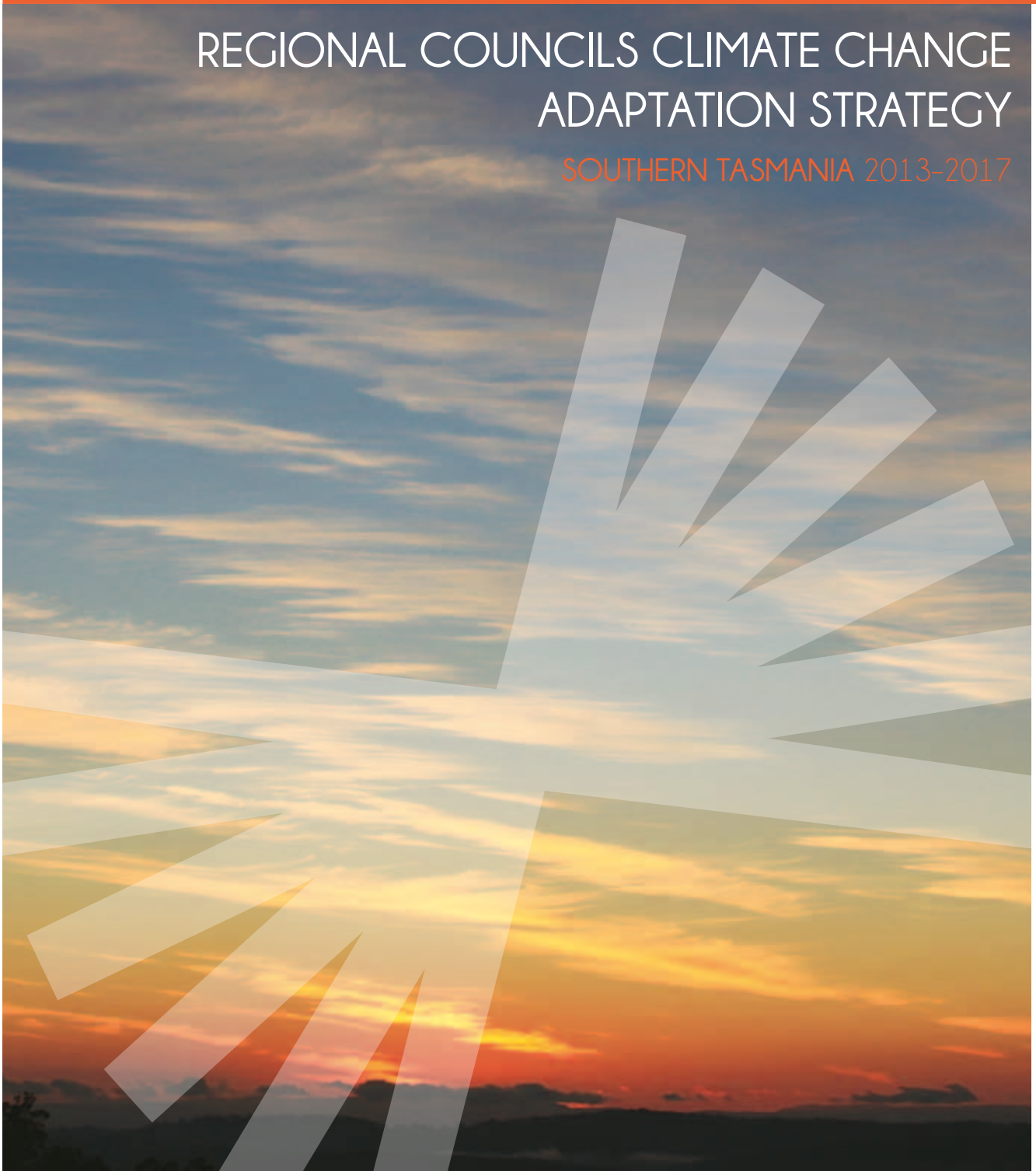


REGIONAL COUNCILS CLIMATE CHANGE ADAPTATION STRATEGY

SOUTHERN TASMANIA 2013-2017



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The Regional Councils Climate Change Adaptation Strategy Southern Tasmania 2013–2017 was endorsed by the Board of the Southern Tasmanian Councils Authority on 21 February 2013.

Acknowledgements

The Strategy was prepared by Katrina Graham, Graham Green and Oliver Heyward, Joint Project Managers for the Regional Councils Climate Change Adaptation Project. Input was provided by David Hunn and David Lovell, Joint Chief Executive Officers, Southern Tasmanian Councils Authority.

The Regional Councils Climate Change Adaptation Project was funded by the Australian Government and the Hobart City Council. It was undertaken with the 12 councils of southern Tasmania: Brighton, Clarence City, Central Highlands, Derwent Valley, Glamorgan Spring Bay, Glenorchy City, Hobart City, Huon Valley, Kingborough, Sorell, Southern Midlands and Tasman. It has been supported by a Steering Committee comprising Wendy Spencer, Tasmanian Climate Change Office (Tasmanian Government) with support from Shona Prior and Libby Doughty; Allan Garcia, Local Government Association of Tasmania, with support from Melanie Brown and Georgia Palmer; and David Hunn, Southern Tasmanian Councils Authority.

Disclaimer

The Strategy is informed by:

- climate change modelling projections from the Climate Futures Tasmania project
- bushfire modelling based on the Tasmanian Government's Parks and Wildlife Service datasets augmented Climate Futures Tasmania data
- sea level rise mapping from Climate Futures Tasmania and the Tasmanian Planning Commission
- legal comment from Shaun McElwaine + Associates
- outputs from climate change risk and adaptation workshops conducted with the 12 councils of the southern region.

While reasonable efforts have been made to ensure that the contents of the Strategy are correct, the Southern Tasmanian Councils Authority does not accept responsibility for the accuracy or completeness of its contents and shall not be liable for any loss or damage that may be occasioned directly or indirectly through the Strategy.

Citing this Strategy

Please cite this Strategy as follows:

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Photography: Katrina Graham

Minister's message

Since the 1950s, Tasmania has seen a mean annual temperature increase of 0.10 °C per decade, and, since 1975, a reduction in total rainfall. There is no longer any doubt that we are experiencing changes in our climate, and that we will face many impacts in the coming decades as a result.

The Southern Tasmanian Councils Authority, in partnership with the Tasmanian Government's Climate Change Office and the Local Government Association of Tasmania, has shown real leadership to develop this Southern Regional Adaptation Strategy. This is a great example of the type of collaboration required for effective climate change adaptation.

Through innovative projects such as the Regional Councils Climate Adaptation Project, we are able to more clearly understand the complementary yet differing roles that the State and Local Governments have in adapting to the impacts of climate change.

One of the Tasmanian Government's major responsibilities is to provide climate change information that has broad public benefit. This is why the Government has invested significantly in the Climate Futures for Tasmania project, which has delivered much of the detailed, locally relevant climate projections used to inform this Strategy.

In the future, we are likely to experience an increase in the frequency and severity of extreme weather events and increased inundation of vulnerable coastal areas from rising sea level and storm surges. There may also be beneficial changes from a changing climate, such as an increase in growing degree days, which will allow us to cultivate a wider variety of crops. I commend the project partners for their work on the Regional Councils Climate Adaptation Project, which now gives us a clearer picture of what we must do to adapt, and the benefits from taking action early.

It is also crucial that Government establishes the right conditions and incentives for households and communities to manage the risks from climate change. This can be facilitated by taking climate change risks and opportunities into account in all relevant policies and regulations, and in the planning system. I will continue working with my Cabinet colleagues to progress this important work within the Tasmanian Government and across other spheres of government.



As Minister for Climate Change, I am personally and deeply committed to continuing the work with some of the best and brightest policy makers and futurists to ensure Tasmania takes its place as a leader in climate change adaptation.

Cassy O'Connor MP
Minister for Climate Change

Foreword

I am pleased to present the Regional Councils Climate Change Adaptation Strategy, Southern Tasmania 2013–2017. Climate change is an issue that will affect every aspect of function and services of local governments across southern Tasmania. It is an issue that requires a whole-of-council approach and the Regional Councils Climate Change Adaptation Project (RCCAP) is an important first step in enabling councils to identify risks and vulnerabilities.

Successful local government adaptation is underpinned by a consistent approach – as our adaptation actions are only as sound as those of our neighbouring councils. Collaboration and cooperation are key to the success addressing and responding to climate change impacts.

The Strategy is a key element of the RCCAP, which was undertaken with the 12 southern Tasmanian councils to address climate change adaptation at both the local and regional level. It is complemented by the following key project outputs:

- Council (corporate) Climate Change Adaptation Plans (CCAP) for each of the 12 southern councils
- A Regional Climate Change Stakeholder Report, a companion document to the CCAPs and the Strategy
- A Climate Change Adaptation Toolkit for review of each council's Climate Change Adaptation Plans and extension to other councils.

The RCCAP was funded by the Australian Government's Local Government Reform Fund (LGRF), which is administered by the Department of Regional Australia, Local Government, Arts and Sport. The Hobart City Council also provided a financial contribution of 20% of the overall project funds. The project was delivered by the Southern Tasmanian Councils Authority (STCA) in partnership with the Tasmanian Government and the Local Government Association of Tasmania.



The STCA's Regional Climate Change Initiative (RCCI) instigated the project. The RCCI is a working group comprising representatives from each of the 12 southern councils that meets regularly to collaborate and cooperate on climate change action at the council, inter-council and regional level. Representatives from the RCCI also performed the key role as the RCCAP Technical Working Group and were the primary contacts in the participating councils.

Damon Thomas,
Lord Mayor, Hobart City Council
Chair Southern Tasmanian Councils Authority

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Abbreviations

CCAP:	Council Climate Adaptation Plan
IPCC:	International Panel on Climate Change
RCCAS:	Regional Councils Climate Adaptation Strategy
RCCAP:	Regional Councils Climate Adaptation Project
RCCI:	Regional Climate Change Initiative
STCA:	Southern Tasmanian Councils Authority
TCCO:	Tasmanian Climate Change Office

1. Introduction and rationale



1.1. THE SOUTHERN REGION

Tasmania's southern region has a diverse landscape, which influences the social, economic and cultural welfare of its population. The southern region is the largest and most densely populated of Tasmania's three regions, with a population of 252 543 people or 50% of Tasmania's total population.¹ It covers an area of approximately 25 377 square kilometres or 38% of the State's total area. The southern region comprises 12 municipal areas: Brighton, Central Highlands, Clarence City, Derwent Valley, Glamorgan Spring Bay, Glenorchy City, Hobart City, Huon, Kingborough, Sorell, Southern Midlands and Tasman.



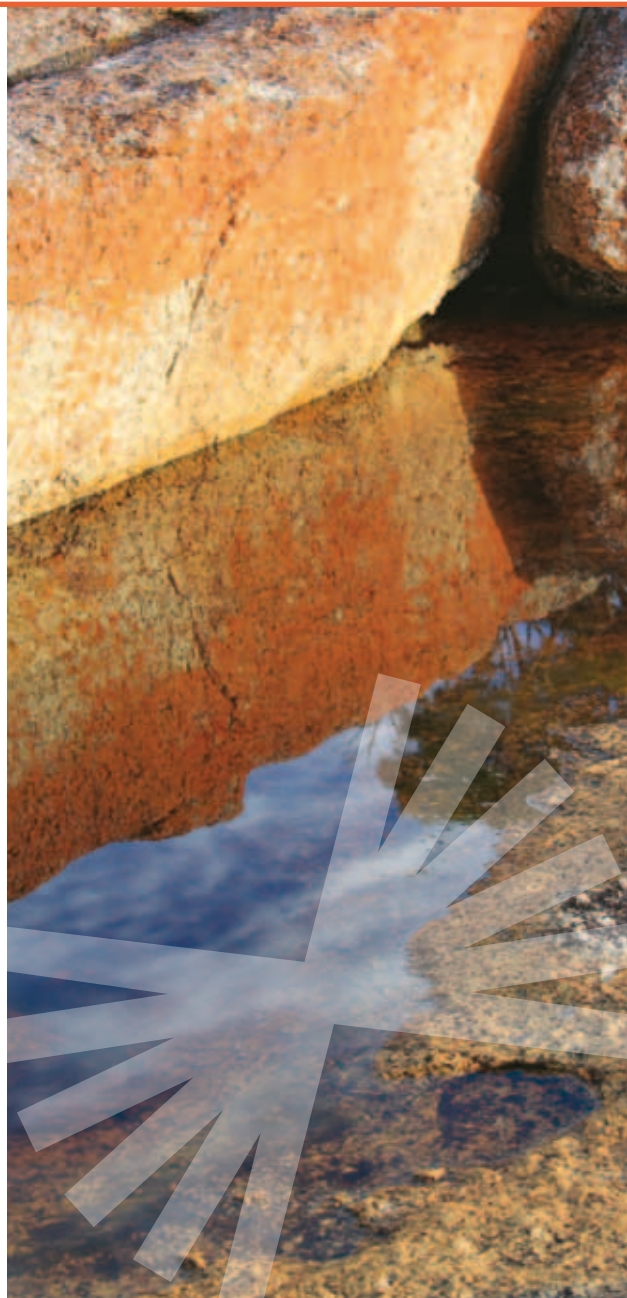
Figure 1. The 12 southern region municipalities.

1 Australian Bureau of Statistics, Nov 2011.

1.2. ABOUT THE STRATEGY

The Regional Councils Climate Change Adaptation Strategy, Southern Tasmania 2013–2017 (the Strategy) is a key element of the Regional Councils Climate Change Adaptation Project (RCCAP). Along with the Strategy, the RCCAP also developed Corporate Climate Change Adaptation Plans (CCAP) for the 12 southern councils, and will produce a Local Government Adaption Planning Resource Portal (web based).

Developed by southern Tasmanian councils for southern Tasmanian councils, the purpose of the Strategy is to improve the capacity and resilience of the councils to manage the risks of climate change. Through its Climate Change Adaptation Principles it embeds regional objectives of inter-council collaboration and cooperation across four Key Focus Areas: heat, sea level rise and storm surge, extreme rainfall and flooding, and bushfire. An additional theme 'other' has also been included for associated risks such as councils' capacity to respond to increased extreme storm events and wind hazard, integration of new and updated climate projections, and policy settings. The Strategy also provides an implementation pathway for ongoing adaptation planning and considers the legal liability of Tasmanian councils in managing climate change impacts.



1.3. THE STRATEGY'S APPROACH

The Strategy facilitates a collaborative approach, regionally and/or sub-regionally, and will increase the capacity and maximise the achievements of councils in managing climate change risks. Collaboration benefits and enhances the opportunity for executive level endorsement, advocacy, consistency in policy and planning, resource procurement and efficiency in use of resources. It also well positions councils to take advantage of funding opportunities as they arise.

To provide a structured policy framework, the Strategy is underpinned by the shared Climate Change Adaptation Principles. These are realised through the 'Regional

Objectives' and 'Key Focus Areas for managing climate change impacts'. The 'Implementation' section provides for the Strategy's delivery, while the 'Monitoring and Review' elements ensure its ongoing relevance and evolution as the climate risks and impacts are quantified, treated and/or emerge.

The regional objectives contained in the Strategy were drawn from a series of corporate 'climate risk' and 'adaptation action' workshops held with the 12 southern councils. They were also informed by legal comment sought on the potential legal liability of councils as a consequence of climate change and consideration of the broader policy context currently surrounding climate change adaptation. Analysis and consolidation of workshop outputs and the related considerations are identified in the Key Focus Areas: heat, sea level rise and storm surge, extreme rainfall and flooding, bushfire, and other (includes liability, policy settings and financial).

The Strategy includes an implementation plan for identified regional actions, across key implementation themes that emerged from the 12 council workshops. It also includes a process for monitoring and review through the strategic and annual planning procedures of the STCA.

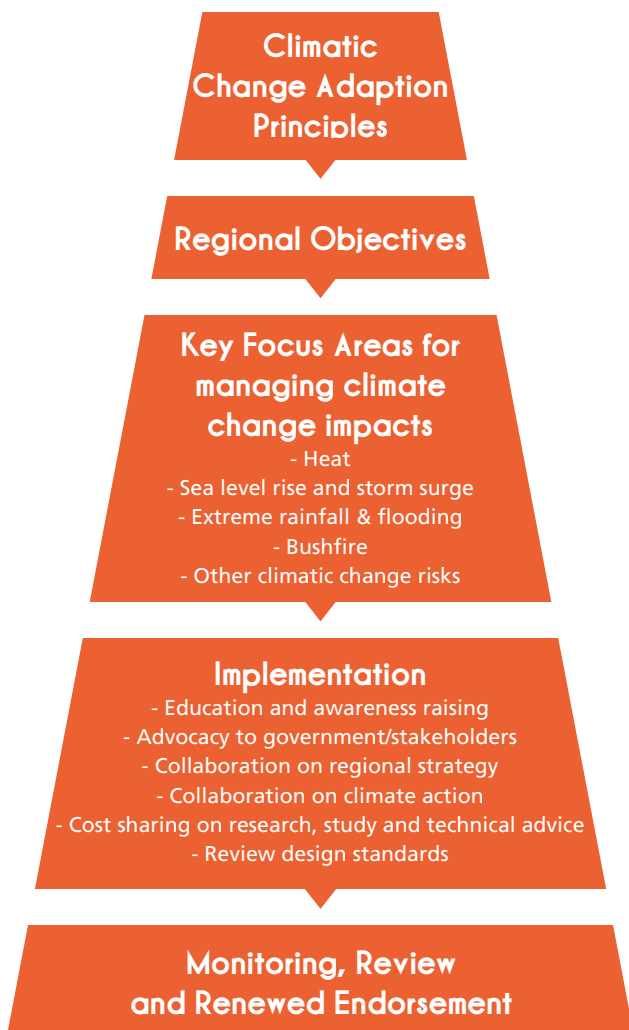
Scientific Basis

The Strategy has its foundation in science. Corporate risk workshops held for each council of the southern region were informed by specific municipal and regional climate change profiles prepared by scientists from the Antarctic Climate and Ecosystems Cooperative Research Centre's Climate Futures for Tasmania project.

Adaptation

The Strategy is about adaptation (i.e. managing the impact of climate change on council infrastructure, functions and community from unavoidable changes in the climate) as distinct from mitigation (i.e. taking action to reduce greenhouse gas emissions so as to reduce the magnitude of impacts of climate change).

Through the Climate Futures for Tasmania project², Tasmania has arguably the most detailed, rigorous and comprehensive fine-scale climate change modelling outputs in Australia. However, there is still uncertainty about the timing, intensity and frequency of climate risks on our local climate. Given these uncertainties, a risk management approach, based upon the Australian and New Zealand Standard ISO 31000:2009 Risk Management framework, formed the basis of the Strategy.



2 Climate Futures for Tasmania Reports – Tasmanian Climate Change Office, Department of Premier and Cabinet – http://www.dpac.tas.gov.au/divisions/climatechange/adapting/climate_futures

1.4. CLIMATE CHANGE ADAPTATION PRINCIPLES

The Climate Change Adaptation Principles for the Regional Councils Climate Change Adaptation Strategy, southern Tasmania, provide the policy platform and the parameters for cohesive and effective regional and sub-regional action(s) and, importantly, strengthen the role of councils in adapting to climate change.

The Principles

- Climate change is a global issue requiring local solutions.
- Climate change action is a shared responsibility between local, state and commonwealth governments, communities and the private sector.
- Local governments have an important role in leadership and educating communities at both the municipal and regional level on climate change and adaptation.
- Councils must prepare for and manage the impacts of climate change on its assets and services.
- Early climate change adaptation action is more cost effective than late action.
- Collaboration and cooperation on climate change adaptation actions by local government provides more effective use of resources.



1.5. COUNCILS AND CLIMATE CHANGE ADAPTATION

The Climate Futures for Tasmania project demonstrated that the effects of climate change are not uniform across the southern region and that specific impacts will be experienced at a municipal scale. It is therefore most appropriate and effective that these impacts are managed at a local scale. This places councils at the forefront of climate change adaptation action and they have been the first to respond, proactively initiating projects to identify vulnerabilities and identify adaptive responses. This is reinforced by the Australian Government, who acknowledges that local governments are key actors in adapting to the local impacts of climate change and that their engagement is a critical part of any national reform agenda.³ The Australian Government has produced publications aimed at assisting local government to manage climate change risk⁴ and implement adaptation actions.⁵

The Tasmanian Government also recognises the significant role of councils in adapting to climate change, and so it is supporting and collaborating with local government on climate change adaptation projects.

Scope is afforded to Tasmanian councils to address climate change under the *Local Government Act (Tas) 1993*, which describes the role of councils to provide for the health, safety and welfare of the community.⁶ In managing and preparing for the impacts of climate change, councils are best positioned to work with communities due to their:

- core function to directly support and assist local communities
- local knowledge and experience
- understanding of community needs and vulnerabilities
- key role in responding to emergencies
- role in infrastructure design, construction and maintenance
- role in review and update of planning schemes (in relation to identified local impacts and threats)
- ability to effectively disseminate information and provide support to the community.

³ Department of Climate Change, 2010: Adapting to climate change in Australia, an Australian Government Position Paper.

⁴ Australian Greenhouse Office, 2006: Climate Change Impacts and Risk Management – a Guide for Business and Government.

⁵ Department of Climate Change, 2009: Climate Change Adaptation Actions for Local Government.

⁶ *Local Government Act (Tas) 1993*. Section 20, Function and Powers.



Communities also recognise that their council is best placed to realise the local nature of climate impacts and mobilise their preparedness and response.⁷ Pioneering work undertaken by Clarence City Council with its community identified local government as the most trusted tier of government with regard to information on climate change.⁸

Overall, the inherent political position, function, proximity to communities and local experience of councils in combination with relevant scientific data and technical expertise provide the key inputs for undertaking a well-informed risk management approach to local climate change issues.

Climate change will affect every aspect of local government function. Effective climate adaptation will require a portfolio of actions, from fortifying infrastructure and building capacity (individual and institutional) to advocacy and collaboration. There is also an appreciation that managing current and future risks in relation to climate change can have benefits (such as improving human wellbeing and protecting biodiversity) regardless of the magnitude of climate change that occurs.

1.6. CLIMATE CHANGE, COUNCILS AND LEGAL CONTEXT

Councils are at the forefront of responding to climate change impacts and increasingly local communities are looking to their councils to provide solutions to adapt to, manage, transfer or share the risks associated with climate change impacts.⁹ A key consideration of councils in the face of climate change is potential liability that they are exposed to through their various statutory roles, powers and functions. A particular concern is the potential liability that councils are exposed to through their adopted action or inaction in particular circumstances.

Baker and McKenzie (BMK), in a report to the Australian Local Government Association on the risk of councils' climate change liability, outline a number of actions that councils may follow to reduce liability.¹⁰ These include:

- exercising reasonable care when making planning decisions, which involves taking care to ensure all relevant facts are known and understood, that relevant law is identified and understood, and that reasons for decisions are expressed in clear and accurate terms
- keeping up to date with general climate change science and information, particularly in relation to potential risks from natural hazards, relevant to their local government area
- developing clear and certain criteria for decision making to increase public confidence that decisions are made on the basis of the best available scientific evidence
- increasing public consultation, as this may improve transparency around decision-making processes and limit administrative review
- facilitating the provision of information to property owners on potential risks to property.

BMK also noted that there are a number legislative and policy frameworks that create barriers to effective climate change adaptation by councils. These included: lack of decision-making power, lack of consistency, and lack of clear guidance, materials, expertise and funding.¹¹ They particularly advocated for a nationally consistent approach to managing climate change impacts on the coastal zone.

7 Rogers, Nina, 2009, Churchill Fellow. 'A study of regional partnerships and collaborative approaches for enhanced local government adaptation to climate change', a report for the Winston Churchill Memorial Trust Australia', p. 10.

8 SGS Economics and Planning, July 2007. 'Socioeconomic Assessment and Response for the climate change impacts on Clarence's Foreshore', for the Clarence City Council.

9 Baker and McKenzie, 22 July 2011. 'Local Council Risk of Liability in the Face of Climate Change – Resolving uncertainties', a report for the Australian Local Government Association.

10 Ibid

11 Ibid

The RCCAP engaged Shaun McElwaine + Associates (SMA)¹² to provide advice on the legal context within which the impacts of climate change reside and how they relate to Tasmanian councils as a whole.¹³

SMA's advice established that overall, councils are not liable for existing use or development, nor will they incur liability for 'no action' in response to climate impacts; however, should they take action they could be liable should that action cause harm or damage. It also considered that councils may be found liable for operational advice such as the assessment of planning applications and new developments.

The advice also noted that while the development and adoption of a [council's CCAP] 'climate risk plan and/or climate change adaptation action(s)' was positive it would also set the standard for the discharge of the duty of care. Thus if a council did not take the climate risk plan and or action(s) into consideration when making operational decisions it may become liable for the consequences of the operational decision.¹⁴

The advice contained three actions that could be undertaken by Tasmanian Government to reduce Tasmanian councils' exposure and potential liability.

1. Amendment to the *Local Government Act (Tas) 1993* by the Tasmania Government to insert an equivalent section to that of the s733 Local Government Act (NSW) that exempts local governments from civil liability for the impacts of climate change where statutory powers, planning scheme provisions and assessment of development applications are undertaken in good faith and in accordance with manual(s) prepared by the Tasmania Government.

2. Review of the State Coastal Policy 1996 by the Tasmanian Government so as to provide clarity on what is required to satisfy its requirements, i.e.

- describe how planning schemes must deal with the impacts of climate change

- provide specific recommendations and guidelines to manage climate change impacts
- set prescribed levels for sea level rise in developed coastal regions throughout the State.¹⁵

3. Formulation of a state-wide code to deal with climate change impacts (with the outcome to achieve a uniform set of provisions across the State) that:

- is measurable, i.e. contains specific development controls
- removes decision making from planning authorities
- does not require risk analysis
- sets prescribed levels for sea level rise in developed coastal regions throughout the State.¹⁶

As a result of SMA's advice, and to address the barriers to effective climate change adaptation identified by BMK, it is prudent and sagacious of the councils to advocate for the Tasmanian Government to:

- play a more active role in the provision of information and guidance in relation to climate change and natural hazards, particularly in coastal areas
- consider exempting local governments from civil liability for the impacts of climate change where statutory powers, planning scheme provisions and assessment of development applications are undertaken in good faith and in accordance with manual(s) prepared by the Tasmanian Government.

The progression of this advice is considered through section 3 of this Strategy: Regional Objectives.

Disclaimer

The purpose of this advice is for local government generally and an individual council should not rely upon it. No liability is accepted for the content of the advice, or for the consequences of any actions taken on the basis of the information provided. If an individual council wishes to rely upon the advice it is recommended that they seek their own advice prior to doing so.

¹² A copy of the legal advice can be obtained by contacting STCA.

¹³ This legal advice was considered alongside two similar reports:

- 'Legal issues for Local Government in addressing coastal erosion risks, a research report for Clarence City Council', Dr McDonald, 18 March 2011
- 'Local Councils Risk of Liability in the Face of Climate Change Resolving Uncertainties', a report for the Australian Local Government Association', Baker and McKenzie, 22 July 2011.

Overall SMA's advice is consistent with the legal comments provided in these two reports.

¹⁴ McElwaine, 2011, p. 24.

¹⁵ In October 2012, the Tasmanian Government established sea level rise planning allowances for 2050 and 2100, which will be integrated into coastal inundation and coastal hazard maps. The allowances and coastal hazard maps will be important inputs into the Statewide Coastal Hazards Code and the Coastal Protection and Planning Framework which is currently under development. Further information is available at: http://www.dpac.tas.gov.au/divisions/climatechange/what_the_government_is_doing/new_tools_to_improve_planning_for_sea_level_rise_and_coastal_hazards

¹⁶ Ibid

1.7. ROLES AND RESPONSIBILITIES

Communities and the three tiers of government each have their own set of core responsibilities in adapting to the impacts of climate change. These responsibilities, while different, need to be complementary.

Communities, businesses and individuals are ultimately responsible for the management of climate change risks in the same way that they are currently responsible for the management of other private risks or risks to private assets and/or businesses.

Local government is the sphere of government closest to communities and is responsible for the delivery of a wide range of services and management of assets that will be directly affected by climate change. Councils have a significant operational adaptation role in terms of informing and educating local communities to help them to understand and respond to climate change impacts. They are also responsible for the management and protection of council assets from climate change impacts.

Governments at a state and national level are responsible for the management of assets and services as well as having responsibility for the regulations and policy settings that will increase the capacity and guide the response of local government and other sectors to adapt to climate change impacts. A key role for both State and Australian Governments is the coordination and dissemination of public-good information on climate change impacts to local government and other stakeholders enabling informed decisions to be made in relation to the management of and adaptation to climate change impacts.

At times, the roles and responsibilities of the three spheres of government will be discrete, such as the direct response of individual councils to local climate impacts on a council owned asset or service. Or in the case of the Australian Government, the development of national policy settings that will guide the response of other levels of government and sectors. At other times these roles and responsibilities will intersect and be shared with multiple agencies being required to act. This is the case for disaster management of bushfires or floods, or in the development of guidelines and codes to minimise and adapt to climate change risks and vulnerabilities. Figure 2 provides an overview of the key functions of the three tiers of government.



Climate Change Adaptation Roles & Responsibilities

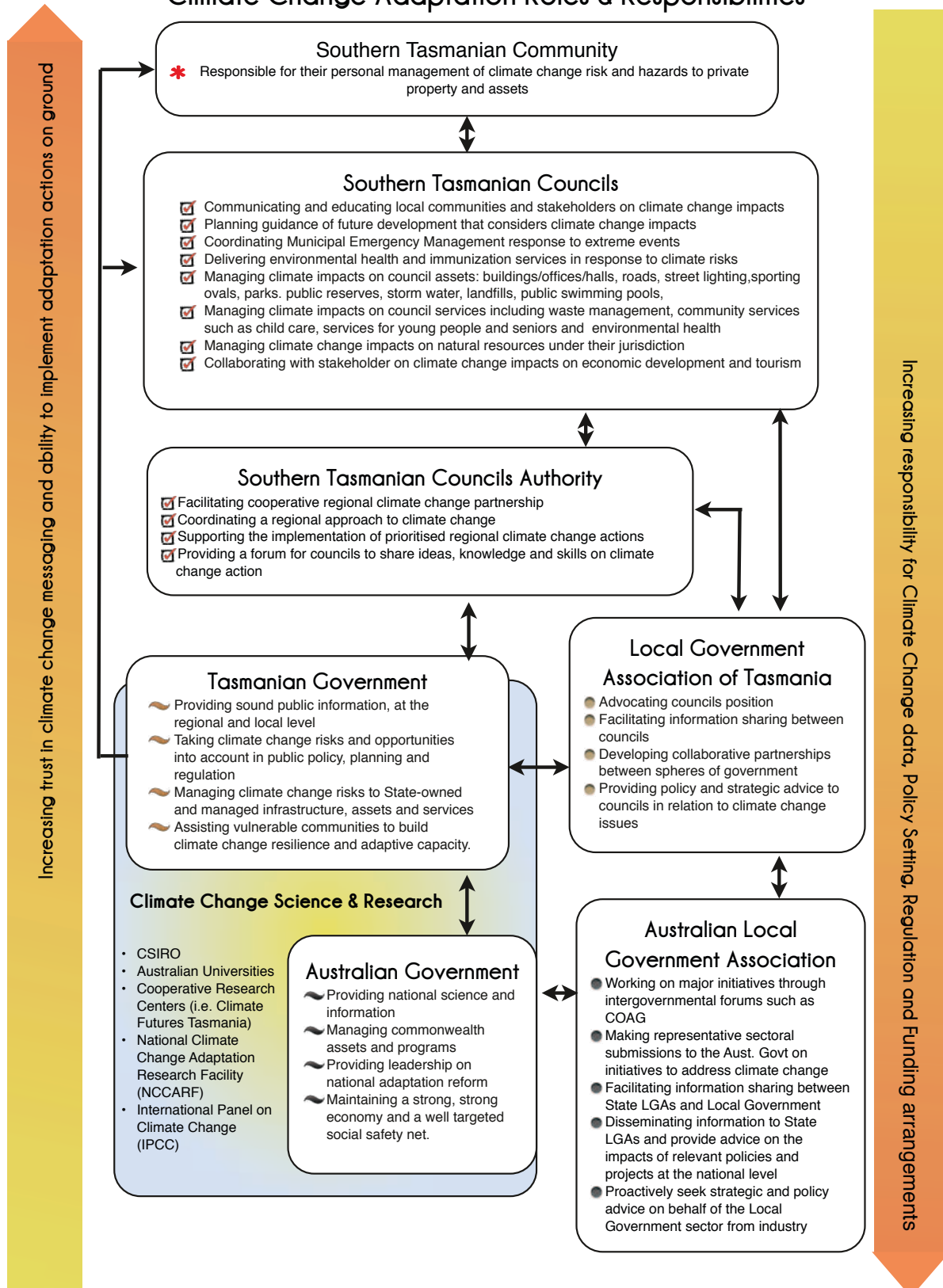


Figure 2. Climate change adaptation roles and responsibilities.

2. Regional climate change impacts

There is overwhelming scientific evidence and consensus that the global climate is changing. It is projected that in the 21st century, along with an increase in temperature by at least 2 °C, extreme weather events and sea level rise will also increase.¹⁷ It is equally understood that regardless of any current emissions mitigation efforts, climate change impacts will still need to be adapted to.

Tasmania is fortunate to have been the subject of the highest resolution climate change modelling conducted anywhere in Australia, which provides a firm foundation for adaptation planning. The recently completed Climate Futures for Tasmania project provides a sound knowledge base for identifying climate related risks at the regional and local level and subsequently informing appropriate decisions to manage risks.

The Southern Regional Climate Profile¹⁸ completed for the RCCAP by Climate Futures for Tasmania showed that Tasmania's maritime climate would buffer it against the severe climate change impacts that will be experienced across much of south-eastern Australia. The report notes however that climate change impacts will vary across the region dependent on the local conditions, characteristics and circumstances. Under the A2 scenario¹⁹ the following climate change impacts are projected.

Temperature

- The greatest projected increase in temperature, over 3 °C, is in the west of the region, around the western half of the Derwent Valley, Huon and the Central Highlands.
- The frequency and duration of high temperature events across the region will increase.
- Warm spells that are currently 4–8 days in length are projected to increase by 2–6 days.
- Drought is projected to increase in severity in the central highlands by 2–4% whereas other parts of the region are expected to show little change or a slight decrease.



Rainfall

- The average annual rainfall is projected to increase moderately in the east coast, Tasman and greater Hobart regions but decrease by 6–10% in the Central Highlands.
- Around the east coast, greater rainfall is projected in summer and autumn with little change in winter and spring.
- Rainfall in the northern part of the Central Highlands (within the southern region) is projected to decrease in all seasons.
- The western area of the southern region is projected to experience greater rainfall in winter with a decrease in summer.
- Low-lying areas across the region may receive 1–6 extra very wet days per year, while the highlands may receive 2–3 days less.

Sea level rise

- Global sea level is projected to increase, on average, by 0.82 metres by 2100.
- The current 100-year storm tide event is around 0.9 to 1.4 m above average sea level, and is projected to increase to 1.87 metres by 2090.
- The current 100-year coastal inundation event may become a 50-year event by 2030 and a 2- to 6-year event by 2090.

17 IPCC, 2011: Summary for Policymakers. In: Intergovernmental Panel on Climate Change Special Report on Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation [Field, C. B., Barros, V., Stocker, T.F., Qin, D., Dokken, D., Ebi, K.L., Mastrandrea, M. D., Mach, K. J., Plattner, G. K., Allen, S., Tignor, M. and P. M. Midgley (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

18 Grose, Michael, April 2011. 'Southern Tasmanian Councils Regional Profile', Antarctic Climate and Ecosystems Cooperative Research Centre, prepared for the Southern Tasmanian Councils Authority's Regional Councils Climate Change Adaptation Project (using material from technical reports of the Climate Futures for Tasmania project).

19 The extent of future climate change is dependent on the amount of greenhouse gas emissions released by human activity. The Intergovernmental Panel on Climate Change (IPCC) developed a set of emission scenarios of projected anthropogenic emissions based on assumptions of demographics, socio-economic development, and technological change. The Tasmanian climate projections generated CFT used the IPCC's higher, A2 and lower, B1 emission scenario. For the purposes of the RCCAP the A2 projection was adopted for the development of regional and municipal area climate profiles as currently global emissions are tracking higher than the A2 scenario.

3. Regional objectives



The regional objectives, delivered by the STCA, give effect to the Strategy's overarching Regional Climate Change Adaptation Principles and provide the pathway for the implementation of the Strategy. The regional objectives are:

1. Provide leadership and facilitate collaboration on initiatives that promote a greater awareness and understanding of climate change, climate change risks and climate change adaptation opportunities, and roles and responsibilities within local government and across communities.
2. Support the management of climate change impacts on council infrastructure, functions, services and community, through an approach that provides net economic, social and environmental benefit and optimises councils' resources.
3. In collaboration with the Local Government Association of Tasmania or in a regional capacity, advocate to the Tasmanian and Australian Governments and stakeholders on issues affecting councils and climate change adaptation, including:
 - a. the coordination, maintenance and provision of state-wide climate change impacts datasets and distribution of new climate change related data as it becomes available that councils can use for the purposes of climate change adaptation planning and decision making and risk assessment
 - b. the development, implementation and review of policies and strategies with regard to climate change adaptation
 - c. the provision of resources, information and tools to build the capacity of councils to deliver climate change adaptation responses
 - d. the reforms and actions necessary to indemnify councils against potential legal liability that may arise in relation to climate change impacts, including recommendations outlined in 1.4 'Climate change, councils and legal context'.
4. Act on behalf of councils in advocating for an equitable contribution from all stakeholders in managing climate change adaptation, including legal liability and economic cost. This may include advocacy for legislative reform to provide a greater level of indemnity to councils.
5. Pursue extension opportunities to take findings from the RCCAP to other councils and regions and collaborate on inter-regional and state-wide climate change adaptation actions.
6. Facilitate the STCA's Regional Climate Change Initiative (RCCI) and the development of an annual action plan, to be based on the consolidated register of risks and actions, established through the RCCAP, as outlined in the 'Implementation of the Strategy' section of this document.
7. Facilitate a periodic review of the Strategy including renewed endorsement by the Board of the STCA and its member councils, as outlined in the 'Implementation of the Strategy' section of this document.

4. Key focus areas for managing climate change impacts

This section sets out related climate change adaptation key focus areas, drawing from the climate change impact themes derived from the corporate risk workshops with the councils. These key focus areas are to be progressed through the STCA Strategic Plan and used for the prioritisation of regional level actions and incorporated into the STCA Annual Plan.



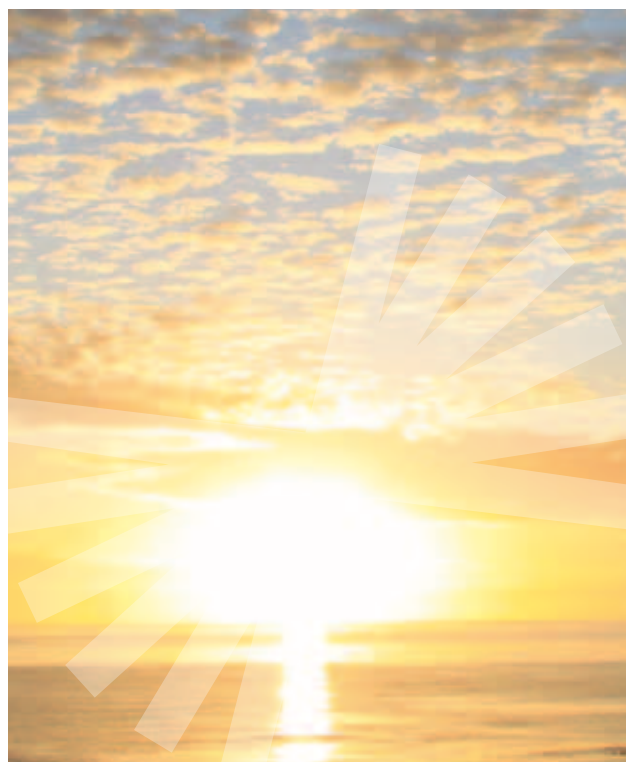
4.1. HEAT

The duration of warm spells (heat waves) is expected to almost double from the current 4–8 days, and the temperature of the hottest day of the year is expected to increase by 2–3 °C by the end of the century.²⁰ Intensification of heat waves and hot days can:

- impact adversely on vulnerable people and stretch the capabilities of emergency services
- damage infrastructure such as roads and utilities
- exacerbate public health issues such as food contamination
- damage the natural environment e.g. death of flora and fauna, water stress, change in community structure, composition and function.

Objectives

1. Actively support councils in adapting to the impact of heat waves in such a way as to minimise the damage to current and future infrastructure, the built and natural environment and people.
2. Ensure that the risks and future management of the impact of heat waves are included in relevant council strategies, plans and documents, where the STCA has influence.



20 Grose, Michael, April 2011. 'Southern Tasmanian Councils Regional Profile', Antarctic Climate and Ecosystems Cooperative Research Centre, prepared for the Southern Tasmanian Councils Authority's Regional Councils Climate Change Adaptation Project (using material from technical reports of the Climate Futures for Tasmania project).

4.2. SEA LEVEL RISE AND STORM SURGE

The sea level around Tasmania's coastline has risen by approximately 18 cm over the past 100 years. This trend is projected to continue with inundation events set to increase in frequency and severity.

The current 100-year storm tide event is around 0.9 to 1.4 m above average sea level. Accounting for sea level rise (0.82 m), the current 100-year coastal inundation event may become a 50-year event by 2030, and a 2- to 6-year event by 2090.²¹ Furthermore, projections that incorporate continuing sea level rise, storm surge and wave run-up show that the zone of potential inundation impact in southern Tasmania is likely to lie between 2.5 and 3.5 m above the current high water mark by 2100.

Objectives

1. Actively support councils in adapting to the impact of sea level rise and storm surge, in such a way as to minimise:
 - a. the damage to current and future infrastructure, the built and natural environment and people
 - b. the exposure of councils to potential legal liability that may arise in relation to remedial and protective works undertaken by councils.
2. Ensure that councils are supported in being able to include the risks and future management of sea level rise and storm surge in relevant council strategies, plans and documents.
3. Develop, in conjunction with the Southern Tasmania Regional Planning Project²², a standardised approach to planning so that future development appropriately takes into account sea level rise and storm surge hazards and the Tasmanian Government's sea level rise planning allowances.²³



21 Grose, Michael, April 2011. 'Southern Tasmanian Councils Regional Profile', Antarctic Climate and Ecosystems Cooperative Research Centre, prepared for the Southern Tasmanian Councils Authority's Regional Councils Climate Change Adaptation Project (using material from technical reports of the Climate Futures for Tasmania project).

22 The Southern Tasmania Regional Planning Project is the result of an agreement between the State Government, the STCA and the 12 southern Tasmanian councils and aims to achieve the following outcomes:

- a comprehensive regional land use strategy for the region
- an infrastructure investment strategy for the region
- the development of coordinated, consistent and contemporary planning schemes for all councils involved, based on the common strategy.

23 In October 2012, the Tasmanian Government established sea level rise planning allowances for 2050 and 2100, which will be integrated into coastal inundation and coastal hazard maps. The allowances and coastal hazard maps will be important inputs into the Statewide Coastal Hazards Code and the Coastal Protection and Planning Framework which is currently under development. Further information is available at: http://www.dpac.tas.gov.au/divisions/climatechange/what_the_government_is_doing/new_tools_to_improve_planning_for_sea_level_rise_and_coastal_hazards

4.2. EXTREME RAINFALL AND FLOODING

The intensity of extreme rainfall events is expected to increase across the region, particularly along the east coast where the 200-year annual recurrence interval event (24 hour storm) may increase in intensity by up to 100% in some areas (Grose, 2011).²⁴ High daily runoff amounts, which may lead to erosion or flooding, are projected to increase across the region (Grose, 2011).

The projected increase in severity of extreme rain events places a significant portion of existing stormwater infrastructure at reduced capacity. This will lead to a major new expense for councils in managing much larger stormwater flows in order to maintain current stormwater service levels. Where councils cannot manage the increased magnitude of intense rain events there will be increased flooding with an impact on community safety as well as the cost of maintenance and renewal on vulnerable public and private infrastructure.

Objectives

1. Actively support councils in adapting to the impact of extreme rainfall events and flooding in such a way as to minimise:
 - a. the damage to current and future infrastructure, the built and natural environment and people
 - b. the exposure of councils to potential legal liability that may arise in relation to remedial and protective works undertaken by councils.
2. Increase understanding of the impact of high rainfall events across the region to enable a well-informed approach to planning and development decisions.
3. Ensure councils are supported in ensuring that there is adequate community awareness of flood risk and awareness of appropriate behaviour during extreme events.
4. Support review of asset management plans and strategies in relation to implications of extreme water flows.



²⁴ Further information is available at: http://www.dpac.tas.gov.au/divisions/climatechange/what_the_government_is_doing/new_tools_to_improve_planning_for_sea_level_rise_and_coastal_hazards

4.4. BUSHFIRE

It is recognised that a number of key climate change projections including higher temperatures, longer heat waves and drier summer conditions align with conditions suitable for bushfire. On that basis, bushfire modelling has been conducted for the southern region using the Tasmanian Bushfire Risk Assessment Model (BRAM), developed by the Tasmanian Government's Parks and Wildlife Service specifically for the RCCAP. Climate projections from the Climate Futures for Tasmania project (A2 scenario) were entered into the BRAM in order to enable modelling of bushfire scenarios for periods defined as: baseline (1969–1990); near future (2010–2039); mid-century (2040–2069); and end-of-century (2070–2099).

Outputs from the model demonstrate that climate change may result in increased bushfire risk across Tasmania, particularly within the Central Plateau and areas to the west of the southern region. With Tasmania's large-scale weather pattern predominantly bringing weather to the southern region from the west, the entire region is placed at greater risk. This is likely to be exacerbated with planned changes in land use activities.

Objectives

1. Actively support councils in adapting to the impact of bushfires in such a way as to minimise the damage to current and future infrastructure, the built and natural environment and people.
2. Improve the understanding and approach to minimising the likelihood of bushfire ignition.
3. Improve community preparedness and emergency response coordination in the event of bushfire.



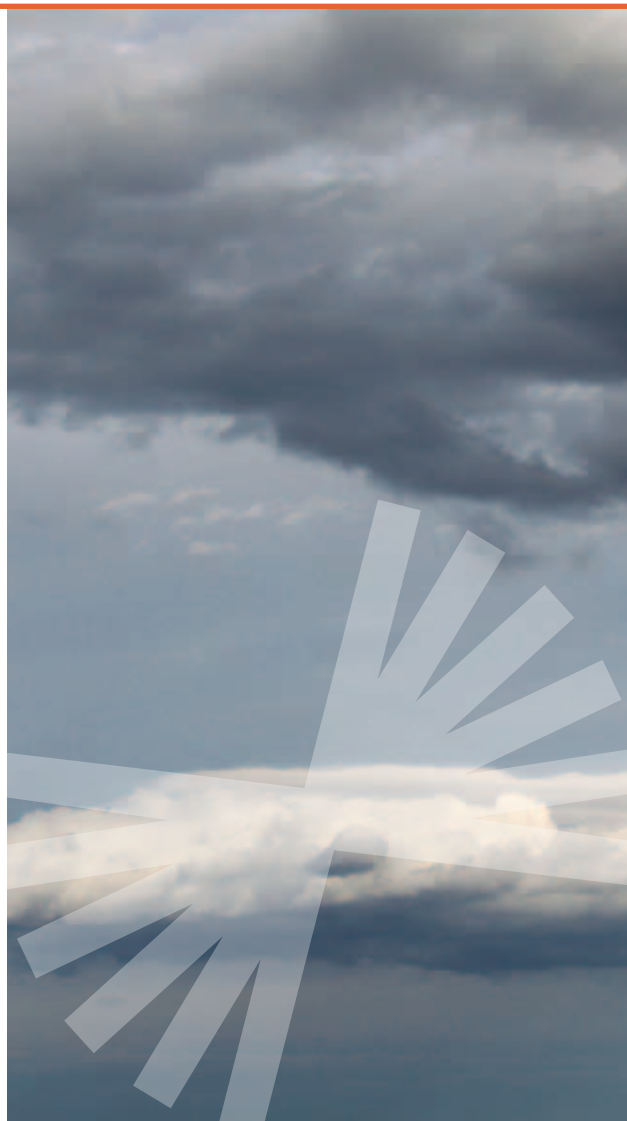
Photographer, Peta Stalker

4.5. OTHER CLIMATE CHANGE RISKS

A range of other direct and indirect climate change risks not covered by the Key Focus Areas exist for local government that warrant consideration such as: councils' capacity to respond to increased extreme storm events and wind hazard, integration of new and updated climate projections, and policy settings.

Objectives

1. Ensure that each council has the capacity to respond to its emergency service role under changed climate conditions such as extreme storm events and wind hazard.
2. Work with councils to quickly integrate new climate projections, updated hazards maps etc. into planning schemes and other council processes. This may include direct and indirect climate impacts such as landslip and wind.
3. Facilitate knowledge sharing between councils on the cost implications for councils such as: carbon pricing instruments, carbon tax or trade and the council's long term asset management planning.



5. Implementation of the Strategy

The Strategy provides the objectives and a framework for the implementation of regional and inter-council actions and ongoing climate change adaptation planning. It proposes a collaborative regional approach to the implementation of common adaptation actions, maximising efficiency and use of resources.

Following endorsement of the Strategy by the Board of the STCA, a regional working group will be convened to develop an action plan that progresses the objectives of the Strategy. The RCCI is the existing structure providing a forum for development of an annual action plan and its implementation.

Through the development of individual councils' corporate individual CCAPs, shared risks and actions between councils were identified and consolidated into a 'regional register' of risks and actions. The actions from this regional register will form the basis of the action planning approach for the Strategy.

The regional actions relate to the following themes:

- education and awareness raising
- advocacy to State/Australian Government/stakeholders
- collaboration on regional strategy
- collaboration on climate action
- cost sharing on research, study and technical advice
- review design standards.

Regional actions will be prioritised by the RCCI in relation to considerations such as: level of urgency, resourcing requirements, staff availability, funding opportunities, strategic directions and policy settings.



5.1. MONITORING AND REVIEW – RENEWED ENDORSEMENT

The Board of the STCA (or its nominated delegate) will be responsible for the review of the Strategy through its strategic and annual planning processes.

As new climate projections become available priorities in climate change adaptation will change. For effective adaptation to occur it is imperative that a monitoring and review process is in place.

It is incumbent on the RCCI to monitor and review climate change adaptation actions policy and strategy at the regional level. As new climate projections become available, altering the foundation from which the RCCAP risk assessment has been based, prioritisation within the action list should be reassessed. It should be the objective of the RCCI to ensure the regional strategy, and the associated risk register and action list, remains informed by the best available science and continues to be relevant to local government in southern Tasmania.

As the nature of local government may evolve, the adaptation capacity within councils may also change. Hence this review process should be conducted on a five-yearly basis, to be facilitated by the STCA (or equivalent regional body). Further to this, a revised regional strategy should be presented to the Board of the STCA for endorsement, to enable a renewed commitment to climate change adaptation. The outputs from the RCCAP should be viewed as a first iteration to climate change adaptation for local government in southern Tasmania, to be managed as working documents into the future.



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