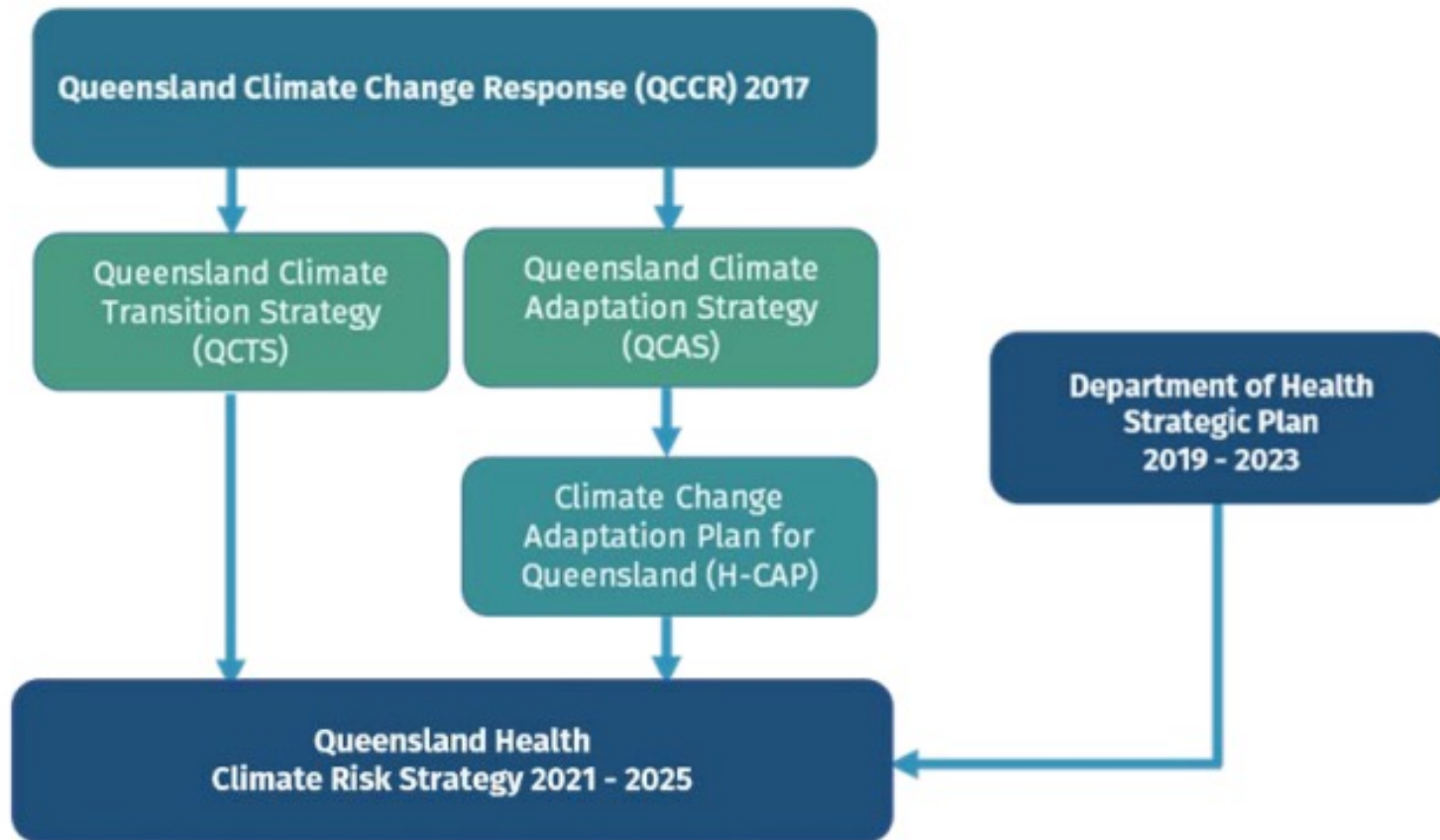


Developing planning guidance for Queensland's health and hospital services

Jean Palutikof, Griffith University
Sarah Boulter, University of Tasmania
Fahim Tonmoy, BMT



Key QLD government documents relating to adaptation in QLD Health

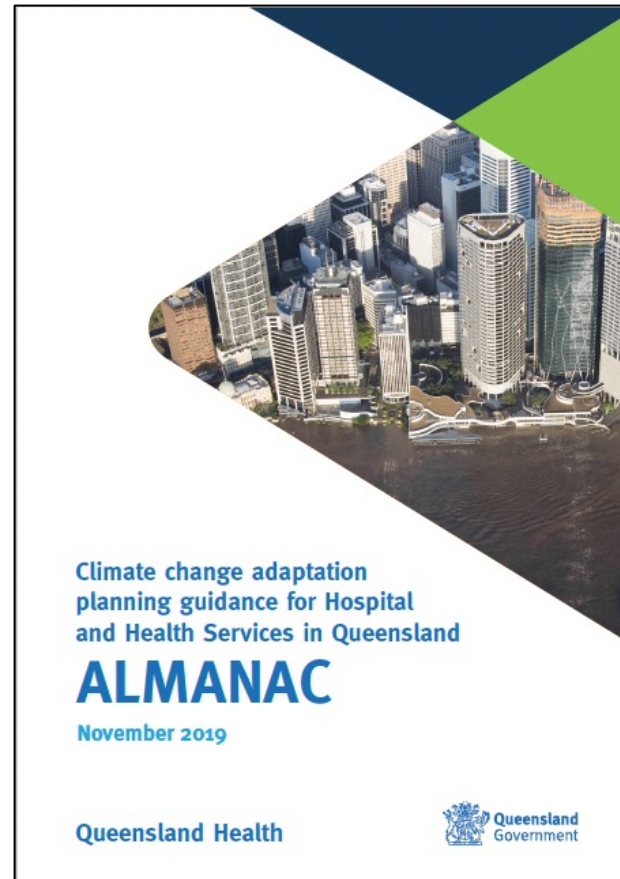
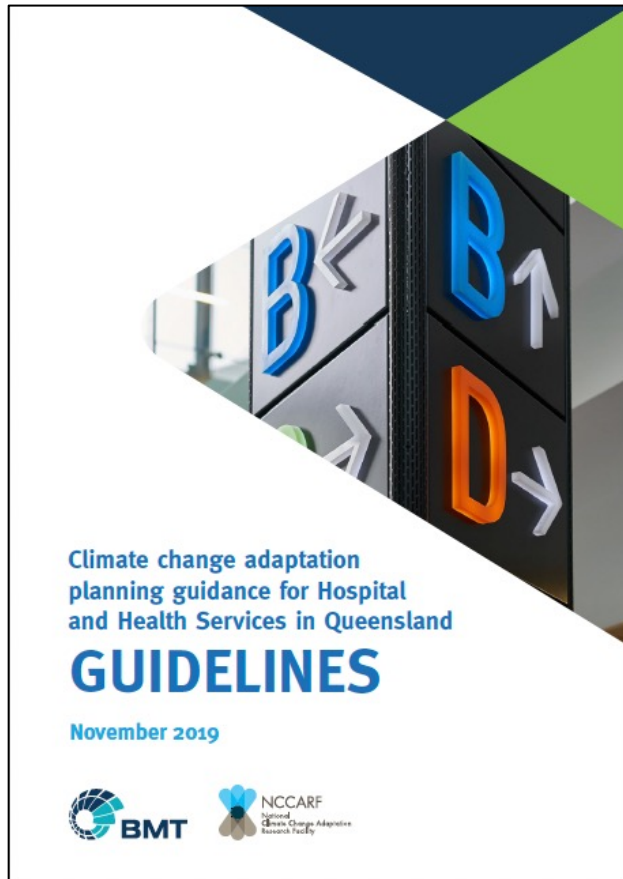


Source: DoH (2021a) Strategic Plan 2021–2025. Department of Health, Queensland Government, Brisbane.

Timeline

- The Dept. Environment & Heritage “Human Health and Wellbeing climate change adaptation plan” was published in 2018 (Fiona Armstrong, Sue Cooke, David Rissik, Fahim Tonmoy)
 - Early 2019: contract signed between QH and GU to produce “a set of materials to support hospital and health service staff to identify, assess and manage risks from climate change” with a sub-contract to CAHA
 - Following consultation, materials delivered early 2020
 - Two training contracts in 2020-21 FY and 2021-22 FY
- 

A three-part risk framework for Queensland HHSs



Two templates for risk
assessment and management:

- Scan cycle
- Detailed cycle

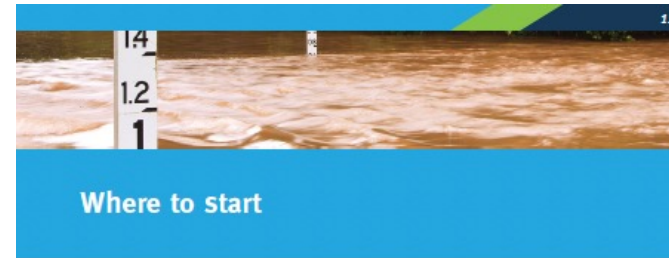
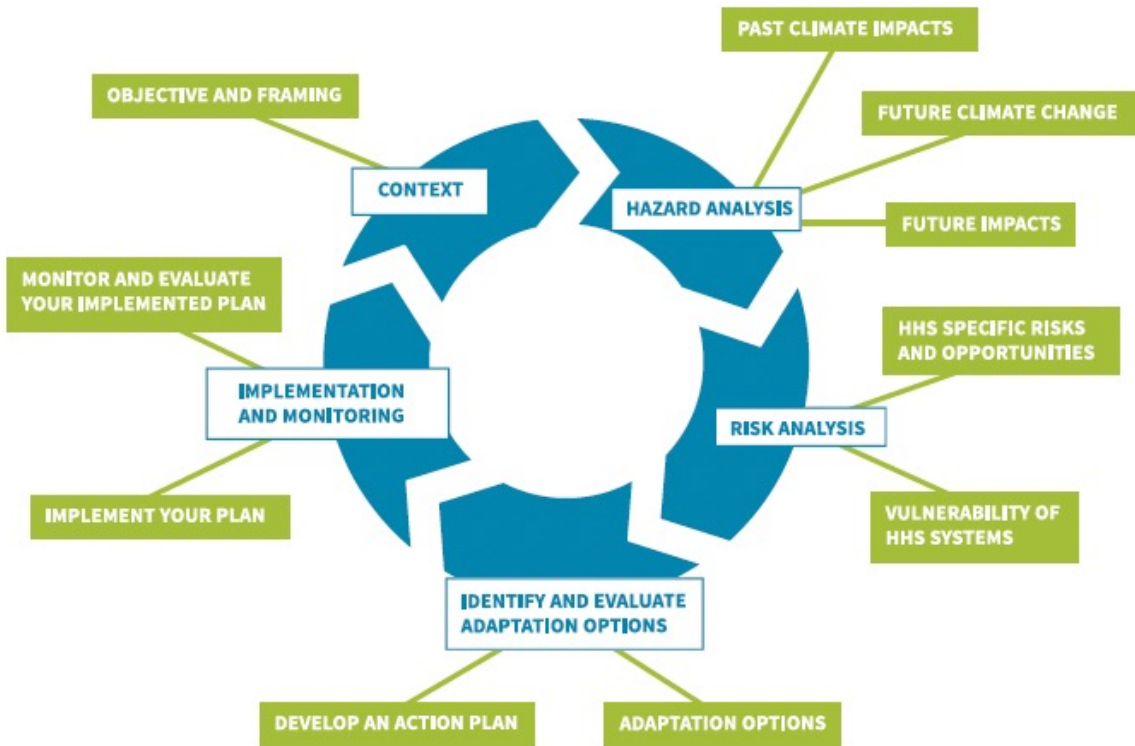


Organization		Project	
		Name	
1. Objective			
2. Select the future time frame of the assessment		Briefly document the reason behind this choice of time frame	
3. Select the future climate change scenario for which the risk assessment will be conducted		Briefly document the reason behind this choice of scenario	
4. List the systems that you would like to include in the Detailed cycle assessment. We should be informed by the outcomes of the Scan cycle			
5. Make a preliminary list of stakeholders that are relevant for your adaptation planning. You should have developed a list of stakeholders at the end of your Scan Cycle - this one may be more detailed		Stakeholder names	Mechanism to involve the stakeholder (e.g. phone call, face to face meeting)
Stakeholder 1	eg. Local government		
Stakeholder 2	eg. Queensland Fire and Emergency Services		
Stakeholder 3			
Stakeholder 4			
Stakeholder 5			
Stakeholder 6			
Stakeholder 7			
Stakeholder 8			
Stakeholder 9			
Stakeholder 10			
6. Work about the governance structure to guide your adaptation planning and make sure to know how your responses in the Scan cycle			
Name of persons likely to be involved in adaptation planning		Role of this person	

Guidelines

Conventional risk framing:

- Scan cycle
- Detailed cycle



Where to start

Box 1 will help you to navigate between the step-by-step Guidelines (Part 2 of this document), the set of Templates and the Almanac.

Box 1: Using the Guidelines

I want some background information about climate change risks to Hospital and Health Services (HHSs).

- Why should I consider climate change risks to my HHS? Go to page 30 of Guidelines
- What is climate change and sea-level rise? Go to Page 4 of the Almanac
- What does the future climate look like in Queensland? Go to Page 6 of the Almanac
- What are some of the potential impacts of climate change on HHSs? Go to Page 68 of the Almanac
- What are the benefits of adapting to climate change? Go to Page page 15 of Guidelines
- What are some examples of management (adaptation) options to address climate change risks? Go to Page 74 of the Almanac

I want to do a rapid assessment of the climate change risks facing my HHS. Follow the 'Scan cycle' instructions in the Guidelines.

Go to Page 21

I want to do a detailed climate change risk assessment. Follow the 'Detailed cycle' instructions in the Guidelines.

Go to Page 21

I want to see what a best practice within the health sector might look like.

Go to Page 82 of the Almanac

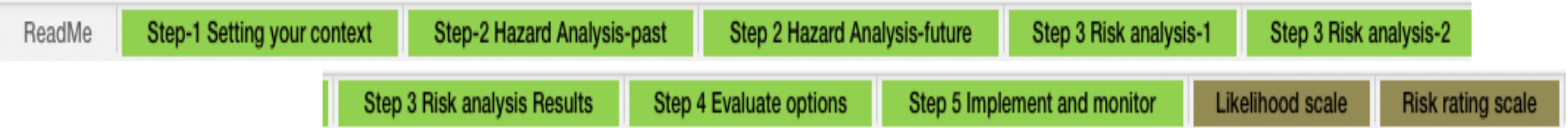
Table 4: Example future climate change risks to HHS assets and operation in Queensland.

Broad category of risks	Example risks
Disruption to essential services	Structural damage to the facility Failure or poor functioning of water supply system Failure of power supply system Failure of council services (e.g. waste collection) Lack of back-up supply of essential services Delays to maintenance work due to service disruption
Risk to safety and availability of staff to support continuity of service delivery	Staff remain at home due to property damage or family health issues Staff unable to travel to work due to failure of supporting services e.g. road closures, closure of day care or schools, failure in transportation and communication system Limited pool of staff or staff fatigue in more frequent high demand periods Lack of appropriately skilled staff to fill vacancies as required Lack of equipment redundancies including computer backups to ensure continuity in service delivery
Risk to access and transportation	Closure of the single-access routes to hospital Insufficient fleet and appropriate transport sources to transfer patients to and from hospitals during high demand periods
Risk to communication and coordination in responding to future events	Communication system failure (communication tower failure, lines flooded, no mobile phone coverage, loss of power supply) Failure in the flow of information internally and to and from external sources (e.g. early warning)

Seek to be highly user friendly/usable

Templates

2. Detailed cycle: formally evaluates likelihood, consequence and vulnerability to arrive at a risk rating



Explore the future exposure of your listed systems and identify their vulnerabilities (1st row provides an example. Please update this as appropriate for your organisation)										
Systems, assets, operations at risk (exposure)	Past or existing risk	How this risk may change in the future as a result of climate change	Sensitivity of your system, asset, operation to future risk	Adaptive capacity	Vulnerability rating					
Water management	e.g. Hospital has high demand for water due to nature of the business; on-site laundry has very high water consumption. Water restrictions have been imposed in the past forcing the hospital to out-source bed linen laundry urgently and at high cost.	e.g. Queensland is expected to experience generally drier conditions as a result of climate change, meaning that risks to the hospital water supply are likely to increase in future	e.g. Hospital operation sensitive in diverse areas, wards, laundry etc.	1 Six example criteria are provided here (see also Table 6 in the Guidelines for example criteria). Amend them as required						
				2	List your systems (this list will be automatically populated from "Future exposure and vulnerability" sheet)	General description of risk	List future consequences if this risk eventuates	Criterion-1: Sustainability of buildings and maintenance regimes		
				3				Consequences	Likelihood	Vulnerability
				4	Water management					
				5	Energy management					
				6	Waste management					
				7	Asset maintenance					
				8	Emergency and disaster management					
				9	Human resources					
				10	Transport and access to premises					
				11	Procurement					

Almanac

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QLD HHS regions



4.3 Central West

How will climate change affect the Central West Region?



The Central West Queensland region extends from the Northern Territory and South Australian borders in the west, through to Queensland's Central Highlands in the east.

The region occupies 23% of the state's total area but only contains around 0.3% of the population.

4.3.1 Current climate

The Central West Queensland region has a semi-arid to arid climate with very hot summers and warm, dry winters.

The current average annual temperature is 24 °C. The summer average is 30 °C, autumn is 24 °C, winter 16 °C and spring 25 °C.

Annual and seasonal average rainfall are variable, affected by local factors such as topography and vegetation, and broad scale weather patterns, such as the El Niño–Southern Oscillation.

Annual average rainfall is 326 mm. Around half of this falls between December and February.

The region's annual average potential evaporation is more than five times the annual average rainfall, which contributes to the depletion of soil moisture.

4.3.2 Climate projections

Higher temperatures

Maximum, minimum and average temperatures are projected to continue to rise. For the near future (2030), the annually averaged warming is projected to be between 0.4 and 1.7 °C (10th percentile of RCP2.6 to 90th percentile of RCP8.5) above the climate of 1986–

3 °C (10th percentile of RCP2.6 to

ould rise to over 31 °C by 2030 and

minimum temperatures (°C) and
n/minimum temperature is the

In (day)	Mean projected increase in temperatures by 2030 (RCP4.5) °C	
	Minimum (night time)	Maximum (day time)
5.2	3	
3.3	2.9	
3.3	2.9	
3.3	2.9	

are reached on the hottest days.
ion of warm spells.

C and 40 °C for the Central West

Increase in mean annual number of days for 2070 (RCP4.5)	
>35 °C	>40 °C
58	36
58	36
55	33
54	34

n and where fire does occur,
extreme. Bushfire in the region
on rainfall. A tendency toward
her temperature and lower

More intense downpour

High natural variability (e.g. as a result of the El Niño–Southern Oscillation) is likely to remain the major factor influencing rainfall changes in the next few decades. In 2070, rainfall changes continue to show a large amount of variability, with a drier or wetter climate both possible. The intensity of heavy rainfall events is likely to increase.

Changes to drought are less clear

Projecting changes in the frequency and duration of drought is difficult. However, by late this century, under a high emissions scenario, it is likely that the region will experience more time in drought.

Training workshops

- Brisbane
- Gold Coast
- Cairns
- Mount Isa
- Toowoomba



Recent activities: regional template single worksheet, present-day and future risks

A		B		C		D		E		F		G		H		I		J		K		L		M		N		O		P		Q		R	
List of systems, assets and operation		Hazards		Present-day climate		Present-day risks		Present-day risks		Vulnerability of the system		Present-day risk rating		Future climate change (relevant to 2050)		Future risks		Consequences		Future risk rating															
				Relevant recent climate conditions or hazards affecting this system, asset or operation		How frequently do you estimate similar events occur (likelihood)?		What was the consequence of this hazard to your business? (Short qualitative description)		Is there any existing risk management strategy in place to tackle this hazard?		Is there any present day (residual) risk?		Sensitivity of your system, asset, operation to hazard		Adaptive capacity		Vulnerability rating		Likelihood rating		Consequence rating		Risk rating		How this hazard is likely to change in future		Likelihood rating		Future risks		Consequences		Future risk rating	
7	Human resources	flood		Flooding has been experienced in different region of SEQ differently based on the characteristics of the river catchments. For example, Brisbane River has experienced major flooding in 1973, 2011 and 2022.		Possible																		Rainfall is the major driver of flooding. High natural variability is likely to remain the major factor influencing rainfall changes in the next few decades. By 2050, projections of total rainfall show little change or a possible decrease, particularly in winter and spring. However, the intensity of heavy rainfall events is likely to increase.		Possible									
		storms																																	
9	Human resources	heatwave		Heatwave is a regular occurrence in SEQ with different degrees of severity between year to year. Severe heatwave was recorded in SEQ in 1940, 1972, 2004, 2014 which recorded increased excess death and hospitalisation.		Likely		Staff affected by heat stress and fatigue from working long hours. If air quality deteriorates, may be increased staff sick leave due to respiratory complaints		Extremely hot spells are currently of short duration (1-2 days) so that existing strategies as outlined in the Heatwave Management Sub-Plan are generally adequate		Low		Heatwaves are expected to become more common in future and there are human resource vulnerabilities. Heat stress and lower air quality will increase ambulance call outs and hospital admissions, leading in time (as warming increases) to insurmountable staff absences and shortages unless remedial action is taken.		The understanding of what is required is high, but financial, logistical and human resources will be required to manage the changes		Moderate		Likely		Moderate		Medium		Heatwave is likely to become more frequent and longer in SEQ. Heatwaves may become as frequent as 10% of the year in 2050 in Brisbane, Gold Coast and Noosa. A single heatwave event may last up to two weeks in these locations.		Almost Certain		HR services and staffing levels in general will not be able to cope with increased demand due to heat stress and its consequences during heatwaves.		Staff well-being and morale deteriorates; sickness absences and resignations increase. It becomes more difficult to recruit as positions are seen as stressful and unattractive		Major	
		sea level rise																								Around 27cm. Note that this will increase the risk of damaging surge events during wind storms, and hence increase the risk of flooding.									
		bushfire		Bushfire is an ever-present risk in SEQ summers. The most recent severe bushfire season in SEQ was the period September-December 2019, when 49 homes were destroyed and insured losses amounted to \$70 million		Possible		Inadequate staff to cover demand, especially in emergency departments and ambulance services Staff fatigue means sick leave absences go up after the event		Staff can be redeployed from other areas of HHS and if necessary from elsewhere in the state (ambulance services) to meet increased demand Non-urgent procedures can be postponed to release staff and facilities		Low		Bushfires can happen and build to high intensity and scale very rapidly. Human resources need to be responsive and agile to cope with sudden increases in demand for staff who may be unavailable because they are away fire-fighting. It is not simply numbers of staff but also skill sets - demand is likely to build for respiratory complaints, injuries and burns		Limited by staff numbers, skills and availability. There is capacity to cancel leave and redeploy but depending on severity and duration this capacity could be exceeded, especially in future as events become more severe		Medium		Possible		Moderate		Medium		The risk of severe bushfires is likely to increase as temperatures rise. Much depends on the responsiveness of management practices		Likely		Bushfires will become more common/more severe so that existing risks will increase and new risks may emerge		There will be more occasions when it becomes necessary to take emergency action to ensure staffing levels are adequate - to cancel leave and redeploy staff.		Major	
drought		In 2019-20, 67% area of QLD was drought declared. Although this does not include SEQ, there are implications for health service delivery (especially mental health) to rural and remote areas. The last major drought in QLD was in 2009-10.		Possible		Staff numbers, particularly providing outpatient services to rural and remote communities, are insufficient to meet current demand. Staff may suffer from excessive workloads and lack of		No		Medium		Drought is slow onset and associated risks to human resource systems are similarly slow to manifest. This should give opportunity to plan, and therefore reduce capacity		Adaptive capacity is around staffing numbers. Because drought is slow onset and generally lasts more than one year, strategies such as staff redeployment are not appropriate. Adaptive capacity is around training and resilience needed		Medium		Possible		Moderate		Medium		Droughts are expected to become more common, and more severe. By late this century, under a high emissions scenario, it is likely that the region will experience more frequent droughts		Likely		As drought events intensify, mental health issues will become more common.		Demands on staff will increase leading to failures to meet targets, increased workplace stress and increased absenteeism due to sickness.		Major			

Recent activities: regional template single worksheet, present-day and future risks

List of systems, assets and operation		Hazards	Present-day risks	Vulnerability of the system	Present-day risk rating			Future risk rating			
			Is there any existing risk management strategy in place to tackle this hazard?	Hazards	Vulnerability rating	Likelihood rating	Consequence rating	Risk rating	Consequence rating	Risk rating	
Health care services	Food	heatwave		Health care services	Heatwaves are expected to become more common in future and there are system vulnerabilities. Heat stress and lower air quality will increase ambulance call outs and hospital admissions. The understanding of what is required is high, but financial, logistical and human resources will be required to manage the changes	Moderate	Likely	Moderate	Medium	Major	High
		sea level rise and associated surge events									
		bushfire									
		drought									
		flood storm									
Human resources	Business	heatwave		Human resources	The frequency is low but when events do occur the sensitivity of facilities located within the flood zone is extreme.	Extreme	Rare	Major	Medium	Major	High
		sea level rise and associated surge events									
		bushfire									
		drought									
		flood storm									
Government	Drought	heatwave		Government							
		sea level rise and associated surge events									
		bushfire									
		drought									
		flood storm									

Thanks to people at QLD
Health:

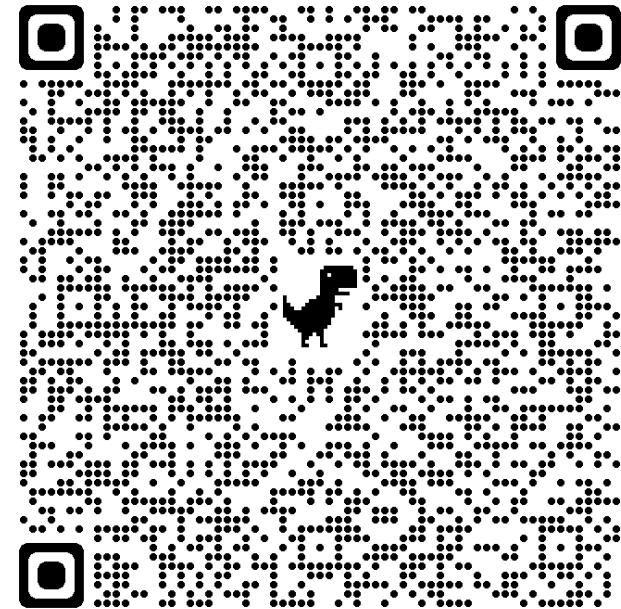
Peter Schneider,
David Ward
Rizsa Albarracin

Thanks to people at CAHA
especially:

Sue Cooke
Fiona Armstrong

The risk framework is
available online

- Search 'Queensland health
climate change risk
guidelines'



NATIONAL ADAPTATION FORUM
Tuesday, 1 November 2022

Thank you!

