Hinterland to Gulf Regional Resilience Strategy

March 2022

Mareeba SHIRE COUNCIL

Queensland Government

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The Hinterland to Gulf Regional Resilience Strategy is a partnership between the Queensland Government and the Croydon, Etheridge and Mareeba shire councils.

Council/website	Disaster Dashboard
Croydon Shire Council www.croydon.qld.gov.au/	www.croydon.qld.gov.au/about-council/emergency-information/local-disaster-management
Etheridge Shire Council www.etheridge.qld.gov.au/	www.etheridge.qld.gov.au/services/emergency-information
Mareeba Shire Council www.msc.qld.gov.au/	emergency.msc.qld.gov.au/

Cover image: Mareeba Wetlands Reserve. Credit: Shutterstock.
Opp page: Diehm's Lookout. Courtesy QRA.

Image: Historic Croydon Hospital Ward. Courtesy QRA.

Foreword

The communities of the Hinterland to Gulf region cover a vast area of inland Queensland from the tropical coastal hinterland to the low lying Gulf floodplains.

Our small population comprises diverse communities including growing and bustling service centres supported by intensive agriculture, to remote settlements supporting cattle grazing and mining. The opportunities for our region are substantial.

The people of Croydon, Etheridge and Mareeba are proud of their heritage and the places we live, work and play. Collectively, we understand our regional strengths and challenges, and by working together we can identify opportunities to bolster future resilience in our region.

The *Hinterland to Gulf Regional Resilience Strategy* is our plan to enhance resilience for Mareeba, Etheridge and Croydon Shires. By being resilient together, we can protect our shared values and find solutions to common challenges. This Strategy has provided the opportunity for us to work together across government, communities, organisations and as individuals, to collaborate and share our knowledge to define a shared pathway to a more resilient future.

The *Hinterland to Gulf Regional Resilience Strategy* identifies opportunities to strengthen our region's disaster resilience. It enables us to draw upon the skills, knowledge and experiences of all members of our community, to contribute to a resilient future together.

Cr Angela Toppin

Mayor Mareeba Shire

Cr Barry Hughes

Mayor Etheridge Shire

Cr Trevor Pickering

Mayor Croydon Shire

Acknowledgement of Country

We acknowledge the Traditional Owners and Custodians of this Country.

We recognise and honour their ancient cultures, and their connection to land, sea and community.

We pay our respect to them, their cultures, and to their Elders, past, present and emerging.

Image: Barron Gorge National Park. Courtesy QRA.

Hinterland to Gulf region

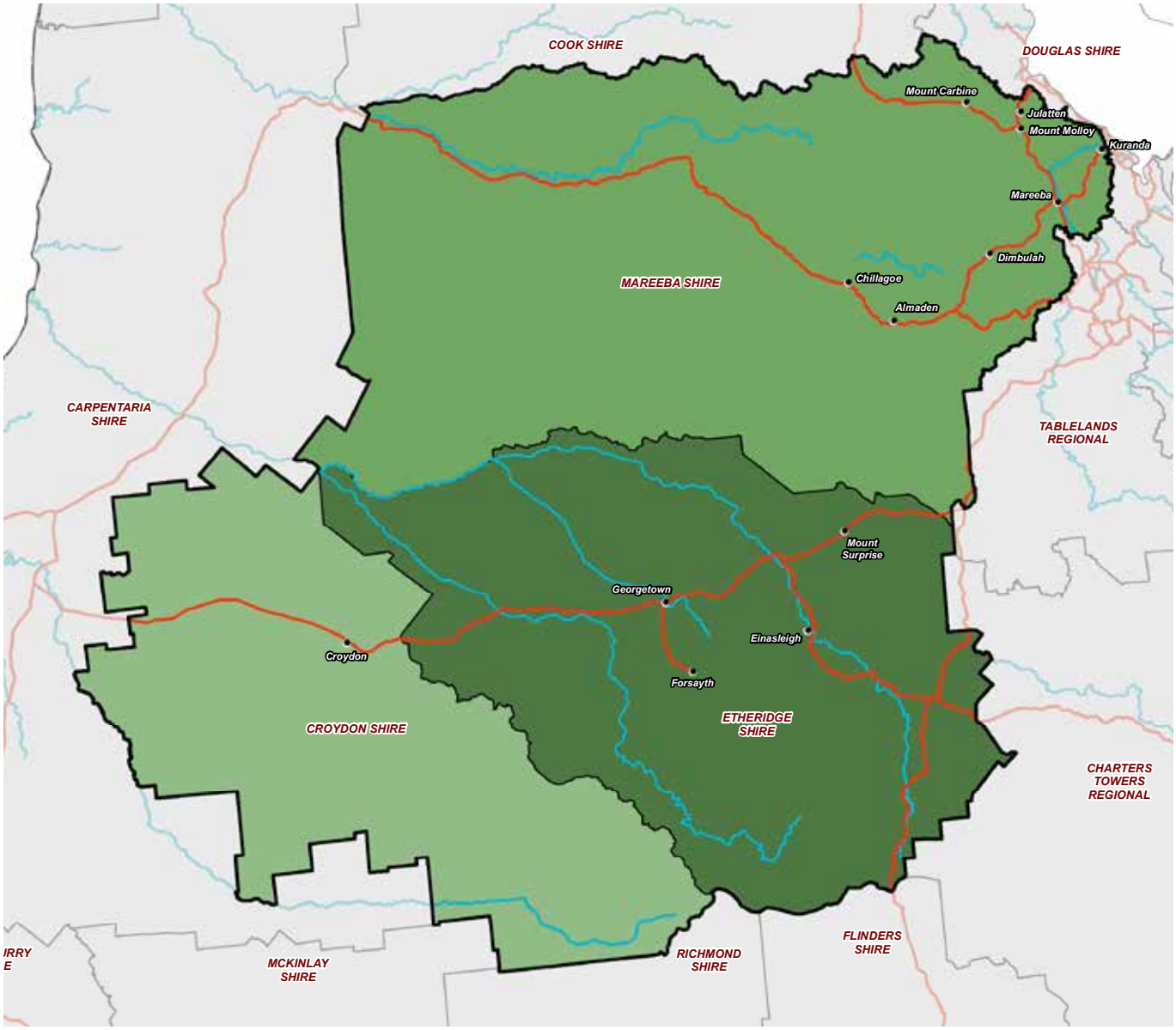

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Image: Georgetown sign along Savannah Way. Courtesy QRA.

Resilient Together

Our vision

We are among Queensland's most resilient communities.

We protect the landscape that nourishes us. From the fertile Walsh and Barron Valleys across endless expanse of savannah plains to the formidable Gilbert and Norman basins. The land is inextricably linked to our prosperity in tourism, mining, energy and broad ranging agriculture. From coffee to cattle, this diversity in opportunity is our strength.

Our visitors come to experience a dynamic landscape steeped in history of people and iconic places of Cobbold Gorge and Chillagoe Caves.

We understand change and risk and how this land cycles through years of drought or bountiful rains. We know the origins of our severe storms, lightning strikes, bushfires and understand implications of increasing summer temperatures.

We celebrate our cultural and linguistic diversity, welcoming newcomers and providing ongoing opportunities encouraging multigenerational residents to stay.

We are connected in the commitment to our unique identity and future prosperity. We are connected physically by roads as a lifeblood for our economy and community.

We value consistency in support and reliability in infrastructure to enable a prosperous future.

Together, our region is strong and resilient.

Image: Mareeba Multicultural Festival 2019. Courtesy Mareeba Shire Council.

About the Strategy

This Strategy and its supporting local action plans identify the regions' disaster resilience priorities and connects these to future funding opportunities.

The Strategy describes these priorities using the voice of the region and shows how risk-informed disaster resilience actions and projects that meet local needs align to state and national disaster risk reduction and resilience policy objectives.

Resilience is everyone's business. Resilience in the Hinterland to Gulf region is dependent on a shared but also collective responsibility model.

This Strategy encourages a role for everyone in the Hinterland to Gulf to rally around and deliver upon a common description of regional resilience, reflecting the voice of our locals. It highlights key opportunities to build disaster resilience that are unique to our region.

The end goal for resilience in the Hinterland to Gulf is to shorten and minimise recovery for future disaster events, and to enable transformation and adaptation to the range of stresses and shocks we experience in the Hinterland to Gulf Region.

Aims

- tell the unique story of resilience in the Hinterland to Gulf
- bolster on what needs to be done to improve disaster resilience in the Hinterland to Gulf
- deliver a clear Regional Resilience Strategy and Local Action Plans to further strengthen disaster resilience for our region.

Objectives

- identify the region's disaster resilience priorities
- identify actions and initiatives to address resilience needs
- prioritise the identified actions and initiatives
- connect priorities to future funding and resourcing opportunities
- articulate how risk-informed disaster resilience actions and projects meet local needs and align to state and national disaster risk reduction and resilience policy objectives.

Image: Kuranda Visitor Information Centre. Courtesy Mareeba Shire Council.

Strategic alignment

The Queensland Government is committed to strengthening disaster resilience, so our communities are better equipped to deal with the increasing prevalence of natural disasters.

By 2022, every region across Queensland will be part of a locally-led and regionally-coordinated blueprint to strengthen disaster resilience.

This Strategy is a deliverable under the Queensland Strategy for Disaster Resilience (QSDR) and Resilient Queensland - the statewide long-term blueprint supporting Queensland's vision of becoming the most disaster resilient state in Australia.

The Strategy aligns with the QSDR and Resilient Queensland, as well as with national and international disaster risk reduction and sustainable development agendas articulated by the Sendai Disaster Risk Reduction Framework and the National Disaster Risk Reduction Framework.

This Strategy supports and aligns to the Queensland Disaster Management Arrangements (QDMA) and builds upon the Queensland Emergency Risk Management Framework (QERMF) and the Queensland Climate Action Plan.

Figure 1. The Hinterland to Gulf Regional Resilience Strategy disaster resilience policy line of sight to local, regional, state, national and international levels.

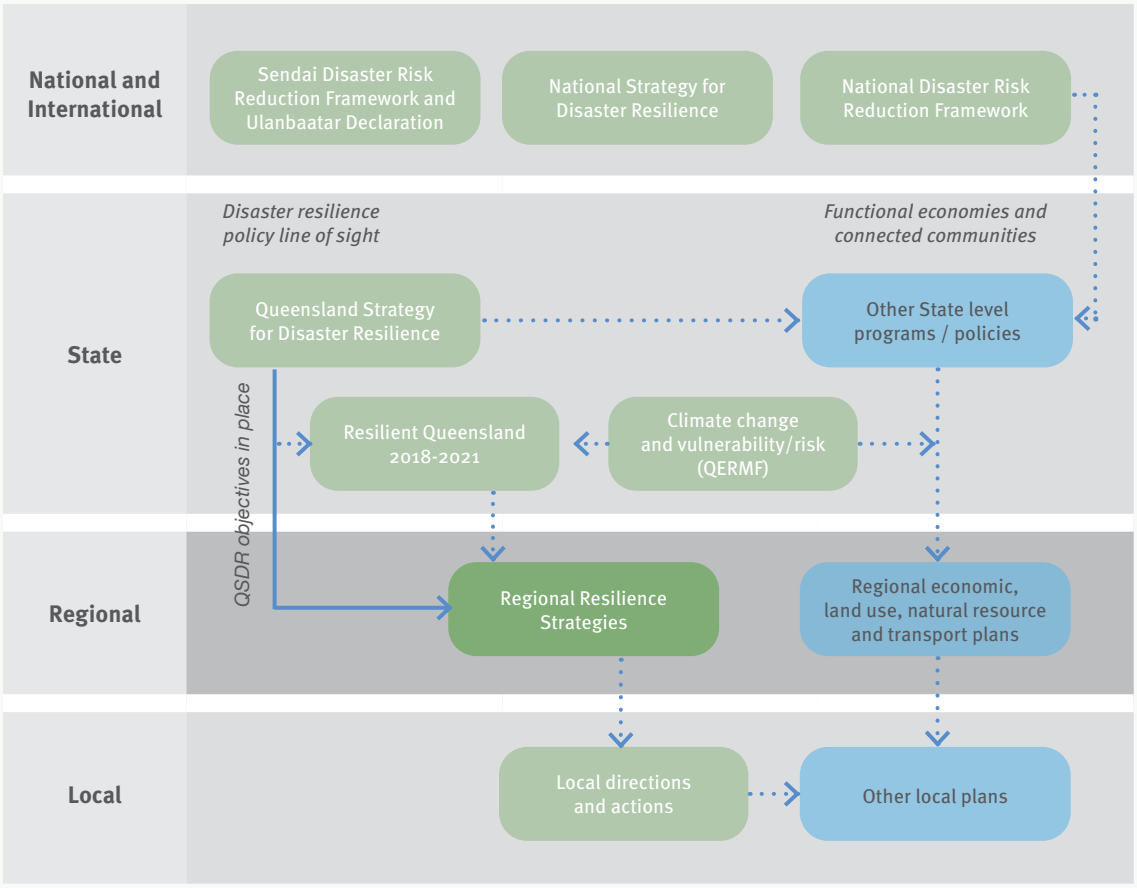


Image: Mareeba Multicultural Festival 2019. Courtesy Mareeba Shire Council.

Our locally-led approach

This Strategy has been developed using a community-led approach with the voice of the locals. To build resilience means to think and deliver systematically – to deliver what is needed in the places it is needed.

We have applied CSIRO's Resilience Adaptation Pathways Transformation Approach (Q-RAPTA) process. This is a resilience building approach tailor-made for the Queensland context.

An approach that is locally-led, regionally coordinated and state facilitated has allowed us to draw on local leadership and direction for this Strategy to ensure local needs and priorities of the Hinterland to Gulf are reflected.

This approach means identifying and prioritising regional resilience needs that we can strengthen over time by matching these needs with real funding and resourcing opportunities.

This approach allows for greater collaboration and coordination of resilience efforts across our region, guided by the principles of:

- local leadership
- flexibility and adaptation
- shared responsibility and collaboration
- prioritisation
- resilience becoming business as usual.

Figure 2. The Resilient Queensland implementation delivery approach (adapted from CSIRO[1]).

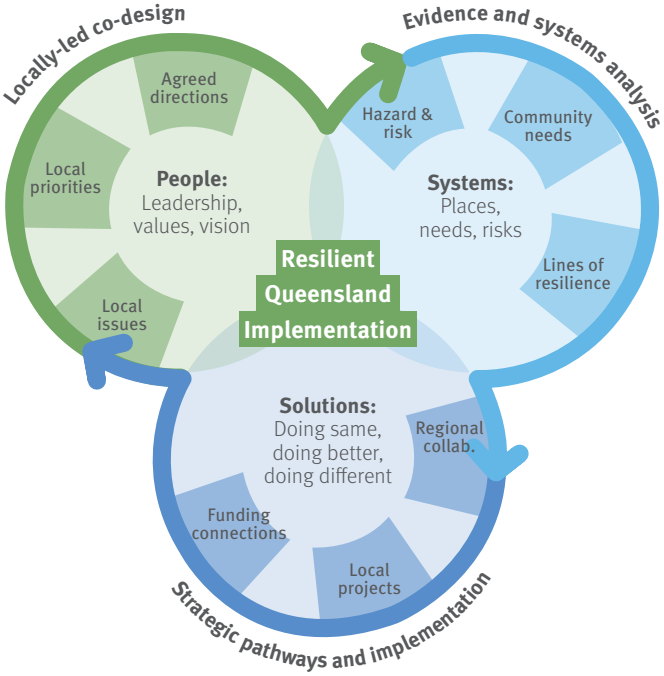


Image: Heritage Experience Croydon. Courtesy Croydon Shire Council.

How this Strategy has been developed

This Strategy has been co-designed with local representatives, through multiple engagement opportunities using a regional "Big Map" workshops and active listening. The Strategy is developed with the input of elected officials, disaster management group members, council officers, local landowners and community groups.

The process has applied the latest in resilience thinking:

- relationship and trust-building engagement
- co-design with locals
- risk-informed
- place-based strategies
- locally-led and regionally coordinated solutions
- integrated multi-objective responses.

The Strategy has a multi-dimensional and cross-disciplinary approach and considers the five elements that contribute to systems-based resilience: human and social; economy; roads and transport; towns and infrastructure; and environment.

The Strategy was developed taking a disaster lens to our economic social and environmental system to ensure the best of disaster management and risk reduction practices can be brought into effect in the Hinterland to Gulf.

Engagement with local representatives reflected a deep understanding of local and regional issues and a desire to find collective responses to these needs.This context is then matched to an understanding of the exposure and vulnerability of each council area within the region to a range of hazards informed by the Queensland Emergency Risk Management Framework (QERMF), including:

- flooding
- bushfire
- heatwave
- earthquake
- severe wind, storm and cyclone.

Drought and other natural hazards are considered by the Strategy where they have been raised as an issue at the local level.

The impacts of climate change are a key component to long-term resilience and are incorporated, both in terms of relationships with hazards but also by alignment of the Strategy to the Sector Adaptation Plans developed for the Queensland Climate Adaptation Strategy (QCAS).

Figure 3. The five elements of resilience that contribute to systems-based resilience.

Elements of resilience

The multi-dimensional and cross-disciplinary approach of this Strategy contemplates five elements that contribute to systems-based resilience. These are:

Image: Gulf Development Road. Courtesy Etheridge Shire Council.

The Strategy reflects previous and existing work at the state, regional and local levels to ensure this work is taken forward, and not 'reinvented', and provides a further mechanism to connect local needs to further funding opportunities at the state and federal levels.

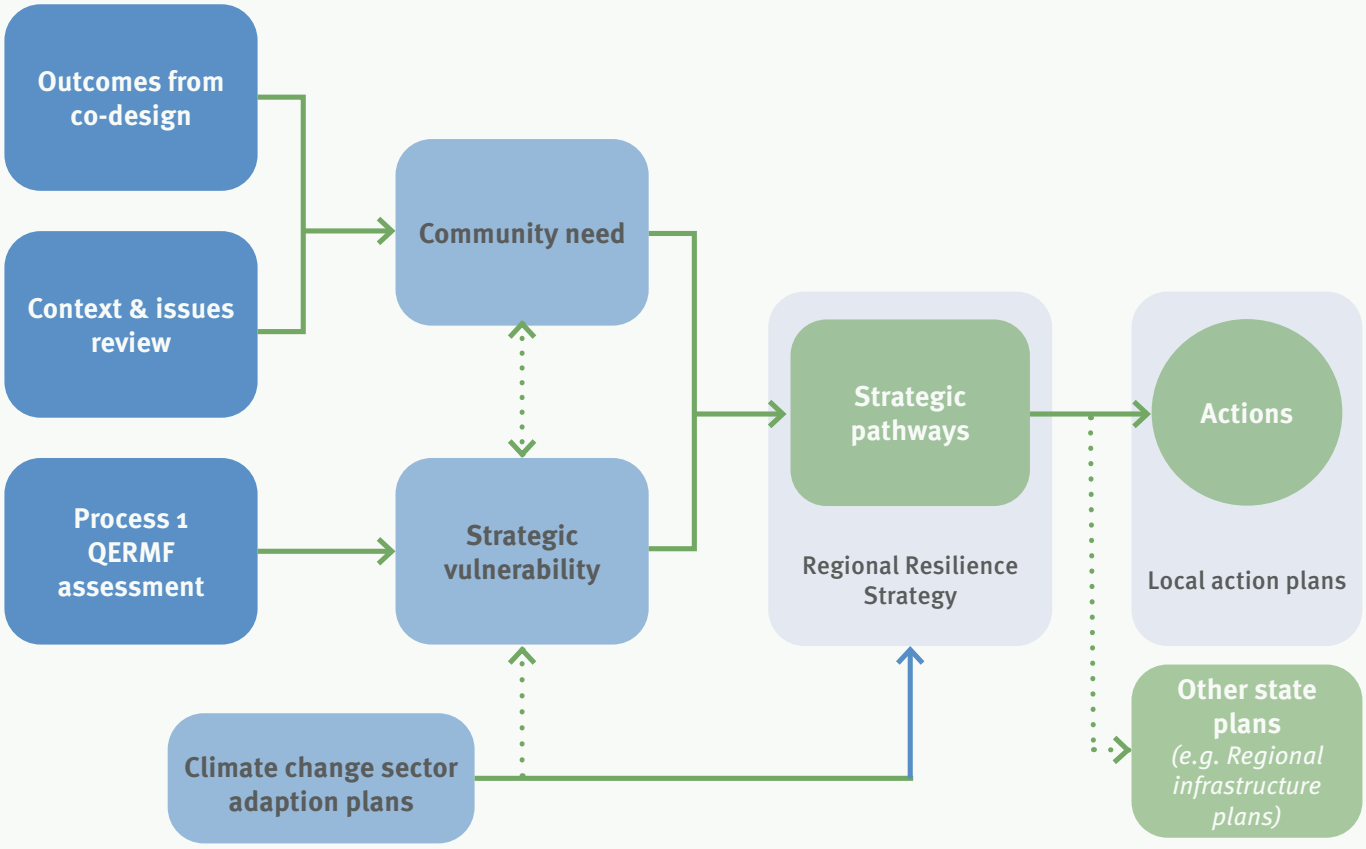
This Strategy culminates in resilience pathways that provide a link between locally-identified actions or projects, and the state, federal and international policy environment. That way, the need for a particular project or action can be justified by it meeting a regional pathway to resilience that meets one or more objectives of the Queensland Strategy for Disaster Resilience.

This Strategy is supported by Local Action Plans setting out the specific projects and initiatives that are needed to deliver on the aspirations set out by the Strategy. These Local Action Plans are provided to partner councils to implement.

The Strategy aligns with the following risk management, recovery resilience and adaptation planning initiatives, strategies and plans:

- Queensland Resilience, Adaptation Pathways and Transformation Approach project (QRAPTA)
- Queensland Emergency Risk Management Framework (QERMF)
- Queensland State Natural Hazard Risk Assessment and hazard-specific risk assessments prepared by Queensland Fire and Emergency Services
- Climate Change Sector Adaptation Plans
- Queensland Climate Resilient Councils Climate Risk Management Framework and Guideline
- Department of Transport and Main Roads Regional Transport Plans
- Queensland inland road network upgrade (Infrastructure Australia)
- Far North Queensland Regional Organisation of Councils Strategic Goals

Figure 4. Strategy development process reflects the CSIRO Q-RAPTA resilience building approach tailor-made for the Queensland context.



Resilience in the Hinterland to Gulf region

The Hinterland to Gulf aspires to a resilient future that is drawn from our values. Being resilient is part of life in our region. We are strong and independent, and it is our inner strength that gets us through the stresses and shocks we endure each year.

We can almost bank on any mix of flooding, cyclones, storms, bush or grass fire, and the heat, each and every year. But we are attuned to the landscape we live in and how it works. The smaller events prime us for the bigger ones, and we have learnt over time what to expect.

Resilience is a term that means different things to different people. The QSDR defines resilience as:

> ***A system or community's ability to rapidly accommodate and recover from the impacts of hazards, restore essential structures and desired functionality, and adapt to new circumstances.***

In the Hinterland to Gulf, we have learned a lot about what resilience really means to the people and places of our part of Far North Queensland, how stresses and shocks can affect existing levels of resilience, and how future events and trends will impact the ability to remain resilient.

Image: Croydon Cattle during the Monsoon Trough Event. Courtesy Croydon Shire Council.

Our resilience needs

Resilience is about looking at people, places and landscapes through the lens of trends, stresses and shocks that are being faced by the region now and into the future.

Understanding the trends, stresses and shocks can highlight the resilience needs of the region and the complex interplay between social, economic, built and environmental systems.

Trends

Transformative forces that could change a region:

- demographic shifts including population fluctuations and an increase in cultural diversity
- changing market forces
- loss of youth from the region
- changes in property size and tenure
- increased digital enterprise
- climate change
- opportunities in remote learning and working
- ageing population

Stresses

Long term situations or circumstances, weakening the potential of a given system and deepening vulnerability – they may be periodic or chronic:

- periodic and long-term drought
- weed and pest outbreak
- access to infrastructure and services
- fluctuations in funding, support services and baseline service provision
- housing availability, diversity, quality and affordability
- availability of in-regional aged and disability care
- skilled and non-skilled workforce availability
- reliance upon larger centres for essential services
- risk multiplier of increasing visitor numbers and non-resident workforce
- loss of and ageing volunteers
- physical isolation and supply chain interruption
- adequate provision of health services

Image: Controlled burning in Chillagoe. Courtesy Mareeba Shire Council.

Shocks

Sudden events with an important and often negative impact on the vulnerability of a system and its parts (such as a flood or bushfire):

- flooding
- bushfire and grassfire
- severe storms and wind
- heatwave
- earthquake

Core resilience needs

- Strategic prioritisation of improvements to supply chain routes
- Improved physical connectivity including air services
- More reliable infrastructure, including water and energy supply, and digital connectivity
- Regionally focused projects and service delivery reducing dependency on coastal capitals
- Social wellbeing and population retention and expansion
- Support for disaster management resources, capability and capacity
- Coordinated disability, physical and mental health services
- Consistency and commitment to delivery of essential service
- Natural resource management and landscape sustainability
- Continued local knowledge sharing and capacity building

How resilience is affected by stresses and shocks

Our disaster management system has traditionally dealt very well with the event-based episodic or acute shocks like floods, cyclones or bushfire. But we need to continue dealing with more of the systemic issues that worsen disaster events when they occur, and place increased burden on our disaster management system.

Investment and effort in building social, economic, infrastructure and environmental resilience helps to reduce the stresses caused by periodic stresses like drought and means that communities are better able to cope with episodic events like floods, bushfires or cyclones when they happen.

Figure 5. How resilience is affected by stresses and shocks.

Image: Mareeba bridge impacted during the Monsoon Trough Event. Courtesy Mareeba Shire Council.

Values guiding our resilience pathway

The Strategy reflects our values in the Hinterland to Gulf, which are unique and make us who we are. There are four underpinning values that guide our resilience pathway.

Identity

The people of the Hinterland to Gulf are our strength. We are small but proud of our identity and we value our diversity of culture, we are dedicated to community and strongly connected to place. People are what gives our communities a strong social fabric and greater resilience.

Prosperity through landscape

We are farmers of the land that provides us with our economic base. We understand its behaviours and accept it's sometimes harsh and cyclical nature, but this brings opportunity and forges our community foundations. We value our lifestyle close to the land.

Steadfast support

Our climate is cyclical, but support is required in a steadfast and consistent way to ensure we do not experience unintended stresses. We value support that recognises boom and bust as business as usual, and the gap from population base to population present as resilience issues.

Collaboration and empowerment

We are our future. We value the skills and capacity needed to build an independent region. Local leadership, empowerment and collaboration is paramount in seeking fit for region solutions to build resilience.

Image: Far North Nomads at the Mareeba Rugby League Club. Courtesy Mareeba Shire Council.

Rethinking resilience in the Hinterland to Gulf Region

To date our focus has been on post-disaster recovery processes and building resilience through programs like infrastructure improvements that can limit the impacts of recurrent events.

However, with our lived experience of recovery, we now acknowledge the need to proactively identify and deliver over time on initiatives that help avoid the stresses and shocks in the first place – ultimately putting us on a more sustainable track for growth and prosperity.

Limiting impact or shortening recovery from stresses or shocks

This Strategy focuses on identifying actions that limit impact or shorten recovery from stresses or shocks. These will help communities in the immediate aftermath of an event.

It provides pathways for actions to adapt or transform socio-economic settlements or systems to avoid or resist the impact in the first place. This will help our communities in the Hinterland to Gulf to grapple with long term trends and stresses like climate change, drought, and economic cycles.

This way, we can provide a long-term blueprint for how our region can continue to improve its disaster resilience for years to come.

How we make real and lasting change

To meet our collective challenges we need to actively take steps to reduce disaster risk and equip our Hinterland to Gulf communities to thrive in spite of the stresses and shocks they face. We need to match community need with funding and support to deliver – by refocusing over time from recovery to resilience and preparedness.

Figure 6. Improving our prosperity through resilience (adapted from Joseph Fiksel).

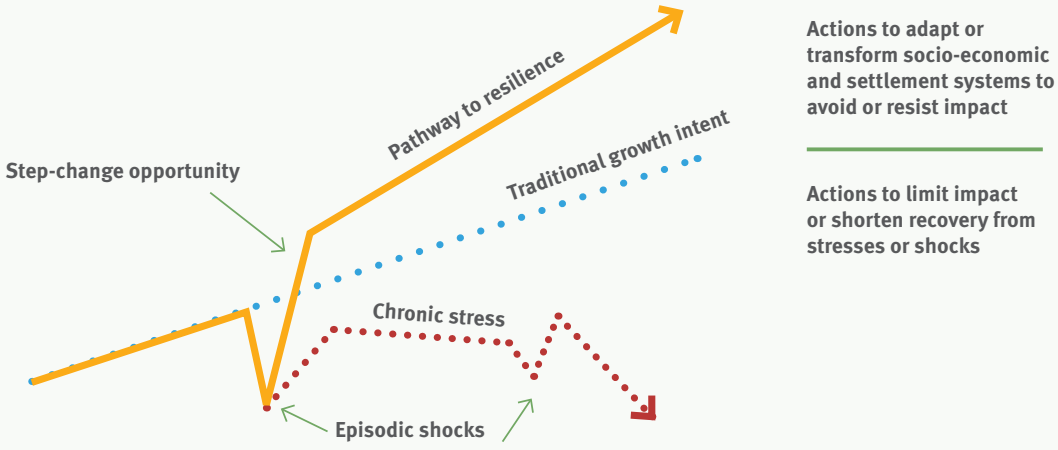


Image: Tree destroyed during the Monsoon Trough Event. Credit: John Edwards.

The changing funding landscape

Under the joint Australian Government-State Disaster Recovery Funding Arrangements 2018 (DRFA), assistance is provided to alleviate the financial burden on states and territories. It also supports the provision of urgent financial assistance to disaster affected communities.

The DRFA replaced the previous Natural Disaster Relief and Recovery Arrangements (NDRRA) on 1 November 2018.

The reforms to the DRFA included, for the first time, a framework to incentivise reconstruction efficiencies to create more funds for resilience and mitigation purposes.

Efforts to realise efficiencies under DRFA are critical to fund resilience and mitigation efforts in the future, and will help change the funding landscape from a focus on reconstruction and recovery to a focus on prevention and preparedness.

We now have a clear forward plan for how we can make lasting change into the future through sustained investment in resilience and mitigation activities. Recent changes in funding arrangements will enable the creation of funds for mitigation and resilience, along with a range of other funding programs (e.g. the Local Government Grants and Subsidies Program, Get Ready Queensland) that support resilience building.

Regional Resilience Strategies will provide the 'long list' of locally-identified actions that can be prioritised against a wide range of possible funding opportunities (including DRFA efficiencies) to build resilience in Queensland communities over time.

Figure 7. Changing the focus from reconstruction to prevention and preparedness

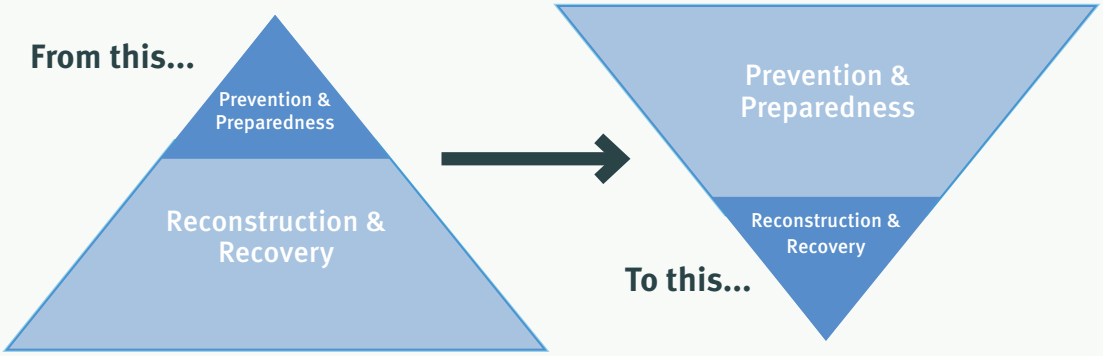


Image: John Doyle Bridge Under Construction. Credit: Lee Doyle.

Our region

Our region covers seven per cent of the state land mass with only 0.4 per cent of its population. Recent trends show an ageing and declining population, common in Australia's remote communities. We may be small by population, but not in heart.

Our principal industries which support our region's economy include grazing, agriculture and cropping, mining and tourism with gross regional product continuing a growth trajectory. Opportunities exist to extend existing industries in service offering, value adding and new products including cropping, renewable energy and specialist tourism activities such as mountain biking.

The region thrives on a diverse landscape dominated by substantial braided river channels out to the Gulf of Carpentaria, rugged terrain and gorges, fertile tablelands and tropical rainforest.

Mareeba Shire

Mareeba Shire encompasses the Barron, Staaten and Mitchell catchments. The principal township of Mareeba sits atop of the Kuranda Range and the edge of the Barron River catchment which flows east to the coast, while the bulk of the shire connects to the Gulf of Carpentaria by the waters of the vast Mitchell and Staaten rivers.

Mareeba is the administration centre and largest town on the Tablelands. It lies at the heart of the cropping and agricultural activities producing a diverse range of crops, including coffee, nuts, fruit and vegetables. Mareeba is the junction of transport routes on the Kennedy and Mulligan highways providing a gateway to the Cape and the Gulf. A strong sense of community is evident in the annual multicultural festival.

The main settlements of the Shire are Chillagoe Dimbulah, Mount Molloy, Julatten and Kuranda. Chillagoe is home to the Chillagoe-Mungana limestones caves – weathered, dissolved, and re-formed by water to create spectacular caverns and passages.

The town is steeped in its former gold rush history and located in tough outback country on Chillagoe Creek. It is accessed via the Burke Development Road.

Dimbulah is located about 35 kilometres southwest of Mareeba on the Burke Developmental Road in the heart of the Walsh River valley and renowned for its postwar migration heritage and cultural diversity. Dimbulah started as a gold mining town and a rail junction, transporting mining efforts from Chillagoe and further afield to the coast. Today it is a stronghold of cropping which has evolved over time and focusses on coffee, nuts and fruit. It is also a stopover point for the Savannahlander tourist train.

Kuranda is a colourful village located at the top of the range on the Kennedy Highway, well known as the village in the rainforest, attracting visitors for well over a century. The township sits high in the tropical landscape of the Barron River Gorge and its spectacular falls. The Kuranda markets, Barron Gorge walk, Skyrail and Kuranda Rail journey are legendary 'must do's' of any trip to the region.

Etheridge Shire

The Gilbert River catchment is almost entirely contained within the Etheridge Shire before flowing out to the Gulf. Etheridge Shire is home to four townships of Georgetown, Einasleigh, Forsayth and Mount Surprise.

Mount Surprise is the first stop on the Savannah Way (Gulf Developmental Road) which spans from Cairns to Broome. The spectacular Undarra Lava Tubes and all things gem fossicking are found at Mount Surprise, supporting tourism and unique visitor experiences.

Georgetown lies further west on the Gulf Developmental Road, which is the primary road connection from east to west for the region. The township is located on the Etheridge River, just north of its convergence with the Delaney River. Despite the small population of about 250 people, it is the service centre for the Shire and the properties of the rich beef cattle country of the Savannah along with some of the best gemstone areas in Queensland.

Georgetown is almost exactly at the centre of the southern Cape landmass with equal distance to the east coast or the Gulf. The Ted Elliott Mineral Collection at TerrEstria is a primary attraction.

Einasleigh sits on the banks of the Copperfield River on the route of the old Chillagoe to Forsayth railway. Once a copper mining town, it is set among some unusual scenery with flat top hills that rise out of the grasslands. Forsayth is off the beaten track a little, located on the upper reaches of the Etheridge catchment on the Delaney River with its origins in gold discovery of 1871. Today, both townships are visited by the Savannahlander train and are popular tourist destinations. The iconic Cobbold Gorge is further upstream in the Einasleigh Uplands rugged range country.

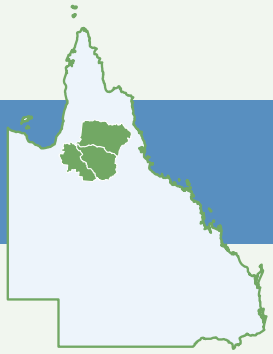
Croydon Shire

Croydon township is located further west and Croydon Shire boasts the traditional economic strengths of grazing, mining and tourism in the heart of the savannah country.

The Shire takes in most of the Norman River catchment, extensive high country which forms the watershed and boundary between Croydon and Etheridge, and vast fertile plains along the many rivers and creeks feeding into the Norman.

Croydon township is the administrative centre for surrounding properties. The picturesque Lake Belmore provides water supply and recreation for the town. Origins are found in gold mining and the heritage focus continues through the 'The Gulflander', historic train travelling between Normanton and Croydon.

A snapshot of community characteristics



Top three employing industries:

- Agriculture, Forestry and Fisheries 18.3%
- Health Care and Social Assistance 10.9%
- Retail Trade 8.7%

7% of the land mass

0.4% of Queensland's population (24,195)

3 local governments

$534.6 m – Farm Gate GVP

0.4% of Queensland's population (24,195)

43.2 years - median age (Qld 37.4)

9,381.3 km² Protected Areas

8% unemployment rate (Qld 6.8%)

13% Aboriginal and Torres Strait Islander peoples* (Qld 4%)

19.8% of the population is aged over 65 years (Qld 15.7%)

1% average annual growth rate (Qld 1.6)

90.5% living in a single dwelling (Qld 76.6%)

* as per 2016 census data.

Our landscape

The landscape of the Hinterland to Gulf Region is diverse, rising in the east through pristine rainforest of the Kuranda Range and extended west across the vast and breathtaking Savannah.

The contrast in terrain is striking from the Einasleigh Uplands, dominated by their rugged hills and ranges, dissected plateaus, vast sandy plains and braided channels, to the Gulf Plains that lead to the Gulf of Carpentaria.

West of the Kuranda Range is the township of Mareeba, surrounded by the headwaters for the Barron River, which flows eastward over the range towards Cairns and into the Pacific Ocean. The Barron travels through a mosaic of dense rainforest, open eucalypt forests and wide savannah lands.

The highlands surrounding Mareeba, Chillagoe and the Undara Lava Tubes are dominated by eucalypt woodlands and grazing land. The unique geology of these landscapes across the Einasleigh Uplands has been shaped over millions of years of volcanic activity. These landscapes give rise to the headwaters of the Mitchell River. The Mitchell begins west of the Mount Lewis National Park, flowing westward before being joined by the Hodgkinson River. The Mitchell continues, where it is joined by the Walsh River, which has already snaked its way between towns along the Burke Development Road. South of the Walsh, the Lynd and Tate Rivers flow north-west and meet the Mitchell to the north of Staaten River National Park. The mighty Mitchell is joined by the Palmer River as it flows across the Gulf Plains and enters the Gulf between Pormpuraaw and Kowanyama.

Encompassing Etheridge Shire is the basin of the Gilbert River, while Croydon Shire is largely within the Norman basin. Both river's headwaters rise in the Gregory Ranges. Rungulla National Park sits atop of the ranges with the Gilbert flowing north and the Norman flowing west. The catchments also form the boundary between the shires.

The Gilbert is soon joined by the Robertson River. The upper reaches of the Robertson are home to the outback oasis of Cobbold Gorge, an ancient landscape abundant in wildlife. Further downstream, a chokepoint between the Norman and Staaten Basins merges the winding braids before discharging across the flat low estuarine plain into the Gulf.

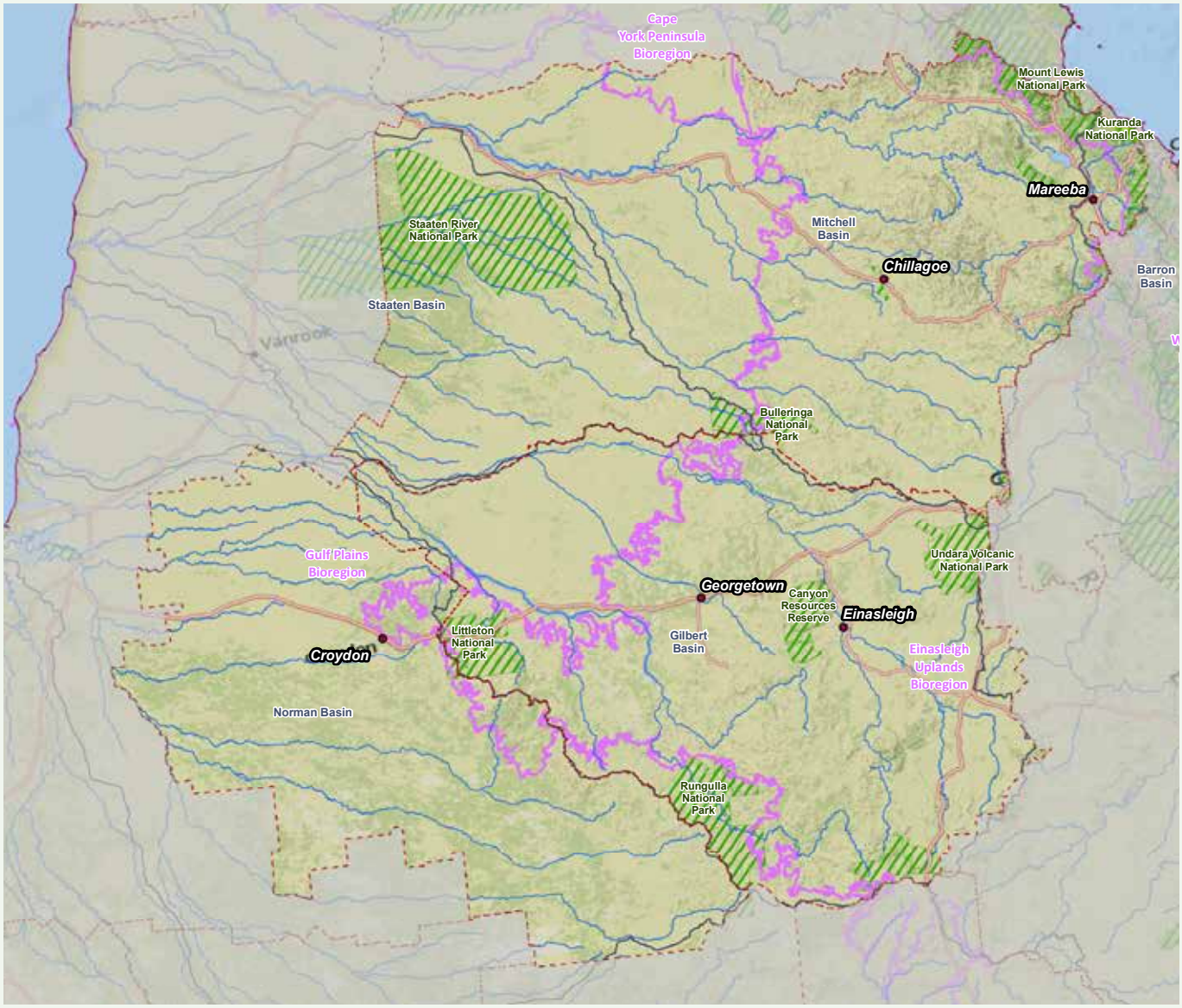
The Norman's headwaters flow northwest through the Croydon Shire and the Gulf Plains, onto the port town of Karumba and into the Gulf of Carpentaria. The Gulf Plains are home to eucalypt and tea-tree open woodlands that dot a landscape braided by river channels, and a vast landscape which is used extensively for cattle. During the wet season, low-lying savannah of the Gulf Plains flood with rains and become crucial breeding grounds for Brolgas, Sarus Cranes and other migratory waterbirds.

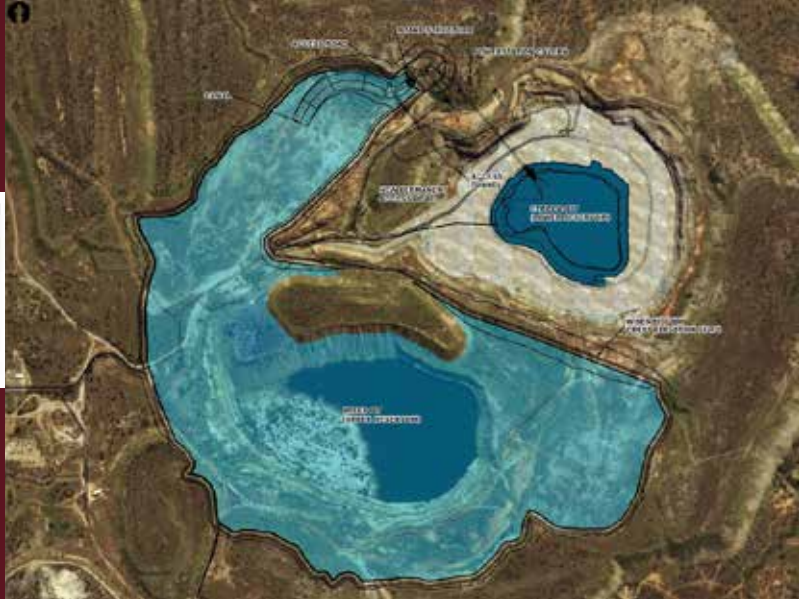
The Staaten is a smaller catchment wedged between the Mitchell and the Gilbert headwaters beginning in the Bulleringa National Park and the Red River. The Staaten is in Mareeba Shire, the catchment doubling as the Etheridge Shire boundary. The Red River flows into Carpentaria Shire where it forms Pelican Creek, then Wyaba Creek before joining the Staaten close to the Gulf.

Open eucalypt woodlands with grassy understories dominate the savannah of the Gulf Plains, but paperbark, lacewood and bluegrass are not uncommon too. Many of these species have been here since pre-European settlement, but the landscape is increasingly being altered by weeds, feral animals, and grazing pressures.

Image: Town of Mareeba. Courtesy Mareeba Shire Council.

The landscape features of the Hinterland to Gulf Region





Case study: Doing Same…. Savannah Guides. Protectors and Interpreters of the Outback

Our Savannah Guides are renown as professional tour guides and maintaining focus on protecting and learning about our landscape.

Savannah Guides Limited was established as a non-profit company in 1988 to provide access for tourists to unique natural features in Queensland's Gulf Savannah and train high quality tour guides. It is regarded by its members and stakeholders as providing valuable services for individuals, tourism businesses and organisations and sets a benchmark for professional standards of tour guiding and tourism operation.

The Message Stick hatband captures many of the concepts of Savannah Guides. The two panels were conceived by John Courtenay, Savannah Guides' founder in the 1980's who had seen an engraving done by early French explorers depicting two men in a bark boat representing the Arafura Sea and the Gulf Savannah.

The art is now a hallmark of the Guides, symbolising First Nations Peoples and their association with Macassan traders, coming from Indonesia around the middle of the 18th century. This art represents the bountiful region, flowing rivers and seasonal dry spells. The Savannah Guides keep the history of the region alive through tours and storytelling, adding to the enrichment and understanding of the region.

Acknowledge Source: Savannah Guides.

www.savannah-guides.com.au/courses/welcome-to-savannah-guides

Case study: Doing Different … Kidston Pumped Storage Hydro Project

Kidston Pumped Storage Hydro Project (K2H) is located at the old Kidston gold mine. approximately 125 kilometres south of Mount Surprise.

The project is the flagship of the Kidston Clean Energy Hub on the Copperfield River. It is a closed power generation loop system, which transfers water from the upper reservoir to the lower reservoir. The methodology ensures minimal environmental impact during operation, on what is existing unused infrastructure on a disturbed historical mining site. This is the first time such a project has been undertaken using abandoned mining infrastructure.

The project has a storage capacity of 250 megawatts for eight hours (or 2.000 megawatt hours).

Acknowledge source: Genex Power.

www.genexpower.com.au/250mw-kidston-pumped-storage-hydro-project.html

Our climate

Our livelihoods and our way of life are closely linked to the climate. The climate of the Hinterland to Gulf can range from tropical and warm to harsh and unforgiving, so it is important to be prepared.

Our summers are very hot, with maximum temperatures usually ranging from 33-37°C, but it is not uncommon for temperatures to exceed 40°C. If you are unprepared or get stuck, these extreme temperatures can be deadly.

If it is going to rain in the Hinterland to Gulf, it will be during the tropical monsoon period in the summer months. These downpours can make getting around our region difficult, particularly for those not familiar with our roads and landscape.

Winters in the Hinterland to Gulf are mild and dry. It is during these winter months, when the temperature is pleasant, that tourists explore our region

Image:Lightning strike. Courtesy Etheridge Shire Council.

Rainfall systems

Floods are integral to our livelihoods, they bring much needed water to our dams and replenish our floodplains with crucial feedstock for our cattle. The Hinterland to Gulf has a long history of floods with official records dating back to the 1870's.

Severe storms, tropical cyclones and monsoonal troughs can bring about significant rainfall. While rainfall is the key component leading to a flooding event, there are many contributing factors, including catchment size, land uses, ground moisture and vegetation in and around a water course.

Floods mainly occur because of rainfall in the headwaters of our river systems in the south and west of the region across the Einasleigh Uplands. As flood from the highlands reaches the plains, it slows down and spreads out. Floods will become slow moving and span large flood plains. These floods can last for days or weeks at a time.

Fire weather

Bush and grass fire is endemic to the landscapes of the region, often ignited by lightning strike. Good fire also supports a healthy landscape, with many of the region's ecosystems dependent on a level of fire frequency.

Aside from fuel loads, our weather and climate has a significant role in the intensity to which fire may occur, and how easily fuels may burn.

Fire weather is determined by aspects of temperature, low relative humidity, high wind and drought factor. These aspects are considered as part of a framework known as the Forest Fire Danger Index (FFDI) as well as the Grass Fire Danger Index (GFDI). Based on data analysis performed by the BoM, from 1950 to 2018, annual accumulated FFDI has increased in the North West by 11 per cent. The average annual occurrence of fire weather days exceeding FFDI 50 has increased by 72 per cent since 1950 (BoM, 2019).

The region experiences different fire weather conditions from east to west and north to south but overall, these conditions are both intensifying and becoming more frequent, heightening the risk of bushfire and grassfire across the region.

Temperature

Heat is something we deal with year-round living in our part of Queensland. The interior of our region experiences more than 100 days above 35°c each year. But increasing intensity and frequency of heatwaves means we will experience longer periods of increased temperatures.

In November and December 2018, we experienced extreme and severe heatwave conditions, along with much of northern Queensland. This heatwave produced some of the highest recorded temperatures in our region's history. During this heatwave, the Cairns and Hinterland Hospital and Health Service treated dozens of patients with heat-related symptoms, than they normally would at this time of year.

Drought conditions

Droughts are considered a normal part of life across the region. They have led to great innovations and successes of landholders in adapting to the circumstances, however previous droughts have been lengthy and costly to the region.

The characteristics of drought are like no other natural hazard. The timeframes and severity are unknown; it's hard to know if you are in one until considerable time passes. They are slow moving, gradual events with cumulative and compounding effects which are often psychological and financial rather than physical. Once the rain comes, recovery is equally long and arduous.

From 1895 to 1903 the whole of Australia was affected by drought, but most persistently the coast of Queensland, inland areas of New South Wales, South Australia, and central Australia. This was Australia's worst drought to date in terms of severity and area. Sheep numbers, which had reached more than 100 million, were reduced by approximately half and cattle numbers by more than 40 per cent. Average wheat yields exceeded eight bushels per acre in only one year of the nine and dropped to 2.4 bushels per acre in 1902 – dubbed the federation drought, the event was repeated a century later as the Millennium drought.

Future climate trends

Based on the future climate projections, the region is expected to experience the following changes to climate conditions in the future:

- higher temperatures;
- hotter and more frequent hot days;
- more intense downpours;
- less frequent but more intense tropical cyclones; and,
- longer periods spent in extreme drought.

These changes will likely impact the region through increases in cyclone and storm activity, increasing flooding over large areas of the catchments and adding disruptions to transport networks, and weed invasion across the region.

Tropical diseases such as Ross River fever and Dengue fever are expected to increase in prevalence and range.

Image: Einasleigh Copperfield Gorge during the 2011 flood. Courtesy Etheridge Shire Council.

Notable droughts include:

Federation Drought 1895-1902

January 1965 – June 1966

April 1982 – February 1983

Millennium Drought April 1997 – October 2009

April 2002 – January 2003

April 2017 – September 2019

Notable floods include:

Jan-Feb 1962

In the Gulf Country, monsoonal rains from late January swelled the Gilbert, Norman, Einasleigh, and Mitchell rivers. Homesteads were isolated and communications cut as the rivers spread over the flat countryside.

January 1965

Rain associated with Cyclone "Judy" produced flooding in the Gilbert River in late January. Georgetown received 300mm in two days and became surrounded by floodwaters for a short time.

January 1974

Widespread flooding occurred across the State during this month. The Gilbert and Norman each experienced peaks above 16 and 7 metres, respectively, their highest flood peaks on record. As with most large rainfall events, it caused widespread road closures and inundation of properties across each catchment.

February 2000

Weather systems during this month caused three distinct wet periods, resulting in floods across catchments in the Tropical North Coast. Tropical Cyclone Steve crossed the coast at the end of the month, after the catchments were already saturated. Subsequent rainfall caused the Barron River at Mareeba to peak at 12.4 metres, reaching its highest flood peak since records began in 1921

January 2009

Tropical Cyclone Charlotte combined with an active monsoon trough brought prolonged heavy rainfall to catchments across the Tropical North Coast and Gulf Country, resulting in very high flood peaks and flood warnings. This event was the second highest peak of the Gilbert River since 1974.

Jan-Feb 2019

Significant monsoonal rains resulted in much of the state being in flood. The flood impacts from this event were significant across Northern Queensland, including catchments in Gulf Country.

Our challenges and opportunities

The many values of our landscape, and the reliance we have on the functions of the landscape from an economic and social perspective, bring challenges in the face of climate change and disaster events. We understand our natural cycles, but our challenges are not all natural.

Steadfast support and consistency in service provision, including local people who deliver services to remote regions are modest commitments that can significantly stabilise small communities and facilitate endurance through natural disasters, boom and bust.

Improving infrastructure, including access to reliable water, energy and digital connectivity will boost the Region. This will enable better economic opportunity, healthcare outcomes and quality of education, ultimately resulting in improved resilience and absorption of stresses and shocks of the cycle.

With this baseline in place our region can prosper together.

Environment

The characteristics of our environment mean embracing and understanding the long-term boom-and-bust cycle and the consequent changes in the landscape. The landscape benefits from the natural occurrences of fire and rains as regenerative processes.

The challenge is using the abundant natural resources as a catalyst for growth and prosperity. Competing interests between deep landowner knowledge of environmental behaviours, landscape recovery and common regulation can produce tensions in land management.

Sustaining effort, in tune with the natural cycle, is paramount. The natural ebb and flow of the seasons, good rains, land regeneration, spread of pest and weed should be the driver of actions rather than the shocks of the cycle. Consistent support facilitates viability through; what can be long periods of great years or waiting for rain. Recognition of landscape issues which are beyond small organisations to achieve such as the management of pigs and dogs, and catchment restoration across the region is appreciated. Approaches which provide consistent regional resources and funding at key times of the cycle to optimize results.

We have so many incredible sights to see, our geology supports stunning attractions at Undara Lava Tubes, Mount Surprise fossicking and many spectacular gorges and ranges. These provide extensive opportunity for nature-based and geo-tourism including bird watching, fishing, and fossicking. Connecting these authentic landscapes to the wonders of the World Heritage region and the Mareeba agricultural-based tourism completes the experience.

Recent stresses to our environment stem from the commencement of carbon farming which has led to tensions between the value of the land for active purpose.

Our vast river systems and black soil plains present untapped opportunity for extending prosperity but are challenged by access to the water flows confined to stream channels.

Image: Katy's Road in Etheridge. Courtesy Etheridge Shire Council.

Towns and infrastructure

Significant opportunity for greater economic independence and resilience is found in improvements to enabling infrastructure such as reliable and economic energy, water and digital connectivity to access technology, online markets and working remotely – which has always been our way.

Our businesses are innovative and look towards technology to assist with trends in skills shortages, distance, and isolation to build stability and quality of life.

Improvements to enabling infrastructure is an investment in economic prosperity. The opportunities that reliable, fast and economic telecommunications, access to water and energy can bring cannot be understated.

Connectivity is a constant underlying stress for our community Challenges stem from our inability to utilize technology to full capacity due to deficient telecommunications connectivity. This stymies progress in health, education, entrepreneurialism, and the ability to leverage digital platforms with consistency.

Distance to power generation sources results in significant transmission loss, where local generation in renewable energy is an opportunity for energy independence.

During disasters, redundancy and back up is especially important for these networks. With roads cut, repairs uncertain and a dispersed population, staying connected with back up options is paramount.

Housing shortages and increasing deposit requirements outside larger centres, doubles down on our ability to attract permanent residents. The ability for families and individuals to remain in the region can be challenging, if owning your own home is not an option.

Baseline services including built infrastructure and a commitment to continuity, funding and access in health programs, justice, education and other services ensures business confidence, investment and continued innovation without unintended stresses. These services – and the locally employed people who provide them - contribute significantly to ensuring a quality of life and enables access to health, education and information streams despite distance and transcending climate cycles.

Opportunities in new infrastructure are evident in the Kidston Hydro project. Connecting the region and closing the rail gap between the shires with air services is also a key opportunity.

The opportunity for Mareeba to advance as a service centre for communities along the inland freight route is substantial. This may help to relieve pressure from the highways to the coast and can realise significant regional benefits in transport cost, supply, health education and critical infrastructure.

Roads and transport

Roads are our lifeblood. There are no detours available and no other options to connect our region. Our communities are situated on important and strategic freight routes. 'Roads of Strategic Importance' on a national level traverse our region providing both challenges and opportunity in safety and connectivity, as well as for economic development and freight support. The Ootann Road, Gulf and Burke Development Roads service communities in all directions across vast distances of Queensland. We are connected to the coast by the busy Kuranda Range Road and Kennedy Highway servicing tourist, commuters and industry.

Road closures and communications during disaster events can benefit from a stronger regional or collaborative response focused on consistent messaging for visitors, given the limited range of resources available to support additional people during severe weather events.

Improvement in air transport services to our region would be a boon for independent travel and locals' access to services, saving time and lowering dependence on roads. Connecting existing renown rail adventures in the Savanahlander and Gulflander is an opportunity for tourism, freight and regional passenger connectivity.

Mareeba is well placed to grow as a service centre for the strategic freight routes, similarly lowering depending on coastal and range crossings.

After natural weather events we repair our known trouble spots around creeks, floodways, bridges and culverts frequently. This is a clear opportunity to seek better outcomes on the ground with local knowledge, and create greater resilience in our road network.

Image: Road Reconstruction in Croydon post Monsoon Trough Event. Courtesy Mareeba Shire Council.

Economy

Our economy has much opportunity centered around:

- our location as a freight pivot point
- an alternative service centre to coastal locations
- spectacular geology and landscape; and
- building on our existing agricultural and horticultural roots

The roads and freight routes originating across the state and passing through our region, along with ample industrial land, has the potential to offer excellent grounding for freight distribution, logistics hubs and associated industry.

Our long agricultural history has changed and evolved over time from tobacco and cattle to a diversified mix of cotton, wine, mangoes and tropical produce for the domestic and international markets. We depend on alternate labour models to ensure or region's harvest gets to market.

Opportunities in support industries such as irrigation, packaging and value adding produce are emerging from our innovative business sector.

Tourism is an emerging industry in our region. Providing local outback hospitality is in our genes but we are also on the cusp of an international gateway. Challenges in standards of service - especially online, staff availability, housing and communications can be an issue to overcome. There are opportunities to leverage our self-promotion and the current domestic travel boom through a more collaborative approach to tourism in the Hinterland to Gulf region and across the Savannah. The region boasts excellence in tourism offerings from paddock to plate, natural attractions, luxury remote farm stays, heritage rail adventures and the renowned Savannah Guides.

The challenge is to build confidence in business viability and attracting capital by removing some of the entry barriers or uncertainty in infrastructure, housing, and skills.

Our economy has great opportunity to grow, stabilise and reduce stresses which are inherent in our climate and landscape, supported by a stable baseline of infrastructure and services to provide the business scaffold, and realise opportunities to attract new people with broader skill sets and access to markets.

People and communities

A challenging trend for our communities is an ageing and decreasing population. This is exacerbated by larger property sizes which contribute sparser and fewer families on the land.

Newcomers are welcomed into the region, and our local knowledge is shared to support and help familiarise those who are new to this part of the world.

Our communities thrive on the closeness of community and a strong social fabric. We have deep cultural and linguistically diverse roots which we celebrate wholeheartedly together. Our people are fiercely independent.

The importance of face to face services and the certainty of continuity cannot be understated as a contributor to underlying resilience.

We welcome a high proportion of travelers, visitors, non-resident workers who are yet to understand the landscape risk as the locals do. As our population swells in the cooler months, sharing knowledge and raising awareness presents communication challenges for the many ways our visitors collect information.

The opportunity arises to attract and welcome more newcomers and showcasing our multiculturalism, the relaxed lifestyle and new prospects to work remotely that our region as to offer.

Our people live here because they love it. Our young people and our old timers want to stay however there are challenges in providing the services and incentives for them to do so. Attracting young people back to our region is paramount. Our quality of life stems from our values and we strive for steadfast services in communication and access which supports better health, education and innovation outcomes.

Providing a baseline of regional services in primary settlements contributes to social stability and improves outcomes. Having this baseline of services means residents will no longer need to travel to long distances to get what they need. However, attracting the skilled professionals needed to deliver these services has been challenging.

Image: Diehm's Lookout, Croydon. Courtesy QRA.

Climate influences

Climatic challenges include a forecast of higher temperatures, hotter and more frequent hot days, harsher fire weather and more intense downpours. Changes to drought impacts are less clear.

Rainfall overall may remain similar in quantum but be dispersed and sporadic with less rain during the dry and more intense rain in the summer. Tropical cyclones are projected to become less frequent but will be more intense when they occur, and rain downpours are expected to become more intense. More intense episodes could increase vulnerability to assets, with more frequent impacts and potential for increased erosion, reduced infiltration and pasture growth.

Rises in mean temperature brings with it an increase in the number of hot days experienced giving the effect of an extended summer. The number of hot days (over 35°c) and very hot days (over 40°C) are both projected to increase bringing with them hot nights.

Temperature rises impact our people and affect our ability to work and enjoy our outdoor lifestyle. This will flow on to the availability and use of evaporative cooling or refrigerated air conditioning. Both options have costs in energy and water and implications for increased demand on these networks from both residential and commercial uses.

Increasing frequency, intensity and lengths of heatwaves may impact vulnerable people along with animal heat stress which can reduce reproductive performance and increase mortality. These events will place increased demand on the region's hospital and health services, while higher temperatures and longer summers may compress the tourist season.

Economic costs of heat may see a reduction in the tourism season rather than the desired lengthening. Risk to tourists' health and well-being will emerge where low risk awareness can potentially be a burden on emergency services resources. Heat also increases the risk of mechanical failure for business, especially in energy overloads, road surfaces, rubber and plastic components failure of plant and equipment.

Our environment may experience changed behaviours of pest and weeds with impacts to native species abundance and locations. Grazing animals may require more shade, travel shorter distances and require water at closer intervals, while feral animals may extend their reach and be more destructive.

Irrigation will need to increase for our crops or alternative varieties developed requiring less water for growth.

Fire hazards will increase with drier spells or higher fuel loads from intense falls and debris from severe storms. The primary challenge for fires in our region is distance and isolation and the ability to reach ignitions and bushfires in the back country and in difficult terrain. Landholder capability remains high, which is beneficial where ignitions occur, and rapid response can be applied to knock down grassfires.

Natural hazards may threaten tourism infrastructure and damage or interrupt visitation to popular environmental sites. Changes in natural systems may have implications for the health of Country and wildlife, including their intrinsic and Indigenous cultural values. A changing climate compounds existing difficulties and inequalities rural and regional communities face through distance and isolation. The emotional and psychological toll of disasters can linger for months and years, affecting whole families and the wellbeing of communities. In some circumstances, some people may never truly recover.

Cumulatively, these changes add to the baseline of resilience. Avoiding unwarranted stresses, maintaining steadfast services in health and well-being will be especially paramount. Our greatest opportunities for the consolidation of our existing levels of resilience stem from technology, innovation, awareness, and education

Image: Croydon Waterholes after heavy rain. Courtesy Croydon Shire Council.

Our exposure and risks

There are five hazards covered by this strategy, including flood, bushfire, earthquake severe storm and heatwave. The following section provides a high-level overview of the nature of hazard exposure across the Hinterland to Gulf region.

Observations are informed in part from the 'process one' analysis of each hazard using the QERMF approach across each local government area.

A critical element in understanding risk are the elements of exposure and vulnerability which exist at both a micro and macro scale. For example, specific bridge or culvert assets may be exposed or vulnerable to natural hazards however, the resupply network these bridges and culverts support may then also be vulnerable. From a resilience perspective, it is necessary to consider risk consequences across a broad spectrum from asset-based analysis through to strategic and systems-based analysis

The dominant natural hazards for the region relate to bushfire and our landscape cycle of flood and drought to the west with a focus on tropical lows to the east.

Flood hazard

Across the region, exposure to flood hazards are expected however, the nature of the landscape and the catchments provides significant variation. The Croydon township is distanced from the primary channels of the Norman. Settlements in Etheridge Shire are vulnerable to the Etheridge and Einasleigh River and its upper tributaries. For settlements in Mareeba, flooding is limited due to its location at the top of the Barron and Mitchell catchments.

Catchment behaviours dictate various vulnerabilities depending on warning times, extents, time isolated due to heights, channel widths and receding speed.

Assets and facilities especially exposed include the state and local road network. As a primary connector for our region the continued and enhanced functionality of roads is a focus. This may be in the form of outcomes which shorten the duration of road closures, and therefore isolation, upgrade of timber bridges and enhanced immunity at key locations.

The contrasting part of the cycle is drought which can have long lasting and deep effects across resilience factors. These long-term events stretch community resilience as it confronts financial, physical and mental health, stresses and shocks to name a few.

Vulnerability across the region increases across the drought and rain cycle as these are expected to become less predictable, droughts likely to be longer, temperatures hotter and rainfall more sporadic. The continual drought to flood cycle dominates the vulnerability narrative as it does the landscape.

Image: Barron River flooded during Monsoon Trough Event. Credit: John Edwards.

Tropical low and severe storm

Severe storms include dust storms and the likelihood of high winds and lightning strikes. Infrastructure is exposed across the region to storm debris or high winds for isolated assets such as mobile phone towers, power lines, and communications and airport towers or transmitters. A significant proportion of the regions' flood warning infrastructure is also exposed to either flood risk or bushfire.

Severe storms are associated with low-pressure systems. These intense systems and their associated cold fronts can generate strong winds and heavy rain over large areas, causing local flash flooding and riverine flooding. These events can also produce damaging hail. Severe thunderstorms generate damaging wind gusts of 90 kilometres per hour or more, with peak wind gusts exceeding 160 kilometres per hour in the most damaging storms.

Climate projections show that tropical cyclones are projected to decrease in frequency but increase in intensity. The Queensland State Natural Hazard Risk Assessment identifies tropical cyclones as the highest natural hazard risk priority for Queensland, followed by severe weather as the seconded highest. Cyclone activity relevant to the Gulf to Hinterland region can include systems from the Pacific Ocean east or from the Gulf in the north-west.

Severe Tropical Cyclone Yasi developed in as a tropical low near Fiji in late January 2011 and started tracking westward then west-south-westward. Developing from a tropical low into a Category 5 STC over the course of four days, Yasi made landfall near Mission Beach after midnight on 3 February 2011. After crossing the coast, it maintained a strong core with damaging winds and heavy rain, continuing its track across northern Queensland and finally weaking to a tropical low near Mount Isa over 18 hours after making landfall. Wind gusts near the centre of Yasi were reported at 285 kilometres per hour and significant wind damage was sustained between Innisfail and Townsville.

Coastal lows are intense low-pressure systems which occur several times a year off the eastern coast of Australia, including in southern Queensland. They are most common during autumn and winter, however they can occur at any time of the year. During summer, coastal lows may be ex-tropical cyclones

Major cyclones can also be a primary source contributing to the development of heatwaves. Emerging evidence suggests a link between major cyclones in Queensland and subsequent significant heatwave events, resulting in further impacts upon already vulnerable communities. Understanding this link is important, as cyclone-impacted areas may have suffered extensive infrastructure damage and loss of power; therefore, eliminating the ability to use 'cool places' which are mechanically ventilated, like shopping centres, to seek respite from the heat.

Bushfire and grassfire hazard

Bushfire risk is common across the region with variations in characteristics depending on the fuel load, remoteness and access, source and property risk. Large areas of the region are state parks and forests with steep slope, dense tropical scrub to rainforest. Resources do not stretch to combating remote fires which are often inaccessible and ignited by lightning strikes.

Property owners mitigate bushfire and grassfire risk through good management practices, lawful construction of firebreaks and retention of on-property firefighting skills and equipment. Properties which are not well maintained, unsettled or too remote can pose an additional bushfire risk.

We have a responsibility to manage our own land and in doing so, reducing the risk of bushfire. The rugged hills of the Einasleigh Uplands and their grasslands and eucalyptus forests present a real bushfire risk during periods of dry bushfire weather.

Out west, the Gulf Plains comprises large portions of the region's landscape. This is dominated by undulating and flat sandy plains grasses and dominated by eucalypt and tea tree open woodlands. Where properties become heavily vegetated and unmanaged, the risk of bushfire will increase. Aside from fuel loads, our weather and climate have a significant role in the intensity to which fire may occur, and how easily fuels may burn. Recent years have also seen the threat of bushfire and grassfire increase in the region.

Closer to the coast the sub-tropical vegetation can provide heavy fuel loads, especially following severe storms and good rains. In the later months of 2019, Mareeba Shire faced fire threats in several townships, including Chillagoe, Dimbulah, Watsonville, Irvinebank and Mareeba. A bushfire in Biboohra destroyed property.

The key risk areas for bushfire are where natural bushland interacts with urban areas, creating vulnerability for people, buildings and infrastructure, especially in the more populated areas in the east of the region.

Croydon Shire

For severe storm risk Croydon is currently exposed to 43.4 gust wind speed (m/s), which equates to a category 2 tropical cyclone. Under the projected future scenario this is expected to remain constant. This data is indicative and does not preclude events of other magnitudes.

Croydon is exposed to 23 heatwave days per year. In the future scenario, a potential 7 to 29 additional heatwave days per year may occur across the low to high scenarios.

Image: Bushfire aftermath Etheridge near Gulf Development Road. Courtesy QRA.

Croydon township does not sit on the banks of a primary tributary although is exposed to transport and resupply issues through interruption to the Gulf Development Road from flooding.

When good rains arrive, agricultural assets including fencing, sheds, watering points and property accesses are exposed to extensive damage.

Bushfires have been experienced in the past and heavy fuel loads after good years and the characteristics of savannah grass varieties increase bushfire and grassfire risk.

Etheridge Shire

The Shire is particularly exposed to flood with settlements of Georgetown and Einasleigh, on the banks of the Etheridge and Einasleigh rivers respectively. Georgetown is particularly vulnerable at the convergence of the Delaney upstream and east of the township and Sandy Creek just downstream and west, effectively wedging Georgetown between watercourses.

Numerous creek and river crossings and flat savannah plains expose the shire to interruptions along the Gulf Development Road and others in the network for transport and resupply making the region vulnerable to isolation.

In current weather scenarios, Etheridge is exposed to 42.5 gust wind speed (m/s), which equates to a category 2 tropical cyclone. This is expected to rise in the projected future scenario to gust wind speeds of 48.7 (m/s) which equates to a category 3 tropical cyclone. This data is indicative and does not preclude events of other magnitudes.

Etheridge is currently exposed to 22 heatwave days per year. Under the future scenario the LGA is potentially exposed to between 8 to 35 additional heatwave days per year.

Mareeba Shire

Mareeba is currently exposed to 49.8 gust wind speed (m/s), which equates to a category 3 tropical cyclone. This is expected to remain constant in future climate scenarios. This data is indicative and does not preclude events of other magnitudes.

Mareeba is exposed to 23 heatwave days per year. Under the future scenario rising to a potential 8 to 40 additional heatwave days per year across the scenarios.

Principal exposure for the LGA relates to critical infrastructure for transport and resupply as most state and local roads maintain a level of vulnerability to flood. Built assets are exposed to bushfire including dwellings, commercial, industrial and agricultural facilities, schools and some essential services.

Buildings predating 1980 regulatory changes comprise over 60 per cent of the housing stock resulting in vulnerability to continued severe storm weather.

Case Study:
Diverse paddock-to-plate offerings

We are leading the way to diversify the traditional methods of providing fresh, locally grown produce to local and national markets.

In the north, Farmer Meets Foodie have given a digital-spin to the paddock-to-plate concept. Since starting in Mount Molloy in 2018, the Farmer Meets Foodie website now connects local producers with food operators and consumers across Queensland and northern New South Wales. Farmer Meets Foodie are also piloting a 'trawler to table' service, connecting consumers to the seafood of the Gulf. The service has a strong focus on sustainable practices – promoting seasonal produce, reducing food waste and miles – all the while sharing the stories behind local produce.

Another local business with a keen focus on local produce is Tablelands to Tabletop. The family-owned business began offering a weekly delivery of local produce to the community after the onset of COVID-19 significantly reduced the regular buyers locally grown produce. The service has over 50 local farmers on the books.

The oldest commercial coffee plantation in Australia, Skybury in Mareeba is using agritourism to drive demand. Overlooking the plantation in Paddys Green, the Skybury Cafe and Roastery showcases the farm's tropical produce, including jams, chutneys and liqueurs.

Image: Skybury. Credit: Saad Ghazuoaline. Inset: Tablelands to Tabletop.

Our pathways to resilience

This Strategy has been formulated through regional engagement and collaboration with the local governments and stakeholders within the region, and calibrated by drawing upon a spectrum of existing resilience efforts across the region, including existing studies, reports, plans and strategies. It also draws upon the strategic observations from the initial assessment of exposure and vulnerability undertaken across the region.

This enables the consideration of both locally identified community needs and risk informed strategic vulnerabilities, which when considered together, can be used to bolster resilience initiatives across the region.

Regional strategic pathways

The strategic pathways identified below form a 'blueprint' for coordinated resilience action for the Hinterland to Gulf region. Action and efforts at the local level are calibrated to work toward the achievement of regional goals.

Each strategic pathway is mapped to its corresponding QSDR objective, referenced by coloured triangles.

	Resilient society	Resilient towns and infrastructure	Resilient transport	Resilient economy	Resilient environment
Doing same	Valuing the character of our towns and communities underpins our region's strength and vitality. 2	Supporting reliable and consistent services and networks: from health to energy, water and telecommunications for growth and stability. We rely upon quality regional and state networks to prosper. 3	Building Prosperity and redundancy through roads. Driving vast distances is in our DNA. Heavy transport in mining, stock movements and transit through our region infused with tourists is an uneasy mix. Strategic investment can drive prosperity and safety. 1	Thriving small business. We focus on expanding on local reputation and opportunities in tourism. 2	Caring for our landscape which underpins our prosperity and future. From pristine rainforest to hidden treasures and vast breathtaking savannah lands. Rainfall and flooding is part of its enrichment. 2
	Building inclusive and embracing culturally and linguistically diverse communities. We welcome new residents, cherish the old and our youth and we want them to stay in the place that is home. 1	Proactive improvements in disaster management understanding and resources. 4	Maintaining physical connection through roads is our lifeblood. The region is an axis for freight and supply chains and keeps us connected to vital services. 3	We support local business and the region's economy with the right skills and tools to prosper. 2	Support to continue providing excellence in environmental stewardship. 4
Doing better	Connecting to services that support our communities and townships despite distance and isolation. 2	Enabling prosperity and a diversified economy that plays to our strengths. 4	Increasing safety and developing pathways for betterment is essential for our road network. 3	Seeking new opportunities in value-add production, tourism, carbon farming, mining and our scenic places to support new industry in a diversified economy. 3	Continuing to learn and share how the natural systems work. Our people and our visitors are safe when they understand our natural systems. 1
Doing different	Looking for ways to attract more people to our region. 3	Strong economy through innovation and reimagined infrastructure and technology. 4	New connections and growth through local and regional transport infrastructure and services. 1	Expanding income streams and diversifying our economy. 4	Enhance our environmental assets through collaboration and bespoke programs. 4

Delivering over time

The strategic pathways above provide the broad themes that address the region's identified resilience needs. Staging and focusing the right effort at the right time is also critical to advancing resilience in a sustainable way.

Being able to describe what is needed and when is a key aspect of coordinating whole of government and collective responses to locally identified needs.

The diagram below provides a conceptual roadmap to understand key actions and investment priorities for the region, and when they might be applied, having regard to funding mechanisms and broader delivery programs of investment. It anticipates that stresses and shocks will continue to happen into the future – but it provides the 'trigger points' for key interventions at the relevant points over time (before an event, during, and after) that are needed to help sustain socio-economic growth into the future.

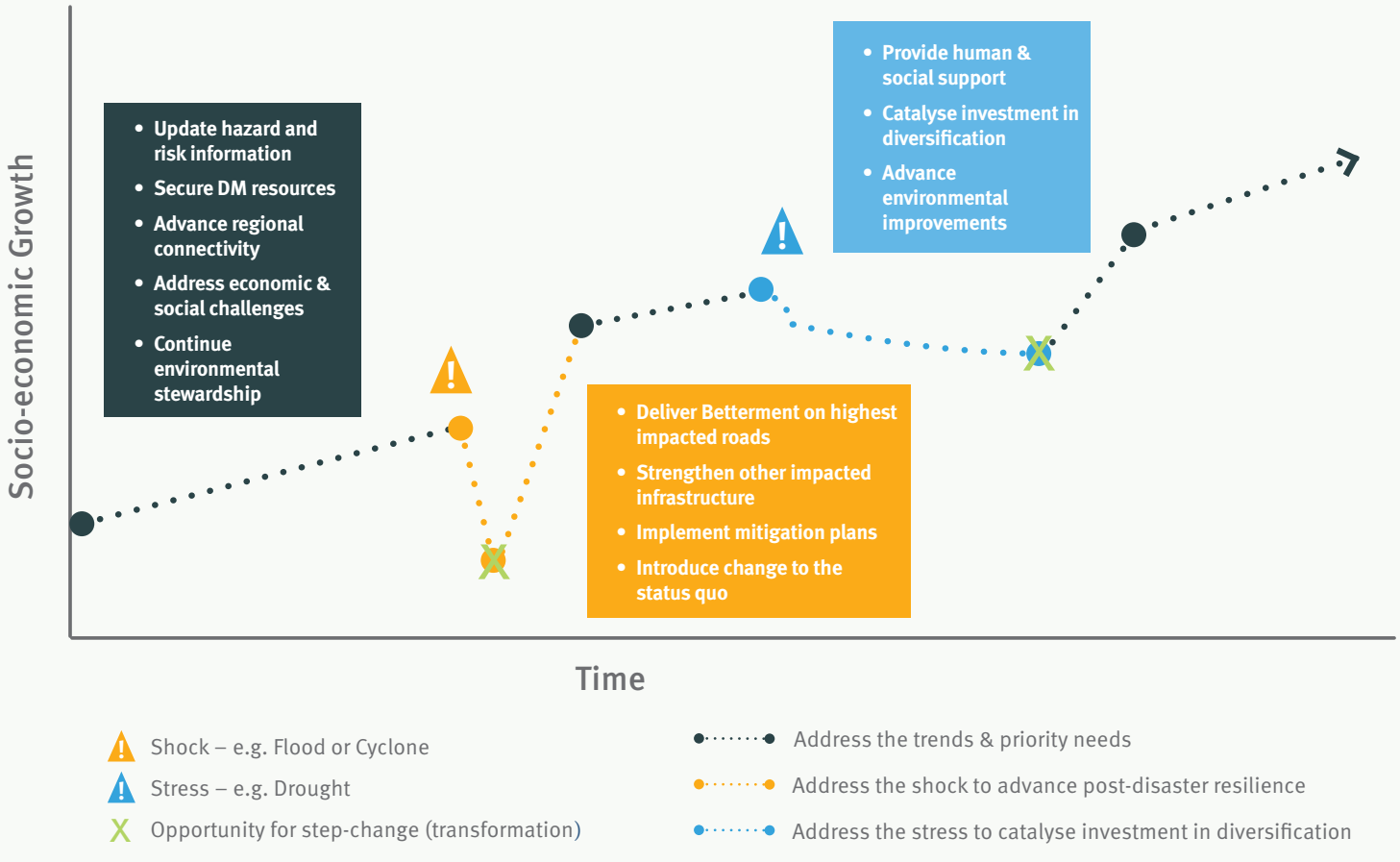
This can be used as a mechanism to understand key recovery and resilience priorities ahead of time, so that when an event occurs, all stakeholders are already aware of the key needs of the region following an event which enables post disaster efforts to be better coordinated and streamlined.

The phased approach, demonstrated on page 36, acknowledges that resilience is a journey and is punctuated by events that change our circumstances. Sometimes, it is easier to achieve changes to the status quo after an event, when the consequences are in clear memory. As challenging as events are, they also present opportunities for change so that today's lessons can be retained and put to work for future benefit. In other periods, under 'blue sky' conditions, other opportunities also exist to build hazard and risk information datasets, undertake monitoring and plan for uncertain times.

Importantly, this approach means that efforts, projects and activities need not be all done at once. Individual local government circumstances will dictate what is needed and when certain actions are best carried out depending on local priorities and needs at any given time.

Future Action and Investment Priorities and Phasing

Figure 7. Improving our prosperity through resilience (adapted from Joseph Fiksel).



Action planning

A local action plan relative to each local government in the region supports the implementation of this Strategy. The action plan identifies a suite of potential projects, that if implemented, would contribute to improving resilience to natural hazards at both the local and regional level. It is calibrated to provide direction on how to pivot actions as events occur and circumstances change.

Each local government will be a primary driver for implementing the local action plan, however it is acknowledged that not every action identified is the responsibility of the local government, with some actions requiring involvement by state agencies, local stakeholder groups, NRM bodies and community groups. Where this is the case, local government can work with stakeholders to share these actions and projects.

The concept of resilience action can be considered in the context of three opportunities:

'Doing same' – some parts of the system may be able to continue successful functioning even with disruption. However, other parts of the system will not endure major disruptions and to 'go back to normal' after disasters is reinforcing existing vulnerabilities.

'Doing better' – some parts of the system may be amenable to incremental changes and adjustments, allowing for improved decisions and actions based on updating knowledge.

'Doing differently' – large parts of the system will not be able to withstand increasing frequency or magnitude of disruption and will require a step change to deliver on goals and things that are valued. System structural changes can be achieved by addressing root causes and re-prioritising.

For the Hinterland to Gulf, the doing same, doing different and doing better model encompasses the following examples:

- maintaining momentum in local tourism product development based on the protection of valuable agriculture, such as paddock to plate
- improving reconstruction outcomes with local knowledge
- collaborating more closely to retain tourists in our region and build a regional identity
- greater advocacy for regional air services
- focusing on skills and education development in the region to retain population, enhance local capability and provide new lifestyle opportunities for existing and new residents.

Image: Mount Emerald Wind Farm. Courtesy Mareeba Shire Council.

Implementation

Working together to implement the Strategy

This Strategy will be implemented as a partnership across the three local governments of the Hinterland to Gulf region. The Strategy actions will be driven through local leadership and regional resourcing under the direction of the FNQROC, with appropriate support from other coordinating bodies and entities including District Disaster Management Groups (DDMGs), Local Disaster Management Groups (LDMGs), recovery and resilience officers, state government agencies, and not-for-profits.

This approach recognises that while actions are best delivered locally, multi-disciplinary regional level support is also required to encourage cross jurisdictional collaboration, provide technical assistance and proactively assist project implementation.

Enduring governance and funding arrangements

This strategy provides an opportunity and support how local governments, and stakeholders work together to achieve common resilience outcomes for the Hinterland to Gulf region. It seeks to inform strategic and coordinated approaches to climate-related disaster resilience activities to align funding and action.

Under this model, the strategy acts as the regional 'blueprint' for coordinated and sustained action. An agreed governance arrangement will support the implementation of the strategy and an enduring commitment to championing resilience into the future. Stakeholder-identified key requirements for the successful implementation of this strategy are:

- a broad, multidisciplinary approach to resilience building
- sustaining governance arrangements, funding, and resource capability for implementation of resilience actions over time
- a clear understanding of how resilience arrangements interplay with Queensland Disaster Management Arrangements
- greater collaboration between government and nongovernment organisations to optimise resilience service delivery and efficiency
- clarification of the proposed resilience implementation arrangements at state, regional and local levels so that local actions can be programmed and delivered accordingly.

Image: Bushy Creek Bridge Upgade. Courtesy Mareeba Shire Council.
Image back cover: Barron Gorge National Park. Courtesy QRA.

This model is underpinned by a 'role for everyone' in delivery including:

Local leadership

Local governments are encouraged to establish their own multi-disciplinary resilience working groups to transition community and climate-related disaster resilience to front-of-mind in all local government functions. This could be achieved by combining existing recovery group arrangements with an ongoing resilience focus over the calendar year.

Regional coordination

Regional coordination through the FNQROC with a strong link to other existing related governance arrangements such as the relevant DDMGs.

State support

As a locally-led and regionally coordinated strategy, the role of the State is intended to be one of provision of enabling measures such as administration of grant funding programs, delivery of core governmental functions that interface with resilience building, and facilitation/coordination of support that can assist implementation.

www.qra.qld.gov.au/regional-resilience-strategies/hinterland-gulf