conversations?
- How are decisions made in the departments service area– is a scan essential to getting further organisational support to address climate risk?
- Do departments already have support to do more but want to focus their work to maximise its effectiveness?

[5] Page 8 of Climate Compass on "Why are you doing a Climate Compass Scan?" available at: https://www.dcceew.gov.au/sites/default/files/documents/climate-compass-climate-risk-management-framework-commonwealth-agencies.pdf

To help navigate Climate Compass and quickly locate relevant information, here are some pointers to key sections within the document:

- Advice on which cycle best suits a department's needs - Pages 4-5
- Instructions for a **Scan** cycle – Pages 7-23
- Instructions for a **Strategy** cycle – Pages 25-48
- Instructions for a **Project** cycle – Pages 50-61
- A brief climate change explainer, including links to key resources – Pages 64-67
- An introduction to scenario analysis – Pages 68-69
- Advice on considering the greatest plausible change – page 71
- An overview of emissions scenarios and climate projections – Pages 72-73
- Advice on selecting the right climate information for departments application – page 78 (noting the advice above about replacing the national climate projection information with Queensland Future Climate website)
- Advice on identifying climate risks – Pages 84-87
- Advice on quantifying and managing climate risks – Pages 88-90
- Adaptation pathways and decision making – Pages 91-93
- Advice on facilitating a team-based approach – Pages 94-95.

Appendix 13. What Are Climate Impacts?

Consideration of climate impacts is important to the delivery of department's priorities and objectives

The impacts of physical risks could include direct damage to assets, impact on the operation of assets and indirect impacts such as supply chain disruption. Transition impacts may include changes to policy actions around climate change which may cause a shift in emission sources for energy use or the possibility of changing community perceptions of an organisation or a shift in supply and demand.

Below are some ways in which impacts can emerge with examples shown in Figure 4.

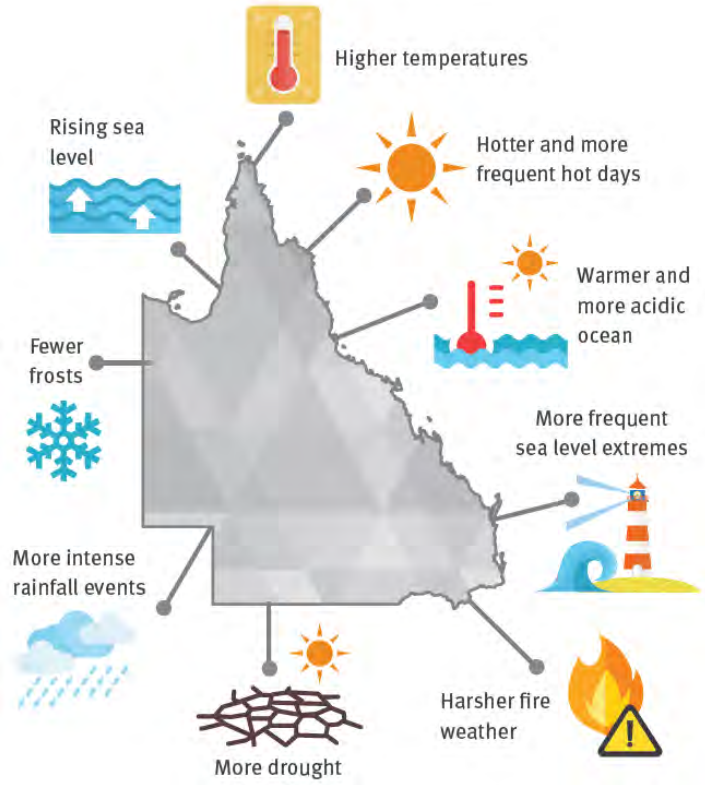

Figure 3: Projected climate change impacts in Queensland

- **Climate change is an impact multiplier:** Climate change exacerbates current hazards and impacts and introduces new ones. Impacts that arise indirectly or remotely from an initial climatic event can amplify existing factors or introduce novel ones.
- **Some physical climate hazards and events become more severe and uncertain over time:** The longer that emissions continue unabated, the greater the potential for severe physical outcomes.
- **Delayed transition invokes greater potential impacts:** The proximity of significant physical impacts from climate change infers that a rapid transition to a low carbon state will be required. As requisite action is further delayed, the greater the imperative for a more rapid transition will become and the greater the probability of disruption.
- **Physical impacts will occur regardless of rate of transition:** Even in the most optimistic scenarios for emissions reductions, some level of further climate change will still occur with physical impacts in the short to medium term.
- **Indirect consequences cascade from direct impact:** Climate change can generate impacts well beyond the initial, direct visible impacts of extreme weather events and implications can cascade as a result. These "cascading impacts" can emerge at multiple scales within and across inter-related societal, economic, and ecological systems with far-reaching consequences.
- **Impacts can mutually reinforce each other to catalyse non-linear change:** Interactions between climate impacts can perpetuate positive feedback loops with potential for tipping points and rapid change and disruption.
- **Cascading and compounding events:** Climate impacts across multiple spatial and temporal scales can combine to drive greater impact than if they occurred alone.
- **Uncertainty of the nature, timing and means by which climate impacts will manifest increases with time horizons and complexity:** The severity of physical outcomes is dependent on the magnitude of greenhouse gas emissions which is itself dependent on the multiple paths and timelines along which industrial societies and economies advance. Hence actions taken now can have valuable benefits in the future.

There are direct and indirect impacts that may not be obvious or influence departments now, but future planning is needed to reduce the possible risks to service delivery. Figure 5 illustrates hypothetical climate impacts and risks to delivering departmental objectives.

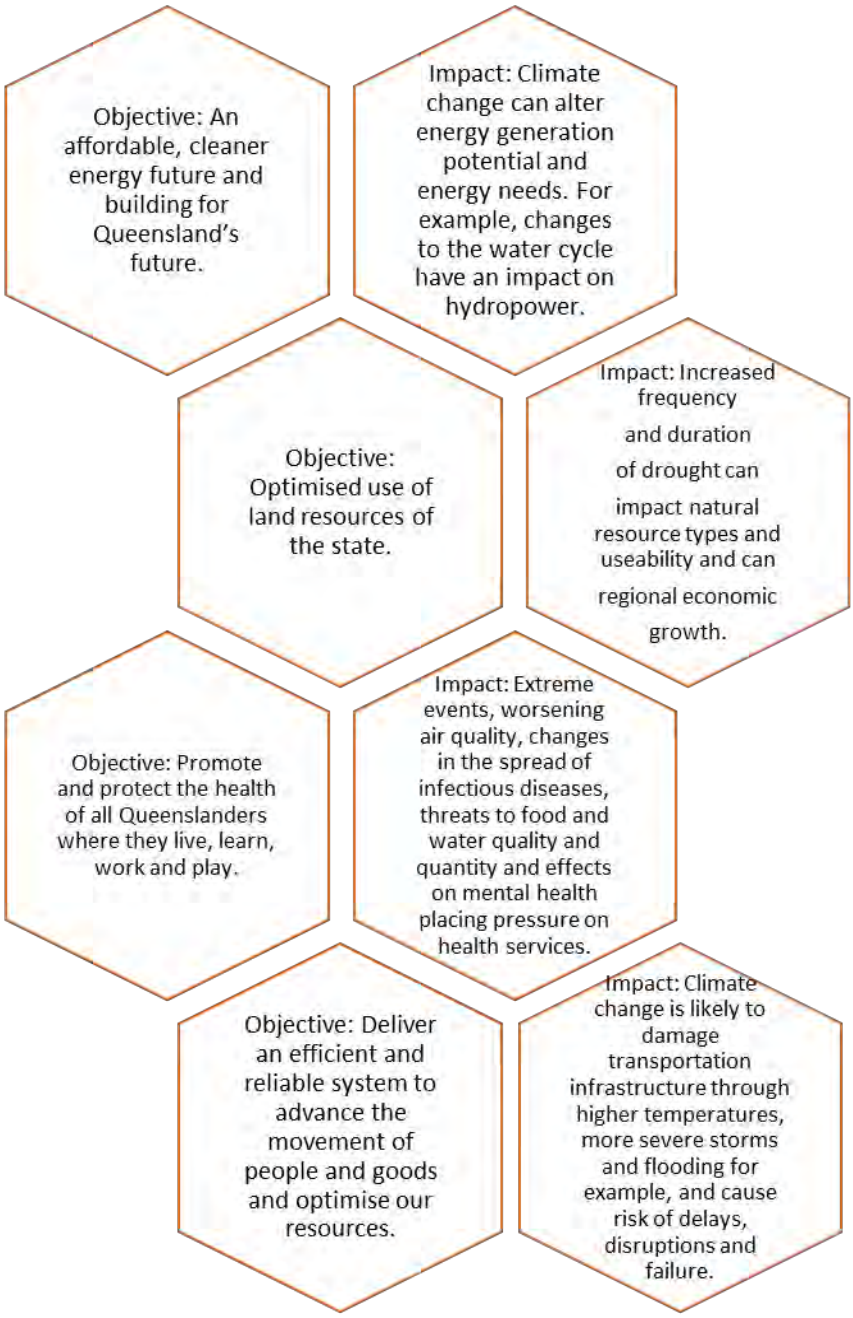

Figure 4: Hypothetical objectives and potential exposure to climate impacts

Appendix 14. Additional Information on Benefits of Managing Climate Risk

All risks provide opportunities as well as the need to apply treatments to reduce the impacts of the risk. The Capitalising on Queensland's opportunities in a zero net emissions future report[6] looks at how climate change is driving a global economic transition to reduce greenhouse gas emissions which presents both risks and opportunities to Queensland's economy. Global markets are already shifting capital away from emissions and energy intensive industries to clean technologies, which is facilitated by commitments such as the Paris Agreement, availability and affordability of innovative technologies, and greater awareness of risks and opportunities of climate change.

The report identified that there are more opportunities than risks under a two-degree scenario, compared to a business-as-usual scenario. The opportunities include reputational benefits, resource efficiency, increased resilience, and reduced physical impacts from climate change. The two-degree scenario presents financial opportunities for all sectors of the economy to respond to emerging markets and consumer demand for low carbon, resilient products, and benefit from greater resilience and reputation in adapting to a future low carbon economy. More information on the benefits across different Queensland sectors (resources, construction, manufacturing, agriculture, tourism, finance, transport and energy) can be found in the report.

The People powering the future report[7] outlines that there is an unprecedented opportunity for Queensland to set up its workforce to take advantage of the global shift to a low-emissions future, with the state economy being potentially 7% larger and creating new jobs alongside it. If Queensland keeps up with the rest of the world as it decarbonises and meets its current commitment of net zero emissions by 2050, the Queensland economy can experience 2.5% annual growth and have a workforce of over 3.6 million workers. With this, the report states that most workers today will be in demand as the Queensland economy transforms to net zero, with pathways available for workers needing to switch roles, or industries

[6] Capitalising on Queensland's opportunities in a zero net emissions future, Executive Summary, EY, 2019, available online: https://www.qld.gov.au/__data/assets/pdf_file/0010/101701/ernst-young-qld-zero-net-emissions-future-exec-summary.pdf accessed on 14/07/2022.
[7] People powering the future: Skilling Queenslanders for the clean transformation, Deloitte, 2021, available online: https://www2.deloitte.com/au/en/pages/economics/articles/people-powering-future.html accessed on 14/07/2022.

Appendix 15. Coordinating Climate Risk Management

This appendix outlines key elements of coordination for climate risk management (CRM). It provides guidance on ways to improve CRM culture across a department. In particular, it offers advice on how to raise staff awareness and engagement with CRM; how to strengthen capacity and capability in this area; how to create consistent communication around CRM; and how to strengthen knowledge management and sharing of climate risk information.

Climate risk management culture

Climate change can require new ways of thinking and doing. The culture of a department is an integral part of the way it functions and will influence how well the department responds to climate risk. "Climate risk culture" refers to the mindsets and behaviours of divisions, teams, or individuals in how they identify and implement climate risk treatments.

Developing a healthy climate risk culture will help to advance and embed CRM into the department's administrative norms, commitments, policies, processes, and behaviours.

A department or division could conduct a high-level survey to gain a sense of the current climate risk culture – and identify any challenges. Alternatively, insights could be gained through focus groups, and workshops with leadership and executives. Some questions to help explore current climate risk culture are listed below.

- Is climate risk acknowledged and accepted by executive leadership?
- What are the department and staff values and beliefs in relation to climate change and risk?
- What mechanisms and processes are in place to support the department and its staff to understand climate risk and the implications for services and functions?
- Are there processes and tools in place for climate risks to be monitored and managed?

Risk fatigue and a poor understanding of climate risks and their complexity are challenges that a department may need to address. When a department is embarking on the CRM journey, it should consider the following:

- Understanding capacity and capability
- Holding awareness-raising workshops and engagement forums
- Providing supportive governance structure
- Identifying and addressing resourcing needs
- Providing clear roles and responsibilities
- Aligning CRM with the department's strategic objectives

Strengthening climate risk culture can improve the quality and implementation of CRM across the department for executive leadership and staff.

As the executive leadership team is at the centre of any cultural transformation, it must be invested in the process and changes required. **Leaders need to champion the development of a fit-for-purpose approach to match their department's needs.** This necessitates a department to start considering what is needed to manage climate risk well. What new behaviours, governance mechanisms, processes or actions are needed and what needs to be adjusted or revisited?

Although led from the top, the entire department must be committed to making the change – hence the need to understand the culture and associated challenges early on.

A department knows their business best, so it is always best positioned to define their requirements for managing climate risk**.** Where possible, technical advice should be sought internally, with capacity and capability development opportunities identified to ensure the department is equipped to deal with climate risks in the long term. CRM initiatives should be considered as institutional capacity and capability building exercises, not one-off actions.

Staff awareness and engagement

Awareness-raising and engagement activities are key to advancing understanding and carrying out effective CRM. Various types of these activities were utilised in the QCR Program and are described in Table 1. Departments could consider using these activities (either one or a combination), and the content and detail for each activity will vary depending on the department's goal.

Table 1: Examples of CRM awareness-raising and engagement activities

Engagement type	Description
Seminars and webinars	These can be used to raise awareness and understanding and can be used to target divisions or focus on topic areas.
Briefing notes	These can be used to engage executive leadership and senior management, and update risk management staff.
Symposia	These can be held on a department-wide or more targeted scale to raise awareness and provide a foundation for understanding CRM. Symposia can also engage external speakers.
Presentations to staff	These can be used to raise awareness and understanding on climate change, climate science, and CRM.
Newsletter articles and emails	These can be used to inform staff of the CRM work that is being done within the department and/or to roll out surveys with hyperlinks, educate teams, and promote involvement.
Workshops	These can be held across the divisions to discuss CRM or to collect data for the assessment. This could include topics on climate science and different components of climate risk management, such as framing, identification, assessment, and treatment. Workshops could also review work to date, consider key gaps, establish areas of risk in service delivery, etc. This can help to build participation in in the process. They can also be used to identify opportunities and challenges to progress climate action.

Table 2 suggests some approaches to take when undertaking a Baseline Assessment and forward-facing strategy and action plan.

Table 2 Approaches to consider for a climate risk assessment (strategic high level Baseline Assessment of climate risk)

Approach	Description
Consultation on a pre-prepared document	A pre-prepared document that is collated using the established working group for the Baseline Assessment can be shared across the department for feedback. This approach is suitable when resources are limited and there is low level engagement. It allows for assessment across all areas, and ideas can be consolidated across all divisions/branches.

Case study approach	Case studies provide a targeted snapshot in time (e.g., across five areas) and help to categorise issues. They are effective at collating and presenting information and can engage different people across a department. However, taking this approach doesn't represent a consolidated strategic assessment for the department as it just focuses on specific areas. It cannot easily be operationalised for an appropriate response across all areas, and could have limited strategic influence. This approach could be used as a hybrid strategy with other approaches, such as divisional workshops. Case studies can be used as a conversation starter or something to help attain executive level support.
Institutional audit and interview process	An audit or series of interviews can be undertaken across all divisions of the department. One-on-one discussions with key stakeholders help to maximise engagement and ownership. They can be comprehensive but can also be time-consuming, especially within larger departments. However, they are useful in helping to identify gaps, opportunities, and key actions (staff surveys could also be used for this purpose).
External support and review	The Baseline Assessment process can be supported by an independent external advisor outside of the department to provide advice, guidance and review of the content and structure. Engaging an outside party may be helpful to gain a different perspective; however, it is important that they understand the business and intent of the review, and do not change the meaning of the Assessment or interpret findings differently.

Capacity and capability

Strengthening both individual and institutional capacity is key to ensuring a department can address climate risks.

> "Climate risk management is everyone's business."
>
> QCR Program Phase 1 participant

Engaging staff in CRM is important to build capacity and to facilitate cultural transformation across a department. Divisions, teams, and staff need the opportunity to engage, be involved, learn, and provide feedback, as well as to reward and recognise those who are making and facilitating progress.

Capacity development is also important at the enterprise, program, and project level. Coaching and feedback, training and recruitment processes can all help build the capability of the department and its staff, incorporating and improving skills and developing an understanding of values, behaviours, and goals with regards to climate change.

A department could recognise and showcase best CRM practice at operational level through aligning with existing reward and recognition programs. This will help to raise workforce awareness and recognition of the role of individuals in responding to climate risks.

A department could establish a community of practice. This could be through:

- identifying CRM Champions in and across service division areas
- sharing lessons across divisions and encouraging inter-agency involvement to advance best practice.

Training and professional development are important considerations in helping build departmental capacity and capability. Feedback from departments involved in the QCR Program highlighted the need for in-person support and guidance for the CRM process.

Training can be linked to current internal departmental processes that respond to individual training needs. Operational staff as well as those working in corporate risk management can provide valuable input into training and train-the-trainer sessions on updating policies and processes identified by the CRM.

Departments are encouraged to work across divisions to explore and understand what CRM is and what it means for them, and to assist Corporate Services and Finance Divisions to understand their roles and responsibilities.

In addition to building capacity and capability internally through training, mentoring, and communities of practice, departments may choose to seek external support to help facilitate CRM. This process could include:

- identifying and mapping key stakeholders (internal and external) who can provide additional capacity or help a department build capacity
- developing partnerships and/or contracting out projects where specific knowledge gaps are identified, or where bespoke modelling, targeted expertise or external review is needed.

Communications

Regular departmental communication will help to express and demonstrate changes and recognise successes across the department. Tracking progress through monitoring and reporting mechanisms is the only way to know if the efforts are successful. It is important to recognise climate risk management could be a gradual yet continuous improvement process and to celebrate successes on the journey. A department should consider the appropriate mechanisms to keep the executive leadership, staff and other key decision makers engaged and informed.

Knowledge management

Departments can use existing knowledge-management and information-sharing platforms to help advance CRM, improve climate risk culture, and reduce loss of corporate knowledge due to staff turnover. This can help to create a common understanding, facilitate collaboration, and help with delivering the desired outcomes. Options to strengthen knowledge management and information sharing on climate risk could include the following:

- Engaging with the corporate risk division and risk managers to drive momentum behind change
- Holding workshops with general managers and divisional groups
- Running workshops and webinars on all aspects of CRM (framing, identification, assessment, treatment)
- Networking and discussing tools and activities that influence CRM across the department
- Creating a central intranet location to store information on CRM, including the identified risks and their treatments, and how the department has incorporated these into policies and processes

Appendix 16. Further Information to Assist with Interpreting Climate Projections and Impacts

General information on projected climate change and timeframes

When undertaking an assessment of the climate risk profile of a department, whether that is at a high level or detailed, there are a few key sources of information provide some general information on projections of climate change and regional differences across Queensland.

Queensland Government departments can refer to the Queensland Government's Climate change science resources website as the preferred source of climate change projections for Queensland.

High-level information and summaries of climate projection data are suitable for the initial Baseline Assessment/scan cycle of a climate risk assessment and for inclusion in briefs, regional profiles, and project proposals.

The Climate change science resources website includes two key resources that provide general climate change projection data and information for Queensland for these purposes:

- The Climate Change in Queensland map application provides access to simple climate projection information for 13 regions of Queensland for 2030, 2050 and 2070. Figure 6 provides an example of an output from the map application.
- The Climate Change Impact Summaires (PDF) provide snapshots of climate risks, impacts and responses across the state and 13 regions, including climate change projections for 2030 and 2070. Detailed climate projections for risk assessments

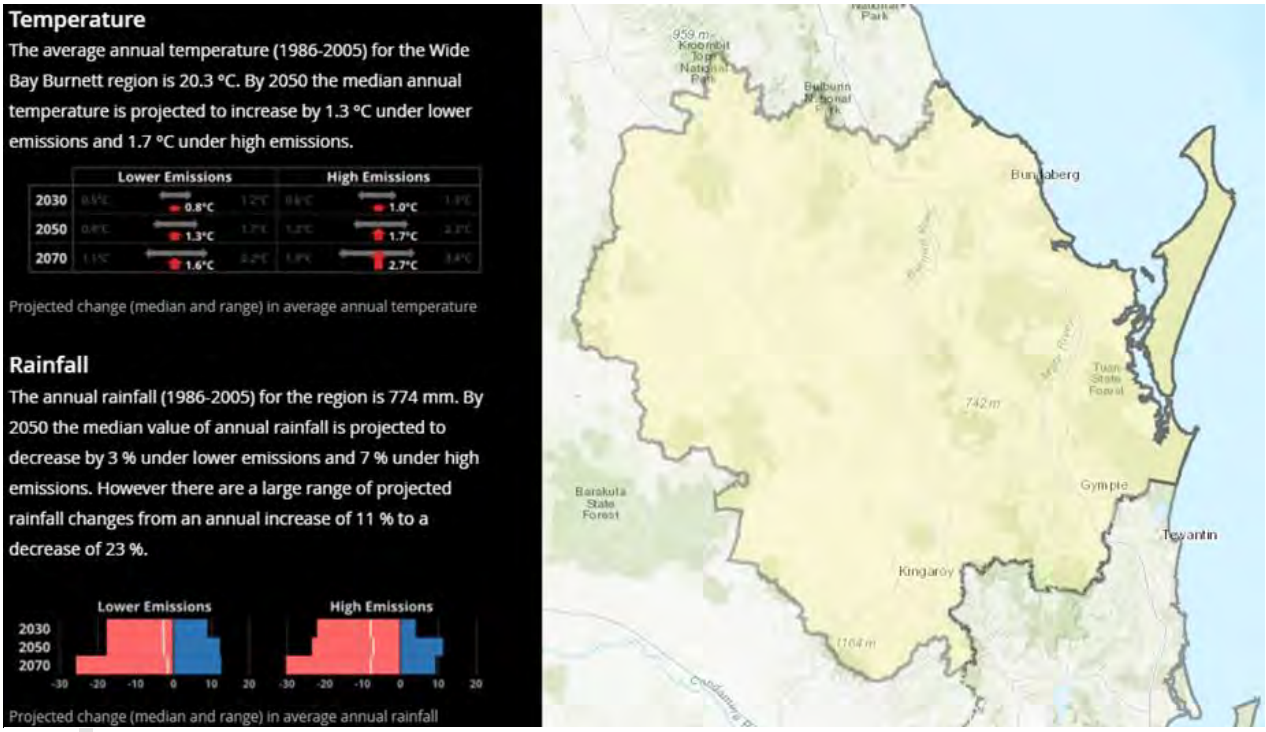

Figure 5: Example of general climate change information available from the Climate Change in Queensland map application

More detailed climate risk assessments for government services and assets require access to more specialised and comprehensive climate projection data. The Department of Environment and Science (DES) provides a comprehensive suite of downscaled, high-resolution climate projection data that can be used in climate risk assessments, available on the Queensland Future Climate web resource.

While climate projection data is also available from other sources, the Department of Energy and Climate recommends that Queensland Government departments, Queensland local governments and all Queensland-based projects use the high-resolution projection data available via the Queensland Future Climate website.

The Queensland Future Climate data offers many advantages over other sources, including a finer spatial resolution (10km x 10km grid), a wider range of climate parameters, extreme event indices (for example, heatwaves), access to a wider variety of formats to suit different applications, and consistency in the data used across all departments.

The Queensland Future Climate: Understanding the data web page explains how climate projections were developed, as well as guidance on how to interpret and apply the projection data to meet a department's needs.

The Queensland Future Climate Dashboard provides an easy-to-use, map-based interface for climate projection data for Queensland, including a wide range of climate parameters for two different emissions scenarios and multiple time horizons. The Dashboard allows users to explore, visualise and download the latest high-resolution climate modelling data for specific regions, catchments, Queensland's disaster districts and local government areas.

Figure 6 shows an example from the Dashboard. In this example, the map is displaying the projected change in mean annual temperature for 2070 under a high emissions scenario (RCP8.5) for the Mackay Regional Council area, the top chart provides additional seasonal context, while the bottom chart displays how the selected parameter is projected to change over time.

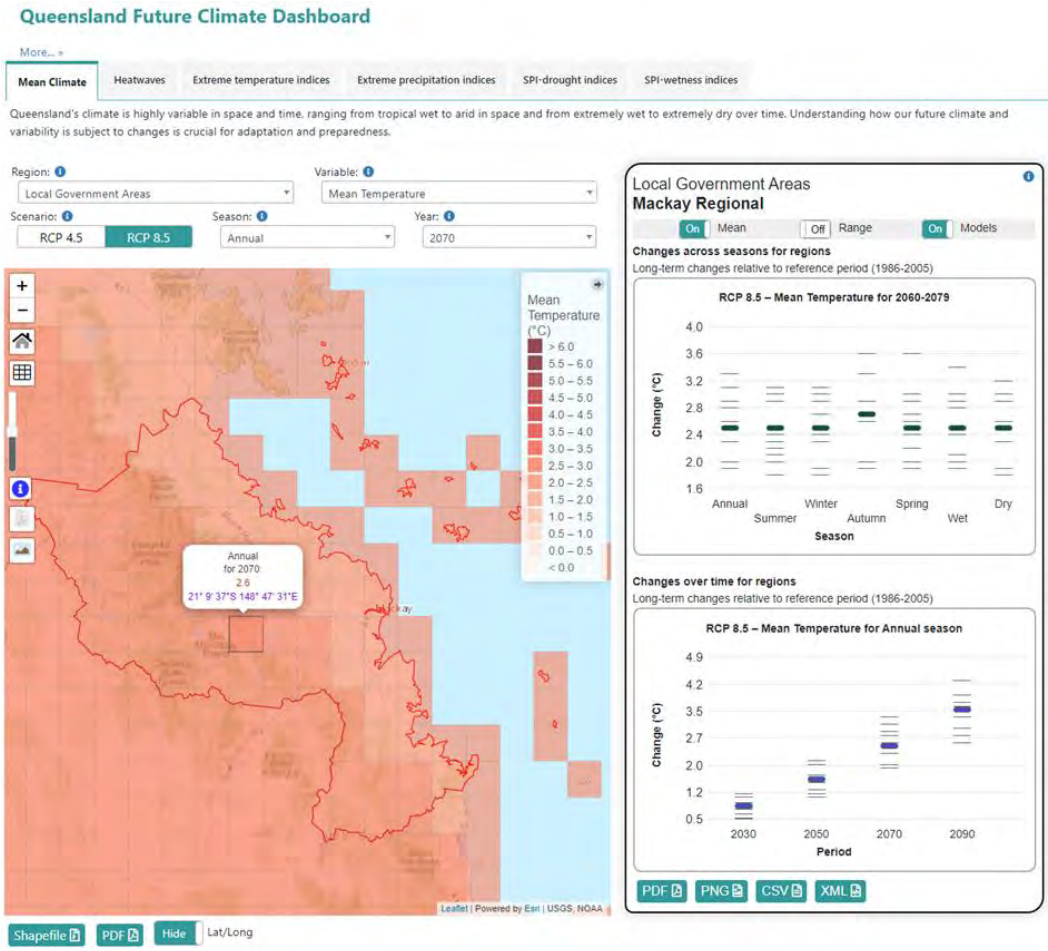

Figure 6: An example of detailed climate change projection information from the Queensland Future Climate Dashboard.

The Dashboard provides access to data in different formats to suit different purposes, including simple data summaries and charts, shapefiles that can be downloaded to overlay with other spatial datasets (e.g. asset locations, roads and waterways etc.) in a Geographic Information System (GIS), or direct access to the full suite of high-resolution climate projection data for advanced applications, such as detailed risk assessments and impact modelling.

Projections for future sea level rise

The Queensland State Planning Policy (SPP) uses a projected sea level rise (SLR) of 0.8m by 2100 to account for the projected impacts of climate change for planning purposes. This is based on the approximate mid-point of the 'likely' range of sea level projections from the 5th Assessment Report from the Intergovernmental Panel on Climate Change (IPCC). It is important to note that this requirement only applies to the purpose of the SPP (i.e., ensuring state interests are addressed in a consistent manner across local and regional planning instruments) and does not specify or limit the levels of SLR that can be used in climate risk assessments.

Detailed information on SLR projections, including addressing uncertainty and risk, is provided by the IPCC. For example, the IPCC's 6th Assessment Report (AR6) includes a *likely* range of 0.28-0.55m by 2100 under a low emissions scenario, and 0.63-1.01m by 2100 under a high emissions scenario. AR6 also includes more information on *plausible* projections of SLR beyond the likely range, for example, approaching 2m by 2100 and 5m by 2150 under a very high emissions scenario.

In addition to SLR of 0.8m by 2100 required for planning purposes, it is appropriate that climate risk assessments for government assets potentially exposed to SLR should consider additional plausible projected levels. For example, recommended values for SLR that could be used in climate risk assessments include:

- 1m by 2100, the upper edge of the 'likely' range in the current IPCC projection suite
- 2m by 2100, a high but plausible level for risk assessments addressing critical, long-lived infrastructure.

However, it may be possible to justify the use of other values of SLR for risk assessment purposes depending on things like the asset value, functional importance, expected lifespan, estimated downtime and/or repair costs following impact, and a department's appetite for risk.

The Queensland Government provides information and data on projected levels of SLR via the coastal hazard maps. Other suitable sources include CoastAdapt, Canute 3 or the Coastal Risk Australia resource.

Scenario Testing

Scenario testing is an approach that can be used to assess the level of vulnerability and exposure that exists to a department's service delivery. The Queensland Future Climate Dashboard include data for two "Representative Concentration Pathways" (RCPs) that describe scenarios for how atmospheric greenhouse gas concentrations may change over time depending on multiple factors, such as mitigation policies, population growth, economic development and land use change. RCP4.5 represents a moderate emissions scenario while RCP8.5 represents a relatively high emissions scenario that would lead to greater temperature increases and greater impacts.

Recent research shows that the trajectory of global emissions is tracking RCP8.5 closely, and without strong action to significantly reduce global emissions within the next decade, is likely to keep tracking RCP8.5 until at least 2050. As a result, it is suggested that all physical climate risk assessments for government assets and services adopt the precautionary principle and apply climate projection data for RCP8.5 to ensure the full plausible range of potential hazard levels are considered and appropriate management responses can be developed.

If resources allow, it may be appropriate to also use projection data for RCP4.5 to consider a wider range of plausible future conditions and to enable consideration of the relative risks, costs and benefits associated with alternative adaptation strategies. Used together, RCP4.5 and RCP8.5 represent realistic lower and upper bounds for projected climate change to consider in risk assessments. Figure 7 shows an example of projected temperature change for 2070 for both the lower and high emissions scenario.

For further guidance, Climate Compass includes a detailed process for selecting a scenario and climate parameters depending on the scope and objectives of the climate risk assessment. This includes consideration of the decision lifetime, greatest plausible change, risk tolerance and other relevant factors.

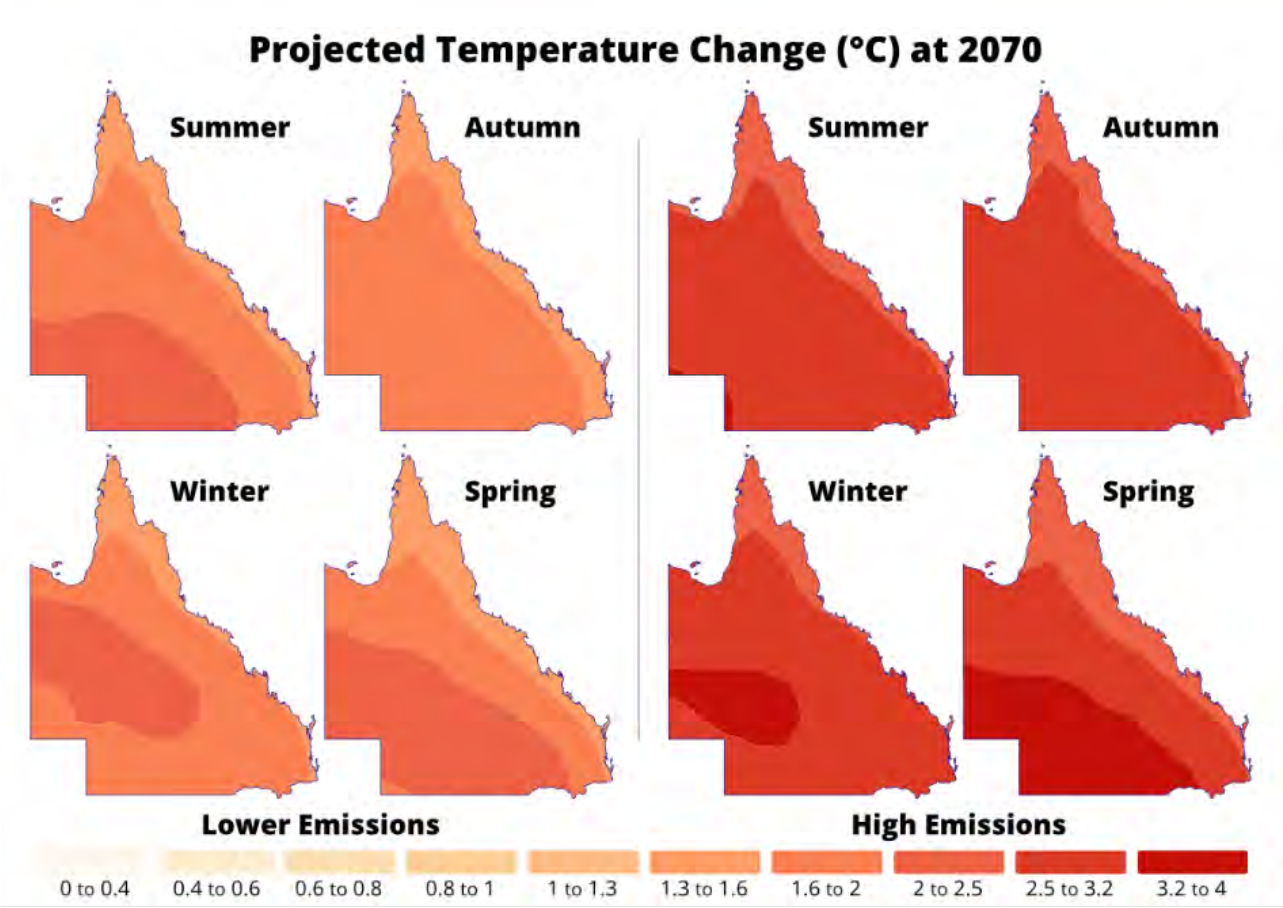

Figure 7: Projected change in mean annual temperatures across Queensland in 2070 for each season and for the two recommended emissions scenarios – RCP4.5 (lower emissions) and RCP8.5 (high emissions) (source: Climate Change in Queensland).

Other data required for climate risk assessments

Other data sources exist and can be used to inform climate risk assessments. The climate science resources described above provide detailed information on projected climate hazards. However, climate risk has multiple components including the hazard, the level of exposure, vulnerability, and consequence. Quantifying these other components of physical climate risk requires more than hazard data; it also requires detailed information on assets and services to assess the exposure to a hazard, vulnerability to impacts and the consequences of failure.
In the case of built assets and infrastructure, additional information will be required on things like the exact location, footprint, building materials, design ratings, thermal failure thresholds, floor height (above ground level), and the location and height of critical elements such as transformers, switchboards, and heating, ventilation, and air conditioning (HVAC). Information on replacement costs, insurance and maintenance expenses will be required to assess the consequences of climate impacts and inform investment decisions.

For the potential risks to government service provision, it will be important to consider effects on access routes, networks, service demand, and the health and safety of community members and government workers, among other things.

Climate Compass and other risk assessment methodologies can help departments identify these other critical information needs. More information on Climate Compass is provided in Appendix 12.

Appendix 17. Examples of Trigger Points, Thresholds, and Management

Table 3 provides examples of trigger points, thresholds and management options that could be used for various adaptation pathways. Please refer to CoastAdapt for more information on how trigger points can be applied in the pathways approach to adaptation decision-making. Things to note for this table are set out in the bullet points below.

- This is not government policy.
- This is not an exhaustive list of hazards, potential impacts, suitable trigger points or management responses etc.
- The trigger points listed are examples only. Appropriate trigger points will need to be identified through consultation with affected stakeholders, considered among a range of alternatives, be designed specifically to suit the potential levels of exposure and vulnerability to the hazard, consequences of impact, risk tolerance, and the expected time to plan and implement the desired adaptation response.
- The possible management responses listed are examples only and will need to be tailored to the potential impacts, designed in consultation with stakeholders, and aligned with the responsibilities and strategic objectives of a department.

Table 3 Some examples of possible trigger points and management responses for a range of climate hazards that could be considered within an adaptation pathways approach

Hazard	Potential impacts	Example trigger points	Possible management responses
Extreme heat	• Increased mortality • Increased heat-related illnesses • Increased demand on health services	• Number of consecutive days over a specified temperature threshold • Heatwave frequency or duration • Heat-related mortality threshold	• Increase investment in cooling and green infrastructure • Adjust building codes to improve thermal performance of new buildings • Retrofit existing buildings for improved cooling performance
Sea level rise	• Property loss and damage • Isolation / reduced access • Community dislocation • Reduced agricultural productivity • Reduced property value • Increased insurance premiums / reduced availability	• Frequency of inundation at an identified point (e.g., tidal or storm surge) • Threshold maximum tide level • Financial costs / losses • The number or value of affected or threatened properties within a time horizon	• Increase restrictions on new developments in at-risk areas • Increase sharing of information on risk • Construct hard engineering solutions • Planned relocations • Insurance subsidies • Redesign support packages
More intense tropical cyclones/severe winds	• Property loss and damage • Greater damage from more intense cyclones • Expanded range of most intense cyclones	• Several cyclones per season over Category 3 • A Category 5 cyclone passes below a threshold latitude	• Adjust building codes to increase resilience to extreme winds • Increase community awareness of risk and mitigation options
Flood	• Loss of life • Property loss and damage • Community dislocation • Recovery costs	• Flood frequency or return interval for a given location • Record flood level at a location	• Raise existing buildings to accommodate increased flood heights • Modify design requirements for new buildings to improve flood resilience • Adjust planning regulations in line with flood risk • Planned relocations
Bushfire	• Loss of life	• Frequency or return interval of severe fires at a location	• Modify design requirements for buildings in bushfire prone areas

	• Psychological trauma and mental health impacts • Property loss and damage • Ecological damage • Community dislocation • Recovery costs	• Threshold level of the Forest Fire Danger Index (FFDI) for a location	• Adjust planning regulations in response to bushfire risk • Planned relocations
Altitudinal or latitudinal shifts in climatic zones	• Local species extinctions • Disruptions of ecological communities and processes • Effects on agricultural productivity	• Change in status of a threatened species • Temperature threshold (minimum or maximum) at a given location/altitude	• Interventions, such as species translocation and captive management • Increase ecosystem connectivity through targeted investments in protected areas and/or habitat restoration

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