

Assessing Climate Change Vulnerability

a practical, low cost and collaborative approach



Central
Local Government Region of South Australia
Incorporated under provisions of the Local Government Act



**Regional
Development**
Australia
YORKE AND MID NORTH



Government of South Australia
Northern and Yorke Natural
Resources Management Board

A Long Time Ago

- Climate Change Forum
- Regional Climate Change Steering Committee
- Disaster Mitigation Strategy
- Regional Drought Taskforce
- Regional Strategic Alliance – NRM, RDA, RLGA

Key Considerations

- Regional Scale - data generally at global, national or highly localised
- Triple Bottom Line - interactions between environmental, economic and social
- Limited Budget
- Relevant and Credible – blend of academic and local knowledge

The Partners

- Regional Partners – Local Govt; NRM; RDA; ZEMC
- Funding Partners – NDR; State Govt; LGA
- Project Steering Committee – regional partners and funding partners
- Technical Panel – Dr Jacqueline Balston; Dr Tim Milne; Dr Murray Townsend; Karla Billington; Anthony Kosturjack; Melissa Rebbeck; Sylvia Roughan; Holly Nicholls

The Approach

- Literature Review
- Indicators - environmental, economic and social
- Climate change scenarios and timeframes
- Assess impact, sensitivity, adaptive capacity = vulnerability
- Regional Workshop – 'Science meets Reality'
- Local Values – What is important ?

Environmental, Economic and Social Characteristics

- Ground and surface water systems
- Coast and marine habitats
- Large biodiversity remnants
- Fragmented vegetation
- Threatened species
- Primary Industries – agriculture, fisheries and aquaculture, horticulture, viticulture
- Manufacturing, construction
- Tourism, retail
- Road, rail, telecommunications infrastructure
- Ports and jetties
- Community development, social inclusion, education, emergency management, health

Climate Change Impact to 2030

- Increased annual temperature and heatwave events, decreasing frost incidence
- Decreased annual rainfall, shift in seasonality
- Increased ocean temperatures and acidification
- Sea level rise and associated storm surge/coastal flooding
- Increased high bushfire risk days and events
- Increased atmospheric CO₂

Exposure

Sensitivity

Potential
impact

Adaptive
capacity

Vulnerability

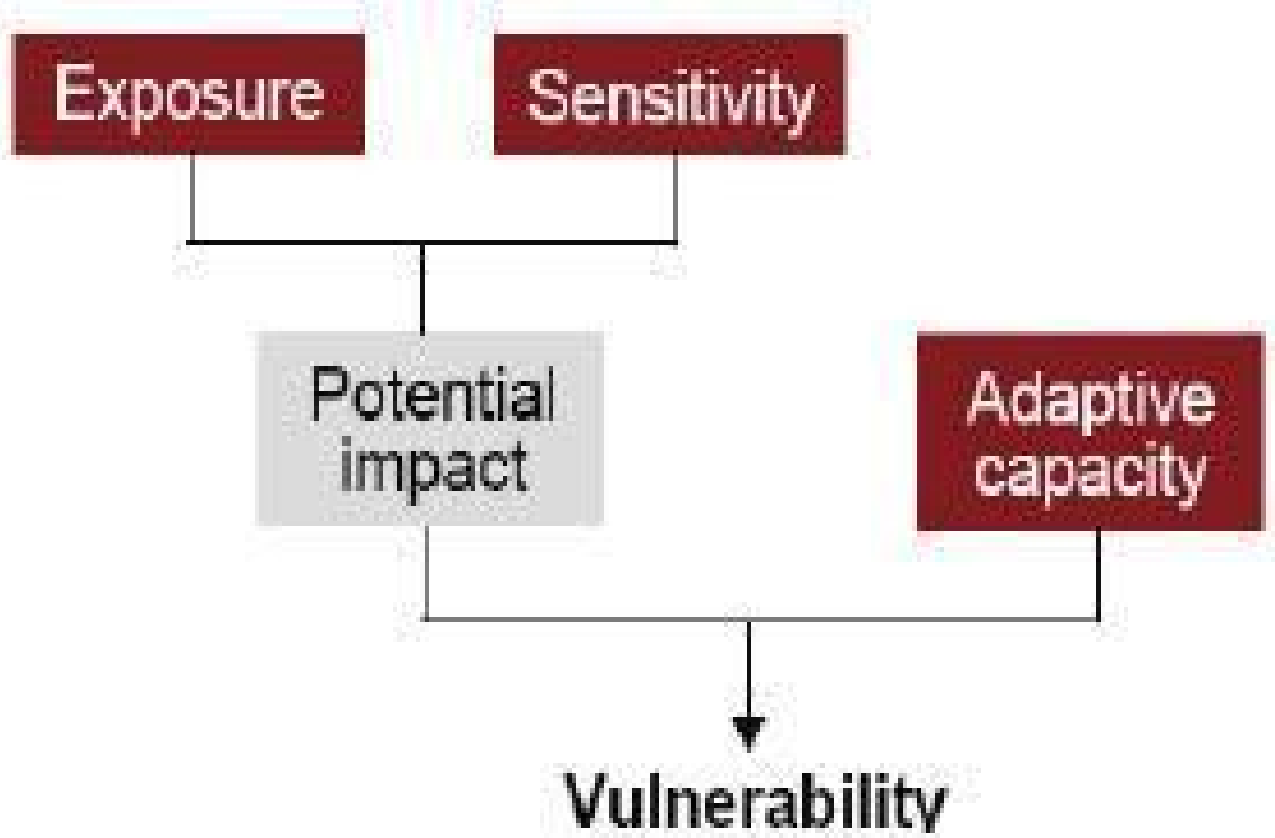


Table 36: Summary table of exposure, sensitivity, potential impact, adaptive capacity and vulnerability scores for the economic indicators.

Indicator	Exposure	Sensitivity	Potential Impact	Adaptive Capacity	Vulnerability
Mining	2.13	2.67	4.80	5.00	9.80
Manufacturing	1.98	4.00	5.98	4.83	11.15
Construction and engineering	2.33	3.33	5.67	6.00	9.67
Tourism	2.20	3.07	5.27	6.07	9.20
Retail Trade	3.00	3.00	6.00	6.00	10.00
Business and personal services	2.53	3.00	5.53	8.00	7.53
Roads	2.40	2.60	5.00	7.60	7.40
Rail	2.57	2.79	5.36	5.86	9.50
Ports and jetties	2.50	3.50	6.00	7.00	9.00
Telecommunications	2.67	2.00	4.67	7.67	7.00
Electricity supply	2.64	3.77	6.41	6.48	9.93
Buildings	2.40	2.60	5.00	6.60	8.40
Water infrastructure	2.50	3.00	5.50	6.00	9.50
Broadacre crops	2.53	3.33	5.26	5.92	9.34
Livestock: Beef, sheep and wool production	2.50	3.42	5.34	7.33	8.01
Viticulture	2.63	2.81	5.44	6.50	8.94
Horticulture, tree crops and forestry	2.63	3.19	5.81	6.13	9.69
Commercial fisheries	3.00	3.50	6.50	4.50	12.00
Aquaculture	2.80	3.60	6.40	4.80	11.60
Final score for bottom line	2.51	3.11	5.57	6.23	9.35

Score description:

	Very low	Low	Medium	High	Very high
Exposure and sensitivity	0 - 1	>1 - 2	>2 - 3	>3 - 4	>4 - 5
Impact	0 - 2	>2 - 4	>4 - 6	>6 - 8	>8 - 10
Adaptive capacity	0 - 2	>2 - 4	>4 - 6	>6 - 8	>8 - 10
Vulnerability	0 - 3	>3 - 7	>7 - 11	>11 - 15	>15 - 19

The Outcome

- Specific environmental, economic, social vulnerabilities for the region to 2030 -
 - Fragmented vegetation, native fauna
 - Water dependent ecosystems
 - Commercial fisheries, aquaculture
 - Manufacturing
 - Electricity supply
 - Emergency management
 - Education

The Outcome

- Cumulative impact and mal-adaptation
- 62 recommendations for further research, investigation or action – specific to environment, economic, infrastructure, social and community
- Regional recommendations – for collaborative action by RDA/LG/NRM
- Realistic and practical
- A common reference point for regional partners

From Here

- Recommendations – into action plan
- Regional partnership – ongoing steering cttee
- Implementation – Climate Change Coordinator

More Information ...

Central Region of Councils

- Anita Crisp, Executive Officer – ceo@centralregion.sa.gov.au

Regional Climate Change Coordinator

- Natasha Hall – climatechange@centralregion.sa.gov.au