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THE AUSTRALIAN NATURAL DISASTER RESILIENCE INDEX

VOLUME I – STATE OF DISASTER RESILIENCE REPORT

Melissa Parsons, Ian Reeve, James McGregor, Graham Marshall, Richard Stayner, Judith McNeill, Peter Hastings, Sonya Glavac and Phil Morley.

University of New England, Armidale, NSW

and

Bushfire and Natural Hazards Cooperative Research Centre, Melbourne, VIC

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TABLE OF CONTENTS

FIGURES

TABLES

EXECUTIVE SUMMARY

Australian communities face increasing losses and disruption from natural disasters. Disaster resilience is a protective characteristic that acts to reduce the effects of, and losses from, natural hazard events. Disaster resilience arises from the capacities of social, economic and government systems to prepare for, respond to and recover from a natural hazard event, and to learn, adapt and transform in anticipation of future natural hazard events. This assessment of disaster resilience estimates the status of these capacities and shows how they are spatially distributed across Australia.

Composite indices are frequently used to summarize and report complex relational measurements about a particular issue. The Australian Natural Disaster Resilience Index measures disaster resilience as a set of coping and adaptive capacities. Coping capacity is the means by which available resources and abilities can be used to face adverse consequences that could lead to a disaster. Adaptive capacity is the arrangements and processes that enable adjustment through learning, adaptation and transformation. Eight themes of disaster resilience encapsulate the resources and abilities that communities have to prepare for, absorb and recover from natural hazards (social character, economic capital, emergency services, planning and the built environment, community capital, information access) or to adapt, learn and solve problems (social and community engagement, governance and leadership). Across the eight themes, 77 indicators were used to compute the Australian Natural Disaster Resilience Index in 2084 areas of Australia, corresponding to the Statistical Area Level 2 divisions of the Australian Bureau of Statistics.

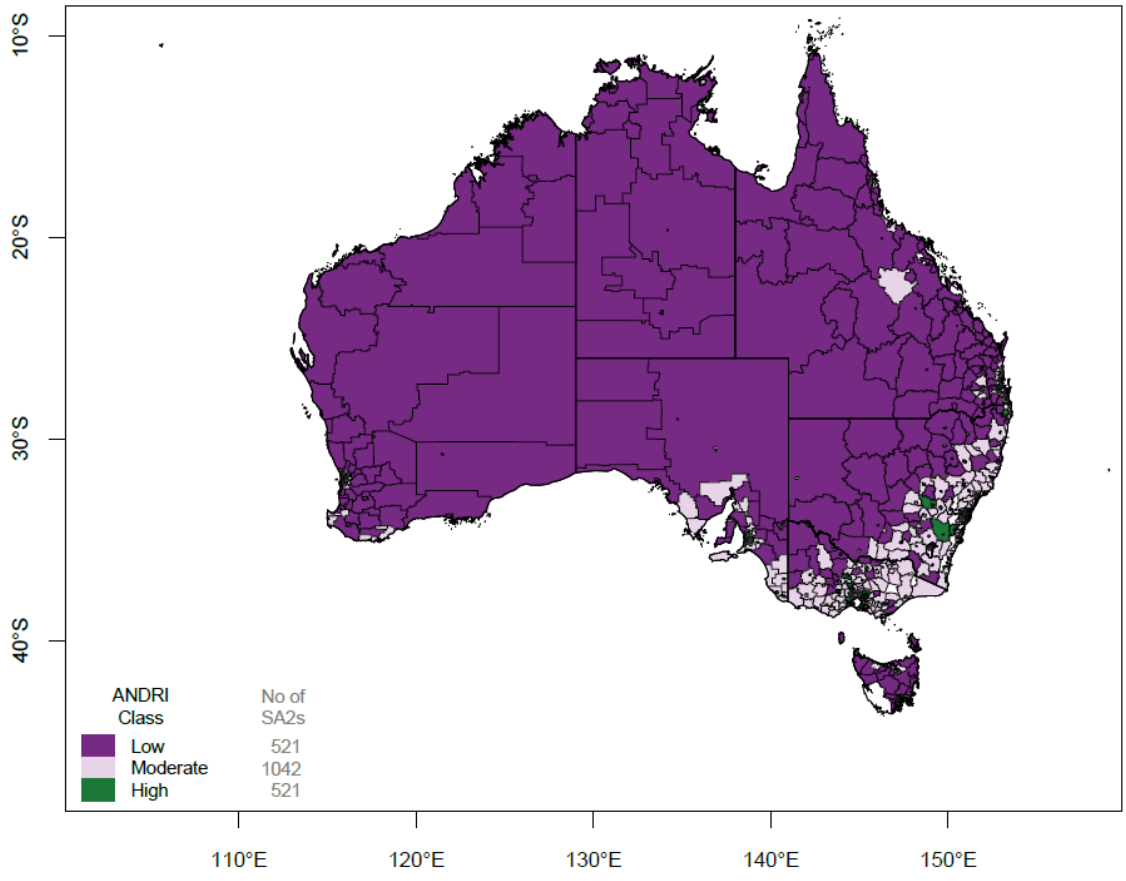
The index was then used to undertake the first nationally standardised assessment of the state of disaster resilience in Australia. Disaster resilience is reported at three levels: an overall disaster resilience index, coping and adaptive capacity sub-indexes and themes of disaster resilience that encapsulate the resources and abilities that communities have to prepare for, absorb and recover from natural hazards and to adapt, learn and solve problems (social character, economic capital, emergency services, planning and the built environment, community capital, information access, social and community engagement, governance and leadership).

Capacity for disaster resilience in Australia

Not all Australian communities have the same capacity for disaster resilience. The state of disaster resilience in Australia is one of non-uniformly distributed disaster resilience. The assessment of disaster resilience using the Australian Natural Disaster Resilience Index shows that communities in Australia do not all have the same capacity for disaster resilience. About 52% of the population live in areas with moderate capacity for disaster resilience, about 32% in areas

with high capacity for disaster resilience and about 16% in areas with low capacity for disaster resilience. Analysis of the distribution of disaster resilience in Australia revealed:

- Most of the population of Australia live in areas assessed as having moderate capacity for disaster resilience.
- There is a distinct association between capacity for disaster resilience and remoteness (see figure below).
- Most areas of higher capacity for disaster resilience are located in metropolitan and inner regional Australia. Areas of higher capacity for disaster resilience comprise only 0.5% of land surface area.
- Most areas of lower capacity for disaster resilience are located in outer regional, remote and very remote Australia. Areas of lower capacity for disaster resilience comprise over 93% of land surface area.
- There are areas of lower capacity for disaster resilience in metropolitan Australia.
- Inner regional areas have greater capacity for disaster resilience than outer regional areas.
- Patterns of capacity for disaster resilience at the National level are generally, but not always, upheld in each State or Territory.



Areas of low, moderate and high capacity for disaster resilience in Australia.

Australian communities are also affected by various factors which enhance or constrain their capacity for disaster resilience. The particular combination of factors that influence capacity for disaster resilience differs from place to place. This generates a heterogeneous and complex picture of the factors associated with disaster resilience in Australia. Analysis of the distribution of the eight theme sub-indexes revealed:

- Social character often constrains the capacity for disaster resilience in Australia. Geographic distribution of the social character sub-index is mixed; however, lower values of the social character sub-index are concentrated in metropolitan and very remote areas.
- Australia has a mix of areas with higher and lower economic capital. All areas can experience constraints on disaster resilience associated with low economic capital. However, lower economic capital is most pronounced in remote and very remote areas, while higher economic capital is most pronounced in metropolitan and inner regional areas.
- Emergency services generally enable the capacity for disaster resilience in Australia. The emergency services sub-index is usually moderate to high, although considerable variation can still be evident within and between regional and metropolitan areas.
- Planning and the built environment is not a significant barrier to the capacity for disaster resilience in Australia. The planning and the built environment sub-index is moderate to high in most areas of Australia, with the exception of some remote and very remote areas.
- Australia has a mix of areas with higher and lower community capital. Higher community capital occurs in regional areas. In cities, areas of higher and lower community capital are often clustered.
- Information access is a significant barrier to the capacity for disaster resilience in Australia, particularly in regional and remote areas.
- Many areas of Australia are associated with moderate social and community engagement. High social and community engagement is concentrated in metropolitan and inner regional areas and low social and community engagement is concentrated in remote and very remote areas.
- Moderate to high governance and leadership is concentrated in metropolitan and inner regional areas. Increasing remoteness decreases governance and leadership capacities.

Coping and adaptive capacity

About 72% of Australia's population, or 17.2 million people, live in SA2s assessed as having a combination of moderate or high coping and adaptive capacity. Communities with these combinations of coping and adaptive capacity are supported by social processes that develop the capacities to anticipate and

withstand unpredictable and adverse events such as natural hazards and to adjust to current or future predicted change. As with the national scale assessment of disaster resilience, the areas of strong coping and adaptive capacity tend to occur in the most highly populated areas - metropolitan or inner regional areas. Thus, the systems generating coping and adaptive capacities are enhanced in these areas.

About 9% of the population, or 1.6 million people, live in SA2s assessed as having a combination of low coping and adaptive capacity. Areas with the combination of low coping and adaptive capacity face constraints on their ability to anticipate and withstand unpredictable and adverse events such as natural hazards and to adjust to current or future predicted change. These constraints may arise from the status of social, economic or government processes and the ways that these inhibit access to resources and opportunities or the ability for flexibility and agility.

Communities may also have a combination of strength in coping or adaptive capacity and constraint in the other. About 21% of the population, or 5 million people, live in SA2s with these combinations. The extent to which good coping capacity can compensate for inhibited adaptive capacity is not clear, because the characteristics make different contributions through the disaster management cycle. For example, adaptive capacity applies to changes and reforms that tend to be made outside crisis periods in response to an unpredictable future hazards, although they may happen in response to a particular event. Coping capacity relates to the macro-system of factors that influence the capacity to prepare for, respond to and recover from hazard events. Thus, a strength in either capacity is advantageous.

Profiles of disaster resilience

The themes that influence disaster resilience in different locations in Australia are summarised using a typology. A typology identifies SA2s that have similar characteristic patterns of theme sub-index values, and places these SA2s together into groups. Thus, the SA2s within a group are similar to each other, but each group has a different disaster resilience profile. The profile associated with each group can then be used to understand disaster resilience in local communities and the strengths and opportunities for enhancing or improving disaster resilience.

Cluster analysis revealed five disaster resilience profiles in Australia. The SA2s within a group all have a similar profile – that is, they have similar disaster resilience strengths and constraints. Most SA2s fall into Group 4, and these are largely in metropolitan Australia. In comparison to other groups, areas within Group 4 are best placed overall to cope with and adapt to complex change associated with natural hazards. Areas in Group 3 are largely in regional and remote areas. Areas with this disaster resilience profile have an enhanced pro-social setting, but face constraints from economic capital, planning and the

built environment, emergency services, information access and governance and leadership. Areas with the Groups 1 and the Group 5 disaster resilience profile are constrained by community capital and social character. Areas with the Group 2 disaster resilience profile are largely inner regional areas with reduced access to information and telecommunications services. Variation in the strengths and constraints on disaster resilience suggests that place-based strategies need to be applied to support the different dimensions of disaster resilience.

Summary of disaster resilience profiles in Australia

	Typology group				
	Group 1	**Group 2**	**Group 3**	**Group 4**	**Group 5**
Disaster resilience strengths	Emergency services Economic capital Planning and the built environment Information access Governance and leadership	Social character Community capital Social and community engagement Economic capital Planning and the built environment Emergency services Governance and leadership	Social character Community capital Social and community engagement	Economic capital Information access Governance and leadership Social character Planning and the built environment Emergency services Community capital Social and community engagement	Planning and the built environment Governance and leadership Economic capital Emergency services Information access Social and community engagement
Barriers to disaster resilience	Community capital Social and community engagement Social character	Information access	Economic capital Planning and the built environment Emergency services Information access Governance and leadership		Social character Community capital
Population*#	3,567,512	3,266,777	3,156,814	7,474,525	6,337,995
% population	15.0	13.7	13.3	31.4	26.6
Land area (km²)^	10,399	405,546	7,211,800	10,689	6,328
% land area^	0.1	5.3	94.3	0.1	0.1
Number of SA2s+	308	389	447	572	368
Metropolitan SA2s$	158 (13%)	125 (10%)	70 (6%)	495 (41%)	355 (30%)
Inner regional SA2s$	70 (15%)	204 (43%)	133 (28%)	59 (12%)	10 (2%)
Outer regional SA2s$	73 (24%)	55 (18%)	161 (52%)	17 (6%)	3 (1%)
Remote SA2s$	6 (13%)	4 (8%)	37 (77%)	1 (2%)	0 (0%)
Very remote SA2s$	1 (2%)	1 (2%)	46 (96%)	0 (0%)	0 (0%)

* Computed using ABS Estimated Resident population as of 30th June 2015.
# Excludes SA2s not used in the index. The population in SA2s used in the index is 23,803,623 people. The population in SA2s not used in the index is a further 12,372 people.
^ Excludes SA2s not used in the index. The land area of SA2s used in the index is 7,644,763km². The land area of SA2s not used in the index is a further 43,047km².
+ Excludes SA2s not used in the index. Of the 2214 SA2s in the ASGS 2011, 2084 were used in the index and 130 excluded.
$ ABS remoteness categories, ASGS 2011.

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The Australian Natural Disaster Resilience Index used the open source software, R, and a wide range of contributed packages within that software. We thank the authors of these packages for making them available, and reference them at the relevant points in the report.

While the authors acknowledge the guidance, input and assistance received from others during the project, responsibility for the index data, interpretations and reporting sits with the authors.

ABOUT THIS VOLUME

The Australian Natural Disaster Resilience Index project comprises two volumes.

Volume I – State of Disaster Resilience Report

Volume I (this volume) assesses the state of disaster resilience in Australia, using the Australian Natural Disaster Resilience Index. Volume I gives a brief overview of the design and computation of the index, then assesses the state of disaster resilience in Australia at different levels: overall disaster resilience, coping and adaptive capacity, and the eight themes of disaster resilience. Volume I also presents a typology of disaster resilience that groups areas across Australia that have similar disaster resilience profiles.

Readers interested in the results of the assessment of disaster resilience in Australia should focus on Volume I.

Volume II – Index design and computation

Volume II describes in detail the computation of the Australian Natural Disaster Resilience Index. This includes resilience concepts, literature review, index structure, data collection, indicators, statistical methods, detailed statistical outputs, sensitivity analysis and uncertainty analyses.

Readers interested in the technical aspects of the Australian Natural Disaster Resilience Index should also consider Volume II. Volume II is comprised of six chapters:

1) Design of the Australian Natural Disaster Resilience Index
2) Indicators
3) Computation of the Australian Natural Disaster Resilience Index
4) Statistical outputs: ANDRI, coping capacity and adaptive capacity
5) Statistical outputs: disaster resilience themes
6) Uncertainty and sensitivity analysis

END USER STATEMENTS

John Schauble, *Emergency Management Victoria*

What makes a community resilient to natural disasters is in large measure the same as makes it resilient to other shocks and stressors. Put simply, strong and connected communities are inherently resilient. The task for emergency managers is to ensure that whatever they do builds upon this rather than builds dependency. The Australian Natural Disaster Resilience Index has significant potential to assist in this process of identifying the resilience of communities to natural hazards at scale. This will assist government and agencies to plan and resource activities that further enhance resilience, in terms of planning, response and recovery. Living in a hazard rich environment does not mean developing learned helplessness, particularly in urban environments. Understanding communities and their relationship to the environment and the natural hazards local to them will help in addressing resilience shortfalls and building the strengths to overcome them. The out workings of this project have the potential to deeply influence that dialogue and its outcomes.

Suellen Flint, *Department of Fire and Emergency Services (Western Australia)*

At their best resilient Communities are prepared, are able to adapt to changing situations, are connected to each other and are self-reliant.

Recent reports into disasters has identified that government has a responsibility to prepare for emergencies, however these reports also identified the notion of shared responsibility. It is clear that government bears a responsibility to support the community to build the knowledge, skills and importantly protective behaviours that are part and parcel of disaster resilience. Emergency Services support it's communities by building these characteristics in communities. Not a simple task. It involves highly complex forms of engagement based in a raft of community development based research focused on community and individual psychology, decision making under stress, physiology, knowledge exchange and information take up by the community.

The Australian Natural Disaster Resilience Index will be advantageous in many ways and support National and State and local governments. The ability to identify hot-spots of high or low disaster resilience in Australia, and identify areas of strength in coping and adaptive capacity will support the desired outcomes of the Australian Natural Disaster Resilience Strategy, and potentially help to embed disaster resilience not only into policy and legislation, but to lead to an increase in shared responsibility and resilience across Australia.

I commend the researchers for addressing the challenge in developing the Australian Natural Disaster Resilience Index.

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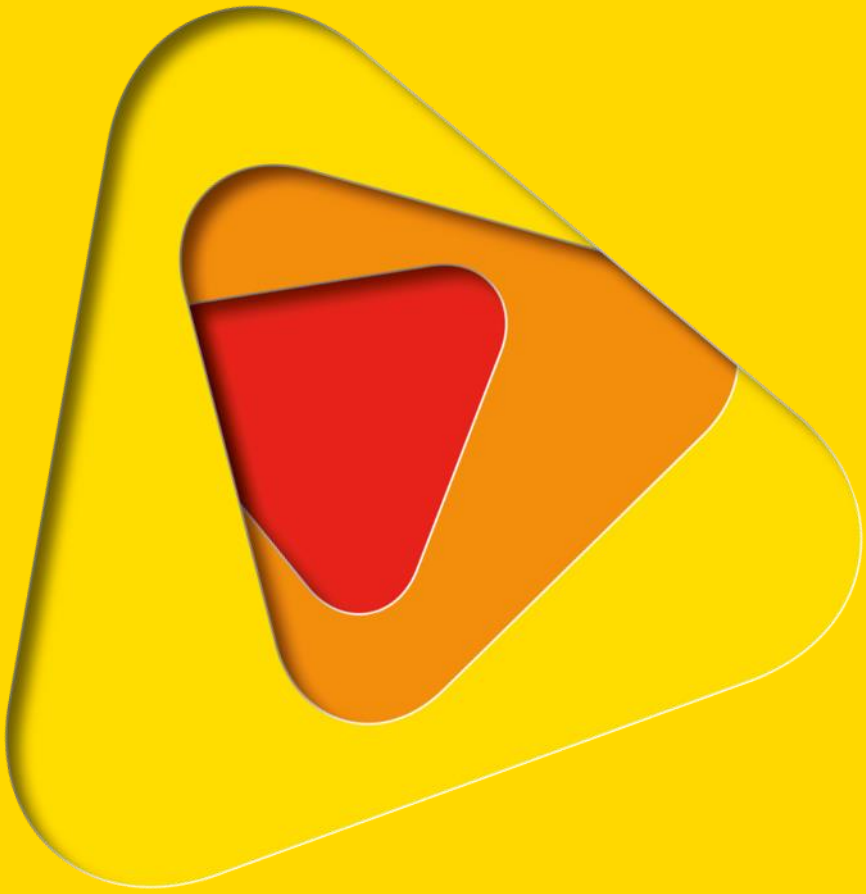
CHAPTER 1 – BACKGROUND TO THE AUSTRALIAN NATURAL DISASTER RESILIENCE INDEX



1.1 WHY ASSESS DISASTER RESILIENCE IN AUSTRALIA?

Natural hazards, such as bushfires, cyclones, floods, storms, heatwaves, earthquakes and tsunamis have always occurred and will continue to occur in Australia. While natural hazards are naturally occurring they frequently intersect with human systems to create natural disasters. Australian communities face increasing losses and disruption from natural disasters. The total economic cost of natural disasters in Australia has averaged $18.2 billion per year between 2006 and 2016 (Deloitte Access Economics 2017). This is expected to almost double by 2030 and to average $33 billion per year by 2050 (Deloitte Access Economics 2016). The social impacts of disasters are also substantial. Costs associated with social impacts may persist over a person's lifetime, and can often be greater than the costs of tangible damages (Deloitte Access Economics 2016). Climate change is expected to alter the frequency and magnitude of some natural hazard types in Australia (BOM & CSIRO 2018). An increasing population, demographic change, widening socio-economic disparity, expensive infrastructure and the location of communities in areas of high natural hazard risk also contributes to the potential for increasing losses from natural disasters.

The effects of natural disasters in Australian communities are influenced by a combination of social, economic, natural environment, built environment, governance and geographical factors. The effects of natural disasters may also be influenced by prevention, preparation, response and recovery activities. Disaster resilience is a protective characteristic that acts to reduce the effects of, and losses from, natural hazard events. Disaster resilience arises from the capacities of social, economic and government systems to prepare for, respond to and recover from a natural hazard event, and to learn, adapt and transform in anticipation of future natural hazard events. Assessing disaster resilience estimates the status of these capacities and shows how they are distributed across Australia.

The Australian Natural Disaster Resilience Index is a nationally standardised estimate of disaster resilience based on coping and adaptive capacities (Parsons et al. 2016). Here, the index is used to undertake the first nationally standardised assessment of the state of disaster resilience in Australia. The results of the assessment can be used to aid macro-level policy, strategic planning, community planning and community engagement activities at National, State/Territory and Local Government levels. The assessment also provides a benchmark against which to assess future change in disaster resilience. Understanding the distribution of disaster resilience in Australia will assist communities, governments, organisations and businesses to build the capacities needed for living with and adapting to natural hazards.

1.2 CONCEPTUAL BASIS OF THE AUSTRALIAN NATURAL DISASTER RESILIENCE INDEX

This section outlines the key conceptual elements of the Australian Natural Disaster Resilience Index. A more detailed discussion of the conceptual

framework for the Australian Natural Disaster Resilience Index is published in a peer-reviewed article, available as open access from the journal website:

> *Parsons, M., Glavac, S., Hastings, P., Marshall, G., McGregor, J., McNeill, J., Morley, P., Reeve, I. and Stayner, R. 2016. Top-down assessment of disaster resilience: A conceptual framework using coping and adaptive capacities. International Journal of Disaster Risk Reduction, 19: 1-11.*

1.2.1 Disaster resilience

There are two prominent schools of thought about the influence of natural hazards in human societies. The first school of thought derives from a vulnerability perspective where distributional inequalities in physical, social, economic and environmental factors influence the susceptibility of people to harm and the ability of people to respond to hazards (Cutter et al. 2003; Birkmann 2006; Bankoff 2019). The second school of thought derives from a resilience perspective where people are learning to live with a changing, unpredictable and uncertain environment (Folke et al. 2002; Bankoff 2019), of which natural hazards are a part. Although the definition and application of disaster resilience is keenly contested in the academic literature (Klein et al. 2003; Wisner et al. 2004; Boin et al. 2010; Tierney 2014), resilience generally refers to the capacity to cope with and absorb disturbances or changes and to maintain adaptive behaviours (Maguire and Cartwright 2008). Important in this view of resilience is the notion of adaptation, where adaptation and transformation can be proactive for future events, or reactive in response to an event that has already occurred (Handmer and Dovers 1996; Engle 2011). Learning from experience and a focus on review and adjustment helps to build resilience to future events.

The resilience school of thought has been adopted in the Australian Natural Disaster Resilience Index, although the way that distributional inequalities influence the capacities for disaster resilience are considered in the index. Resilience is a process linking a set of capacities to a positive trajectory of functioning and adaptation after a disturbance (sensu Norris et al. 2008). The definition of natural hazard resilience adopted for the Australian Natural Disaster Resilience Index is:

> *Resilience is the capacity of communities to prepare for, absorb and recover from natural hazard events and to learn, adapt and transform in ways that enhance these capacities in the face of future events.*

The Australian Natural Disaster Resilience Index will assess resilience based on two sets of capacities – coping capacity and adaptive capacity:

- Coping capacity is the means by which people or organisations can use available resources and abilities to face adverse consequences that could lead to a disaster (sensu UNISDR 2009). In a practical sense, coping capacity relates to the factors influencing the ability of a community to prepare for, absorb and recover from a natural hazard event.
- Adaptive capacity is the arrangements and processes that enable adjustment through learning, adaptation and transformation.

> Adaptation is the ability of a system to modify or change its characteristics or behaviour to cope with actual or anticipated stresses (Folke et al. 2002). Adaptive capacity entails the existence of institutions and networks that learn and store knowledge and experience, create flexibility in problem solving and balance power among interest groups (Folke et al. 2002).

Coping and adaptive capacities form the core of the assessment of disaster resilience (Figure 1.1). Two other factors contextualise the assessment. First, the assessment takes an all-natural-hazard approach and assumes that the coping and adaptive capacities enable resilience to all types of natural hazards. The types of natural hazards occurring in a location are not considered as part of the index (Figure 1.1). The intent is that spatial outputs from the assessment of disaster resilience can be overlaid onto existing natural hazard risk maps to examine the intersection between prevailing natural hazards and the capacities for disaster resilience. Second, external drivers and linkages, such as broad demographic and economic trends, regional development and environmental change also influence the application of the index in policy and strategic planning, but are not included in the assessment (Figure 1.1).

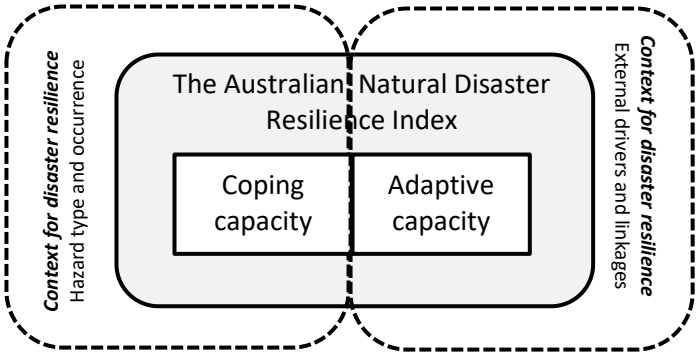


Figure 1.1: Conceptual elements of the Australian Natural Disaster Resilience Index. Coping and adaptive capacities form the basis for assessment of disaster resilience, where coping capacities are the means by which people or organisations use available resources, skills and opportunities to face adverse consequences that could lead to a disaster and adaptive capacities are the arrangements and processes that enable adjustment through learning, adaptation and transformation. Resilience assessment sits within a context of the occurrence of different natural hazard types and external drivers and linkages (dashed lines) but these factors are not considered as part of the index. Taken from Parsons et al. (2016).

1.2.2 Assessing disaster resilience using a composite index

Assessment refers to a qualitative or quantitative process of evaluating the status of some phenomenon of interest. Assessments can be conducted for different purposes including: 1) to gauge or audit the state of a system at one point in time or over time; 2) to assess whether regulated performance criteria have been exceeded; 3) to detect impacts; and, 4) to assess responses to mitigation or restoration (Downes et al. 2002). In this work, assessment means gauging or auditing the state of disaster resilience at one point in time. With

further data at future points in time, the state of disaster resilience can be tracked over time.

The Australian Natural Disaster Resilience Index is a composite index designed for the assessment of disaster resilience. Composite indices are frequently used as an assessment tool to summarise and report complex relational measurements about a particular issue (OECD 2008). An index should capture change and respond directionally according to the behaviour of the system (Burton 2015), so that the index can be arrayed along a continuum of condition. Indices are calculated from a series of measurements, generally termed indicators. For example, a Consumer Price Index, a tool to assess cost pressures on households, is calculated from the prices of a number of consumer items.

There are three main characteristics that define the nature of a composite index: measurement models, data sources and aggregation. The first relates to the application of formative or reflective measurement models. Disaster resilience, as a conceptual characteristic of communities or societies, cannot be assessed directly, but can be assessed indirectly by its causes or by its effects. Thus, it is important to know whether the index values "cause" or "are caused by" the indicators.

Assessment based on causes makes use of the current understanding about which factors enhance or constrain disaster resilience. This understanding generally comes from the study of disasters through the prevention, preparation, response and recovery phases, and evaluations of transformation and adaptation. If a factor has been found to enhance the resilience of a particular community where a natural disaster has occurred, then it can be assumed that this factor will also enhance the capacity for resilience of other communities with the same characteristics, should they be exposed to natural hazards in the future. Levels of such factors may be readily measurable and serve as indicators of the capacity for disaster resilience of communities, regardless of whether they have experienced natural disasters or not. Indicators for assessment based on causes will generally be measures of the socio-economic state of society and its governance and disaster management systems.

Assessments based on the effects of disaster resilience can only be made for communities where natural disasters have occurred. The speed and extent of recovery post-disaster is assumed to reflect the capacity for resilience. While the concept of capacity for resilience is not directly measurable, indicators of the speed and extent of recovery may be readily measurable. If a community makes a speedy, complete and adaptive recovery from a disaster, then it can be assumed that it has a high capacity for resilience. Indicators for assessment based on effects will generally relate to post-disaster changes in the state of society and its governance and disaster management systems.

If policy and planning initiatives to improve disaster resilience are to be undertaken anywhere in Australia, or for specific regions, a usable index of the capacity for disaster resilience has to have national coverage. It is of limited utility if estimates of the capacity for disaster resilience are only available for localities where natural disasters have already occurred. For this reason, an

index of the capacity for disaster resilience with national coverage has to be based on the known or presumed causal factors for disaster resilience. This approach to index construction is known formally as a formative measurement model. If the capacity for disaster resilience was to be estimated from indicators of its effect, this is termed a reflective measurement model. There has been considerable debate over the last few decades about the merits and validity or otherwise of formative and reflective measurement models (for a detailed review see Bagozzi 2011). These issues have generally received little consideration in composite index construction in the natural hazards vulnerability and resilience index literature.

The distinction between formative and reflective measurement models is important in the inclusion or exclusion of indicators, interpretation of correlations among indicators, and consequent decisions about the statistical treatment of indicators in a composite index. To achieve national coverage, the Australian Natural Disaster Resilience Index is necessarily based on a formative measurement model, where the capacity for resilience in a community, which is not directly measurable itself, is assessable by reference to the values of a chosen set of indicators. However, in the exploratory analysis conducted prior to deciding upon an appropriate method of calculation of the index, the possibility for a reflective measurement model was given consideration.

The second characteristic that defines the nature of composite indices relates to the sources of the data upon which the index is based. These have implications for how the index is constructed and used. Bottom-up approaches are locally based and locally driven, and are qualitative self-assessments of disaster resilience (Committee on Measures of Community Resilience 2015). Bottom-up approaches survey individuals or communities using a scorecard consisting of indicators of disaster resilience such as preparation, exposure to specific hazards, community resources and communication (e.g. Arbon 2014). In contrast, top-down approaches are often intended for use at broad scales by an oversight body (Committee on Measures of Community Resilience 2015) and use secondary spatial sources such as census data to derive quantitative indicators that describe the inherent characteristics of a community that contribute to disaster resilience (Cutter et al. 2010). The choice of top-down or bottom-up assessment is an important consideration because it determines the degree of community involvement in the assessment process, influences the cost and spatial extent of the assessment and bounds the ability to compare across units using standardised data (Parsons et al. 2016).

The Australian Natural Disaster Resilience Index takes a top-down assessment approach. The index uses indicators derived from secondary data. Assessment is at a national scale and provides a nationally-standardised spatial coverage of the entire country. The use of a top-down assessment in combination with the coping and adaptive capacity framework of disaster resilience governs the interpretation of the state of disaster resilience in Australia. The index assesses the capacities for disaster resilience, not the actual realization of disaster resilience following any one event.

The third characteristic that defines the nature of composite indices is the strategy that is used to aggregate, or combine, indicators to produce an index. The aggregation strategy can employ a simple single-level aggregation where

a set of indicators are combined to produce the index. This is termed a deductive structural design by Tate (2012). Alternatively, the aggregation strategy might involve several levels, where separate sets of indicators are aggregated to produce sub-indices and these sub-indices are aggregated in turn to produce the final index. A multi-level strategy, where the sets of indicators are chosen by *a priori* theoretical reasoning corresponds to Tate's (2012) hierarchical structural design. If the sets of indicators are instead identified using Principal Components Analysis, so that there is a sub-index for each component, this corresponds to Tate's (2012) inductive structural design.

The Australian Natural Disaster Resilience Index uses a multi-level, hierarchical aggregation strategy. The capacities for disaster resilience are captured using eight themes that capture various dimensions of disaster resilience: social character; economic capital; emergency services; planning and the built environment; community capital; information access; social and community engagement; and, governance and leadership. Sub-indices are calculated for each of these themes, and the sub-indices are combined into coping capacity and adaptive capacity sub-indices, which are combined in turn into the Australian Natural Disaster Resilience Index. The eight themes are explained further in Section 1.3.

In summary, the Australian Natural Disaster Resilience Index is a national scale composite index that uses a formative measurement model with a top down approach to data acquisition and a multi-level or hierarchical aggregation strategy.

1.3 STRUCTURE OF THE AUSTRALIAN NATURAL DISASTER RESILIENCE INDEX

The structure of the Australian Natural Disaster Resilience Index is shown in Figure 1.2. The top level is the overall assessment of disaster resilience. The second level is made up of coping capacity and adaptive capacity. The third level is made up of themes that reflect the dimensions of disaster resilience within coping capacity and adaptive capacity. The fourth level is comprised of indicator sets that measure the status of a theme. An index is computed for the first, second and third levels, using the indicators collected at the fourth level.

Themes are community characteristics that contribute to the resilience to natural hazards, via coping and adaptive capacity (Table 1.1). Consistent with a formative measurement model, themes have been chosen for their basis in the literature: some with empirical evidence of the relationship between the theme and resilience, and others that conceptualize this relationship but with developing evidence. These relationships are outlined in detail in Volume II and summarised below in Table 1.1.

Coping capacity is comprised of six themes that encapsulate the factors influencing the resources and abilities that communities have to prepare for, absorb and recover from natural hazard events (Table 1.1). Adaptive capacity is comprised of two themes that encapsulate the factors that enable institutional and social learning, flexibility and problem solving (Table 1.1) Indicators provide the data for a theme –the indicators are analysed together to measure the status of the theme.

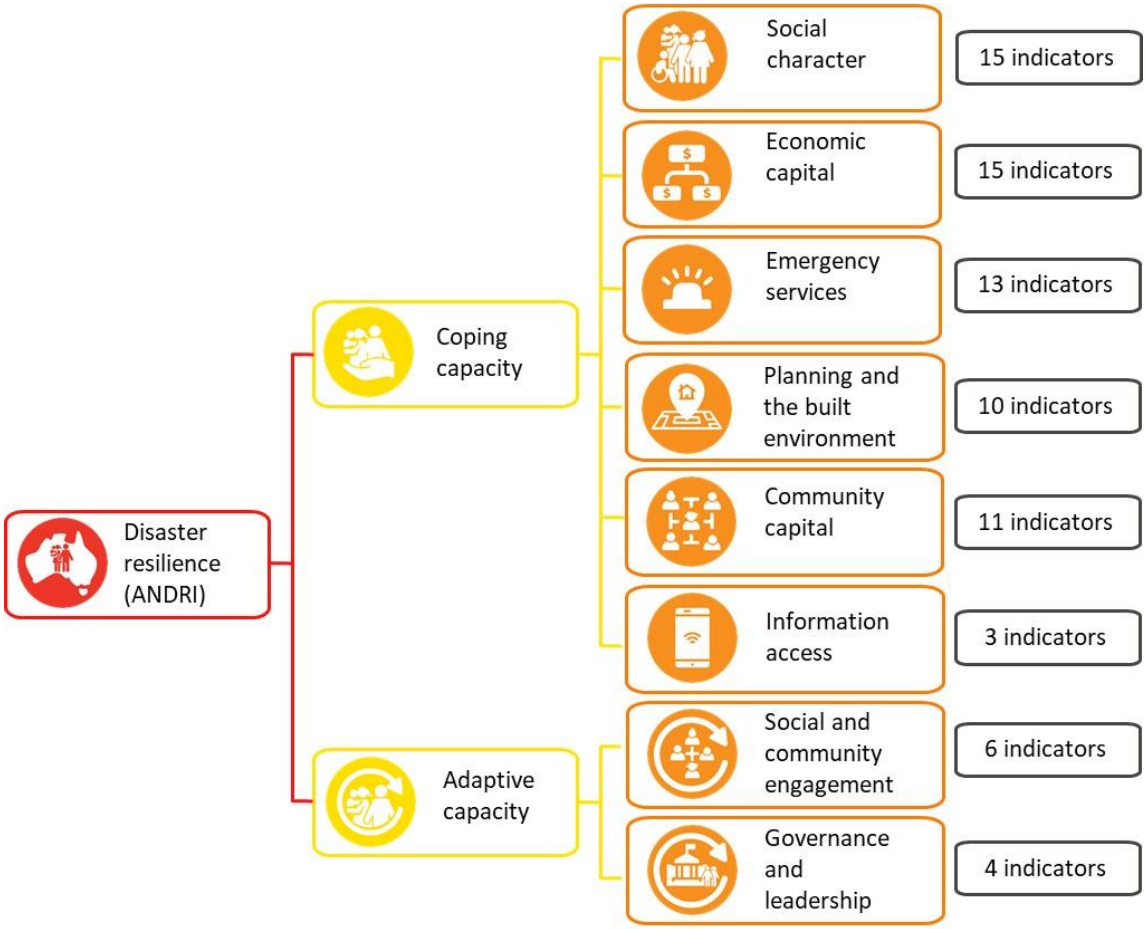


Figure 1.2: The Australian Natural Disaster Resilience Index structure. The assessment is structured hierarchically across three levels: overall disaster resilience index; coping and adaptive capacity sub-indices; and, theme sub-indexes. Indicators are not a level of measurement but are used to compute each theme sub-index.

Table 1.1: Explanation of coping and adaptive capacity themes within the Australian Natural Disaster Resilience Index. The relationship of each theme with disaster resilience is supported by a literature review, available in Volume II.

Theme	Description	Relationship to disaster resilience
Coping capacity		
Social character 	The social characteristics of the community. Represents the social and demographic factors that influence the ability to prepare for and recover from a natural hazard event.	Social and demographic factors have well known influences on capacity to prepare for, respond to and recover from a natural hazard events. These include household and family composition, age, sex, education, employment, disability, language, and length of residence.
Economic capital 	The economic characteristics of the community. Represents the economic factors that influence the ability to prepare for and recover from a natural hazard event.	Economic capital can facilitate disaster resilience by reducing the losses from natural hazard events. Economic resilience can contribute to the reduction of losses from natural hazard events through improved mitigation and risk management, individual flexibility and adaptation, enhanced recovery, market continuity and business continuity. Losses from natural hazards may increase with greater wealth, but increased potential for loss can also be a motivation for mitigation. High level of economic capital often goes hand in hand with high levels of social capital.
Emergency services 	The presence, capability and resourcing of emergency services. Represents the potential to respond to a natural hazard event.	Emergency management is a core function of government. The capacity for emergency response is integral to community disaster resilience. Emergency management is also a key inclusion in policy guiding disaster resilience and disaster risk reduction. Increasing remoteness implies barriers to the provision of, and access to, services.
Planning and the built environment 	The presence of legislation, plans, structures or codes to protect communities and their built environment. Represents preparation for natural hazard events using strategies of mitigation, planning or risk management.	Considered land use planning is a core hazard mitigation strategy in built environments. Good planning policy is essential to reduce risk and enhance resilience. Good planning policy can also reduce future risk. Building codes set construction standards to reduce damage from natural hazards.
Community capital 	The cohesion and connectedness of the community. Represents the features of a community that facilitate coordination and cooperation for mutual benefit.	Participation in social networks can enhance solutions to collective action problems. Disaster resilience is enhanced by the ways the sense of community fosters participation, community competency, pro-social behaviour and preparedness through working with others to solve shared local problems. Social capital facilitates disaster resilience before, during and after disasters. Social capital is often highlighted in times of disaster because it is a resource that facilitates collective action for mutual benefit.

Table 1.1 (cont.)

Theme	Description	Relationship to disaster resilience
Coping capacity		
Information access 	The potential for communities to engage with natural hazard information. Represents the relationship between communities and natural hazard information and the uptake of knowledge required for preparation and self-reliance.	Telecommunication and internet access is vital to information sharing through all phases of a disaster. As digital communication has become the default medium for everyday exchanges, information sharing, and access to essential services, the disadvantages of being offline increase. Community engagement activities enable disaster resilience through public participation in decision making about natural hazards. Community engagement has been shown to have direct benefit for community resilience through capacity building, social connectedness and empowerment, self-reliance, education and training, awareness of risk and psycho-social preparation.
Adaptive capacity		
Social and community engagement 	The capacity within communities to adaptively learn and transform in the face of complex change. Represents the resources and support available within communities for engagement and renewal for mutual benefit.	Adaptive communities are able to manage complex change. Characteristics of adaptive communities include social engagement, trust, cooperation, learning and well-being.
Governance and leadership 	The capacity within organisations to adaptively learn, review and adjust policies and procedures, or to transform organisational practices. Represents the flexibility within organisations to learn from experience and adjust accordingly.	Adaptive institutions have conditions suited to the development of the skills, knowledge and culture for managing complex change. Enabling conditions include social learning, research, innovation, collaboration and leadership. Effective response to natural hazard events can be facilitated by long term design efforts in public leadership.

1.3.1 Spatial resolution of the Australian Natural Disaster Resilience Index

The grain of the Australian Natural Disaster Resilience Index is Statistical Area Level 2 (SA2), defined in the 2011 Australian Statistical Geography Standard (ABS 2011). SA2s are delineated by the Australian Bureau of Statistics using criteria of population, functional areas, growth, gazetted suburbs or localities, local government area boundaries and rural or city locations (ABS 2011). SA2s generally have a population range of 3,000 to 25,000 persons, with an average population of about 10,000 persons (ABS 2011).

Overall, there are 2,214 SA2s across Australia (Figure 1.3). The Australian Natural Disaster Resilience Index was computed for 2084 of these SA2s: 130 SA2s (6%) were excluded because they were areas of no or low population (e.g. national parks, ports, airports, industrial estates). Jervis Bay, Christmas Island, the Cocos-Keeling Islands, Lord Howe Island and French Island were also excluded from the index because the availability of indicator data for these areas was inconsistent.

The SA2s included in and excluded from the Australian Natural Disaster Resilience Index are listed in detail in Volume II.

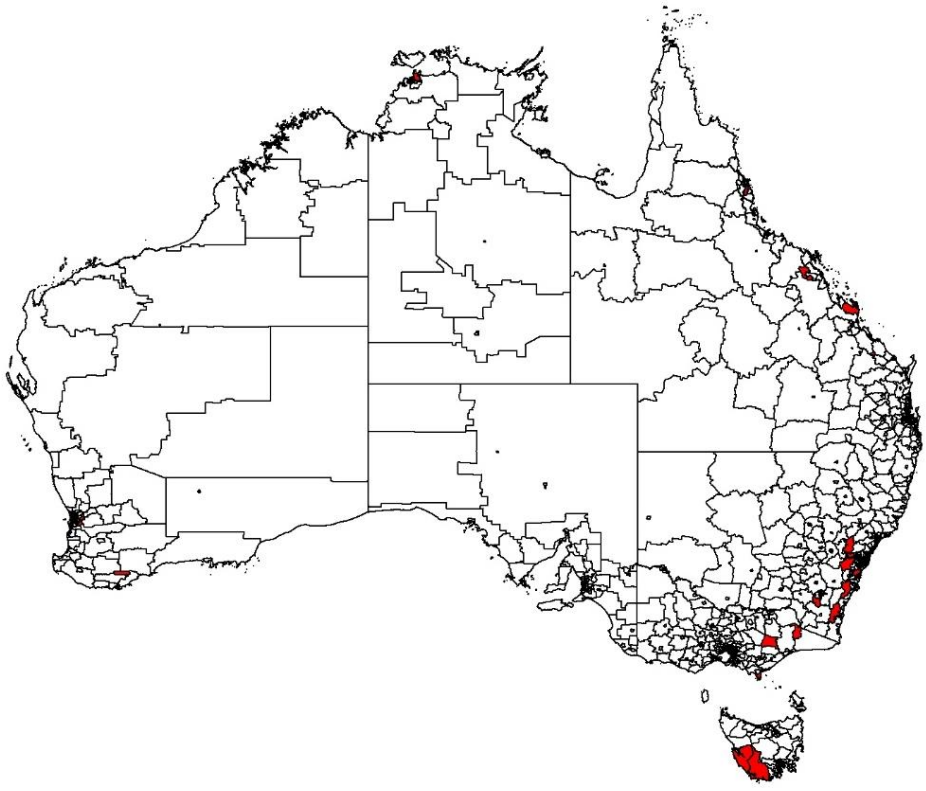


Figure 1.3: Map of SA2s in the Australian Statistical Geography Standard, 2011. SA2s excluded from the index are highlighted in red and further detailed in Volume II.

1.4 INDICATORS

Indicators are the variables used to determine the status of a theme: the raw data used to compute the index. An indicator is a quantitative measure 'intended to represent a characteristic of a system of interest' (Tate 2012). Selecting indicators is both an art and a science. An indicator always implies that a relationship exists between the indicator and a latent construct representing some aspect of resilience. Thus, the process of indicator selection is also coupled with the purpose, framework, design and interpretation of the index. While there will always be trade-offs between indicator specificity, data availability, cost effectiveness and sensitivity (Birkmann 2013, Winderl 2014), the selection of indicators can be guided by criteria that help to bound large sets of potential indicators (Parsons et al. 2016). The use of indicator selection criteria minimizes potential sources of uncertainty in the interpretation of disaster resilience arising from the types of indicators included in computation.

An intensive, three-step process was used to identify and select indicators for the Australian Natural Disaster Resilience Index (Figure 1.4). The indicator identification process begins with the conceptual model for the index, which determines the focus on coping and adaptive capacity and the definition of these capacities. The conceptual model subsequently sets the second step outlining the structure and design of the index and identifying latent dimensions of disaster resilience (see Section 1.3). These latent dimensions correspond to the eight themes of the index: social character; economic capital; emergency services; planning and the built environment; community capital; information and access; social and community engagement; and, governance and leadership. Themes guide the identification and selection of indicators where the goal is to obtain indicators that quantitatively measure the status of that theme. Thus, the selection of indicators for the Australian Natural Disaster Resilience Index was initially constrained by the requirements of the conceptual model and latent dimensions of resilience, as described in Parsons et al. (2016).

The third step in indicator selection was an iterative process of literature evaluation, data availability and filtering against generalised criteria (Figure 1.4). Scores of indicators have been used to assess disaster vulnerability or resilience in top-down assessments (see reviews by Beccari 2016 and Cutter 2016). Most of these published indicators are aligned with the coping capacity part of the Australian Natural Disaster Resilience Index conceptual model. Indicators of adaptive capacity have been used within the climate change and adaptive governance literature (Gupta et al. 2010, Engle 2011, IPCC 2012, Engle et al. 2014). We reviewed the indicators from published indexes and used them as a starting point to populate the themes. Further indicators were derived for themes through exploration of available data sets, and the literature underpinning each of the latent dimensions of resilience (Figure 1.4).

Data availability was a major consideration in the identification and selection of indicators. The index takes a top-down assessment approach that provides continuous spatial coverage of the entire country at a national level. Therefore, it was necessary to use indicators that also had spatial coverage of the entire country. A comprehensive search was undertaken for available data sets relating to the latent dimensions of disaster resilience and which were also publically accessible or for a reasonable fee.

Overall, 77 indicators were used to compute the Australian Natural Disaster Resilience Index, across the 8 themes (Table 1.2). Full details of the indicators including indicator sources, resolution, indicator computation and relationship to disaster resilience are provided in Volume II.

Where possible, indicator data were obtained at SA2 resolution. Some indicators were collected at other resolutions, such as Local Government Area, State/Territory, police district, SA4, and region. These indicators were disaggregated to SA2 resolution: the disaggregation methods are provided in Volume II.

Figure 1.4: Generalised process for identification and selection of indicators for the Australian Natural Disaster Resilience Index. The indicator identification process begins with the conceptual model for the index, which subsequently sets the structure and design of the index and identifies latent dimensions of disaster resilience. Published literature and the availability of primary data are used to identify indicators suitable for the index, and in rare cases the availability of data resulted in adjustments to the latent dimensions of disaster resilience in the index structure and design. Indicators were then selected by applying a sub-set of the generalised criteria for indicator selection, where the focus was on relationship to disaster resilience, relevance to the scale of assessment, measurability and data availability. Modified from Parsons et al. (2016).

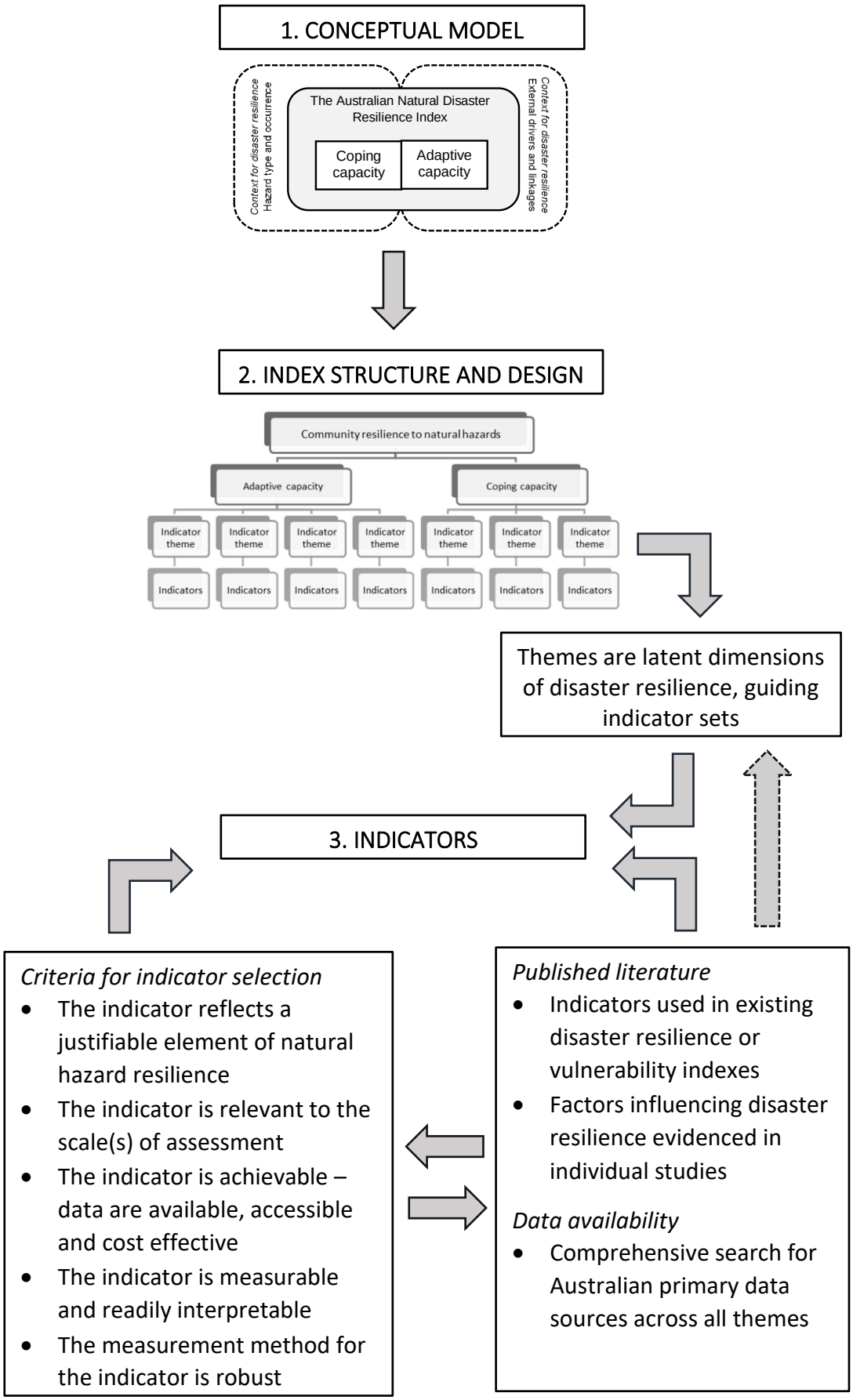


Figure 1.4 (caption on previous page)

Table 1.2: Indicators used to compute the Australian Natural Disaster Resilience Index. Full details of the indicators including indicator sources, resolution, indicator computation and relationship to disaster resilience is provided in Volume II.

Capacity	Theme	Indicator
Coping capacity	Social character 	% population arrived in Australia 2001 onwards
		% households with all or some residents not present a year ago
		% speaks English not well or not at all
		% population with a core activity need for assistance
		% one parent families
		% households with children
		% lone person households
		% group households
		Sex ratio
		% population aged over 75
		% population aged below 15
		Ratio of certificate/postgraduate educational attainment to Year 8-12 educational attainment
		% of labour force unemployed
		% not in labour force
		% employed as managers and professionals
	Economic capital 	% residents owning their home outright
		% residents owning their home with a mortgage
		% residents renting their home
		Median weekly rent ($)
		Median monthly mortgage repayment ($)
		Median weekly personal income ($)
		Median weekly family income ($)
		% families with less than $600 per week income
		% families with more than $3,000 per week income
		% employment in largest single sector
		Economic Diversity Index
		% businesses employing 20 or more people
		Retail and/or commercial establishments per 1,000 people
		% population change 2001 to 2011
		Local government grant per capita
	Emergency services 	Medical practitioners per 1,000 population
		Registered nurses per 1,000 population
		Psychologists per 1,000 population
		Welfare support workers per 1,000 population
		Available hospital beds per 1,000 population
		Ambulance officers and paramedics per 1,000 population
		Fire and emergency services workers per 1,000 population
		Police per 1,000 population

Table 1.2 (cont.)

Capacity	Theme	Indicator
Coping capacity (cont.)	**Emergency services (cont.)**	Fire and emergency services and SES organisations funding per 1,000 population
		Ambulance organisations funding per 1,000 population
		Fire service volunteers per 1,000 population
		SES volunteers per 1,000 population
		Distance to medical facility (km)
	Planning and the built environment 	% caravan and improvised dwellings
		% residential dwellings built post 1981
		% commercial and industrial dwellings built post 1981
		Emergency planning assessment score
		Full-time equivalent council staff
		Council area per full-time equivalent council staff
		Number of dwellings per full-time equivalent council staff
		New dwellings (2012-2016) as a proportion of 2011 dwellings
		New dwellings per week (2015-2016)
		Planning assessment score
	Community capital 	Offences against person per 100,000 population
		Offences against property per 100,000 population
		Age standardised number of people per 100 population who feel safe walking in their neighbourhood
		Age standardised number of people per 100 population who are able to get support in times of crisis
		Age standardised number of people per 100 population whose household could raise $2,000 in a week
		Age standardised number of people per 100 population who had difficulty accessing services
		% households with no motor vehicle
		Age standardised number of people per 100 population with fair or poor self-assessed health
		% residents in same residence for greater than 5 years
		% population undertaking voluntary work
		% jobless families
	Information access 	% area with excellent or good ADSL coverage
		% area with mobile phone coverage
		Community engagement score

Table 1.2 (cont.)

Capacity	Theme	Indicator
Adaptive capacity	Social and community engagement 	% population with life satisfaction scale 70 and above
		% population with high generalised trust
		Migration effectiveness 2006-2011
		% population with post school educational qualification
		% population over 15 in further education
		% participation in personal interest learning
	Governance and leadership 	Presence of research organisations
		Business Dynamo Index
		Local economic development support
		Emergency services governance, policy and leadership score

1.5 COMPUTING THE INDEX

The computation of the Australian Natural Disaster Resilience Index takes as its starting point the 77 indicators described in Section 1.3. Computation of the Australian Natural Disaster Resilience Index is then hierarchical based on the levels shown in Figure 1.2. There are two stages in the computation of the index: the indicator conditioning stage and the aggregation stage. The conditioning stage adjusts the indicators so that they can be validly combined into an index. The aggregation stage is concerned with the combination of the conditioned indicators into an index.

1.5.1 Conditioning the indicators

In their raw form, the 77 indicators have considerable variation in the range of values they take. Many indicators are percentages of a whole and so can take values between 0 and 100. Other indicators are expressed as numbers per 1,000 population or numbers per full time equivalent local government staff. Without some form of remedial adjustment, indicators with mostly small values will be overwhelmed by indicators with mostly large values in the aggregation process used to form an index. This is contrary to the assumption behind composite indices that all indicators make, if not similar contributions to the index, then at least non-negligible contributions. All indicators were rescaled to a range of 0 to 1: a common and recommended approach to conditioning indicators prior to aggregation (OECD 2008). Full details of the rescaling procedure are provided in Volume II.

Indicators can have very different distributions, even if they have the same range of values. For example, an indicator can be highly skewed with mostly low values and a few very large values. While the small differences between SA2s with low values might be significant for disaster resilience, in a composite index these differences will be overwhelmed by other less skewed indicators. For this reason it is generally recommended that skewed indicators be

normalised, i.e. transformed so that their distribution resembles the bell-shaped curve of the normal distribution (OECD 2008).

Similar problems for aggregation into a composite index can occur when indicators have a strongly leptokurtic distribution, where most of the values lie in the middle of the range with relatively few in the shoulders of the distribution. A method to reduce the kurtosis of strongly leptokurtic indicators was devised as part of the normalisation procedure. Full details of the normalisation procedure are provided in Volume II.

The normalised, rescaled indicators that were hypothesised to have a negative relationship with disaster resilience were subtracted from 1, so that all indicators had a positive relationship with disaster resilience. Full details of the hypothesised relationships between and indicator and disaster resilience are provided in Volume II.

Overall, the indicator conditioning procedures were rank-preserving. The position of each SA2 in the list of SA2s sorted by raw indicator value was exactly the same as its position in the list sorted by the conditioned indicator value.

The assignment of weights to indicators is a form of conditioning that attempts to take account of evidence or beliefs about the relative importance of indicators in their contribution to the composite index. Weights may be introduced prior to, or implicitly within, aggregation procedures and, as pointed out in OECD (2008) there remains contention around their use. Volume II reviews some of the issues. For the construction of the Australian Natural Disaster Resilience Index, it was found that evidence in the literature that might assist in attributing relative importance to indicators was generally lacking, so explicit weights were not assigned to indicators, i.e. they were equally weighted. This approach is consistent with that taken by some 44 out of 104 disaster risk, vulnerability and resilience composite indices reviewed by Beccari (2016).

1.5.2 Aggregation procedures

Aggregating a series of indicators to form a composite index is mathematically equivalent to the aggregation procedures in a wide range of fields, including psychology (construction of summative scales), multi-criteria decision analysis (scoring a series of decision options), life-cycle analysis (scoring a series of consumer products) and information science (scoring the results of a web search). While the composite indices used in much of natural hazards vulnerability index research are based on simple additive procedures, such as means, sums or weighted sums, the aggregation procedure used in the Australian Natural Disaster Resilience Index draws on the improved aggregation techniques that have been developed in fields outside of natural hazards. The decision to use these improved techniques was a response to the growing criticism and concerns about the use of simple additive procedures. These concerns have given rise to a wide range of proposed aggregation procedures that attempt to overcome the shortcomings of additive procedures (see, for example, Bertin et al. 2018; Chakraborty and Zavadskas 2014; Cherchye et al. 2007; De Muro et al. 2011). A review of the composite index literature is provided in Volume II.

The central concern about constructing composite indices using simple additive procedures is the issue of the compensatory effects and interactions among indicators. This is best understood by reference to a hypothetical example (Table 1.3). Suppose we have two indicators: paramedics per 1,000 population and fire service staff per 1,000 population. We want to use these two indicators to construct an index of capacity for response to emergencies by taking the average of the two indicators, which have been rescaled to a range of 0 – 1. The table below gives the indicator and index values for four geographic regions.

Table 1.3: Hypothetical composite index example illustrating compensatory effects.

Region	Paramedic indicator	Fire service indicator	Emergency response index
A	0	0	0
B	1	0	0.5
C	0	1	0.5
D	1	1	1

The values of the emergency response index for Region A and Region D are as expected (Table 1.3). If both the paramedic and the fire service indicators have a very low value, then the emergency response index has a very low value. Likewise, when the two indicators have very high values, the index also has a very high value.

However, Regions B and C have the same value of the index, despite having very different indicator values (Table 1.3). The value of 0.5 for the index implies that low values of the fire service indicator can be compensated by high values for the paramedic indicator, and vice versa. Since paramedics cannot do the work of fire service staff and vice versa, the use of the average as an aggregation function is a poor reflection of reality. A more realistic aggregation of the indicators for Regions B and C might yield an index value of 0.1. Alternatively, if the fire service staff in question had some paramedical training, and so could stand in for paramedics to a limited extent, then index values of 0.1 and 0.2 for Regions B and C, respectively, might be a better reflection of reality.

It can be seen from this example that, although widely used in composite index construction, the arithmetic mean can be a poor aggregating function to use to combine indicators into an index, due to the unrestrained compensatory effects.

Seventeen aggregation functions were evaluated for use in the Australian Natural Disaster Resilience Index. These comprised six from the European composite index tradition (e.g. OECD 2008), two from information science (e.g. Dwork et al. 2001), seven from multi-criteria decision analysis (e.g. Figueira et al. 2005) and two from the theory of aggregation functions (e.g. Grabisch et al. 2011). The criteria upon which each aggregation function was evaluated were:

- whether it discarded any information contained in the indicators;
- whether it produced a ratio index (rather than, say, a ranking);
- whether it provided control over compensatory effects;
- whether the control over compensatory effects was adjustable; and,
- the computation time for an aggregation of 77 indicators and 2,084 SA2s.

One aggregation function was rejected because it could not be validly applied to small geographic areas such as SA2s. Three functions were rejected because of impossibly or inconveniently long computation times. Eight functions were rejected because they provided rankings or ordinal scores and not a ratio index. The linear sum or mean was rejected for the reasons given in the example above. A further aggregation function, the Maziotta-Pareto Index was rejected because, while providing control over compensatory effects, it did not allow for adjustment of the level of limitation of these effects. Of the five remaining aggregation functions, only one – the discrete Choquet Integral – allowed for complete specification of the restrictions on compensatory effects for all indicator interactions. Since the number of specifications increases rapidly with the number of indicators, the discrete Choquet Integral was selected for use where there were only two or three indicators to be aggregated and it was possible to make plausible estimates of the interactions between indicators.

Of the remaining four aggregation functions, all of which allowed for generic restriction on compensatory effects rather than complete specification, Ordered Weighted Averaging was chosen as the most suitable for use in aggregations of four or more indicators, specifying an overall level of restriction of compensatory effects, rather than a complete specification.

A full description of the evaluation of aggregation functions is provided in Volume II.

1.5.3 Aggregation strategy

The hierarchical structure of the Australian Natural Disaster Resilience Index (see Figure 1.2) dictates that the aggregation procedure also needs to be hierarchical, with aggregations occurring at several levels. Groups of indicators are aggregated to give the theme sub-indices, theme sub-indices are aggregated to give the coping capacity and adaptive capacity sub-indices and these two sub-indices are aggregated to give the overall Australian Natural Disaster Resilience Index.

To capture all the factors that might influence the value of the theme sub-indices, the compilation of indicators has been necessarily wide-ranging, with the result that many of the theme sub-indices are aggregations of a considerable number of indicators. While the logic of composite indices is that each constituent indicator represents an independent factor known or believed to influence the characteristic that is gauged by the composite index, indicators may in fact be inter-related. The nature of the relationships between indicators can introduce aggregation artefacts that are a threat to the validity

of a composite index. Consider a set of seven indicators, 1 – 7, that are to be aggregated to form a composite index. Indicators 1 – 5 are highly correlated with each other, and indicators 6 and 7 are correlated with each other, but not with indicators 1 – 5. This suggests that there might be just two factors needed to define the index. However, factor 1, represented by indicators 1 – 5, will have a dominant influence on the index due to the greater number of indicators used in the aggregation. Any effect of factor 2, represented by just indicators 6 and 7 may be obliterated. This problem might be addressed by discarding redundant indicators from factor 1, or with a two level aggregation in which indicators 1-5 are averaged and indicators 6 and 7 are averaged, then the two averages are aggregated. Note that the average is a valid aggregation function when dealing with highly correlated indicators. A high correlation between indicators A and B means that geographic regions with a high value of A will also have a high value of B, and likewise for low values. So high values are not being added to low values, which is when compensatory effects occur.

Aggregation strategy refers to the approach taken in the aggregation calculation for a composite index or sub-index, to deal with the types of issues discussed above. It is defined by:

- the type of measurement model assumed – formative or reflective;
- the number of stages or levels of aggregation; and,
- the aggregation functions used.

The main possible aggregation strategies for the Australian Natural Disaster Resilience Index are shown schematically in Figure 1.5.

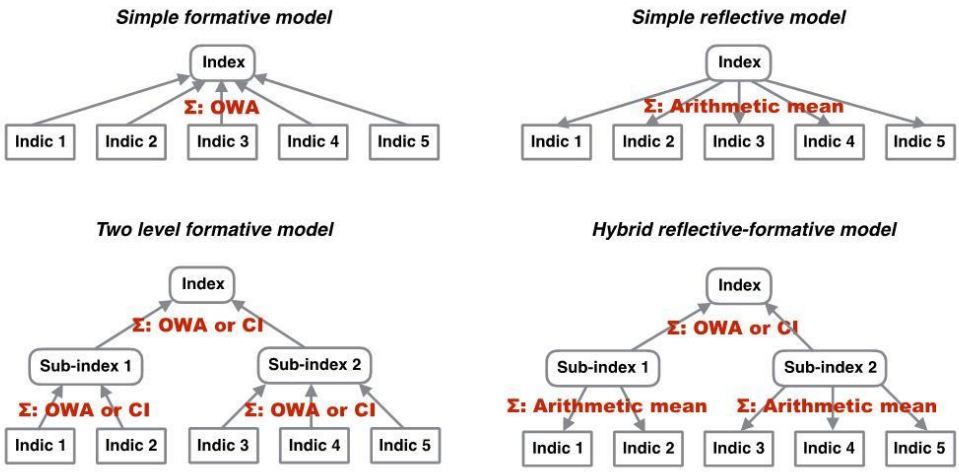


Figure 1.5: Aggregation strategies considered in the calculation of the Australian Natural Disaster Resilience Index. Grey arrows show the direction of causation, red text gives the aggregation function (OWA=Ordered Weighted Average, CI=discrete Choquet integral).

The choice of aggregation strategy starts with analysis of the correlations among the set of indicators to be aggregated. The results are subsequently applied in a decision tree to select the appropriate aggregation strategy (Figure 1.6). Full details of the aggregation processes are provided in Volume II.

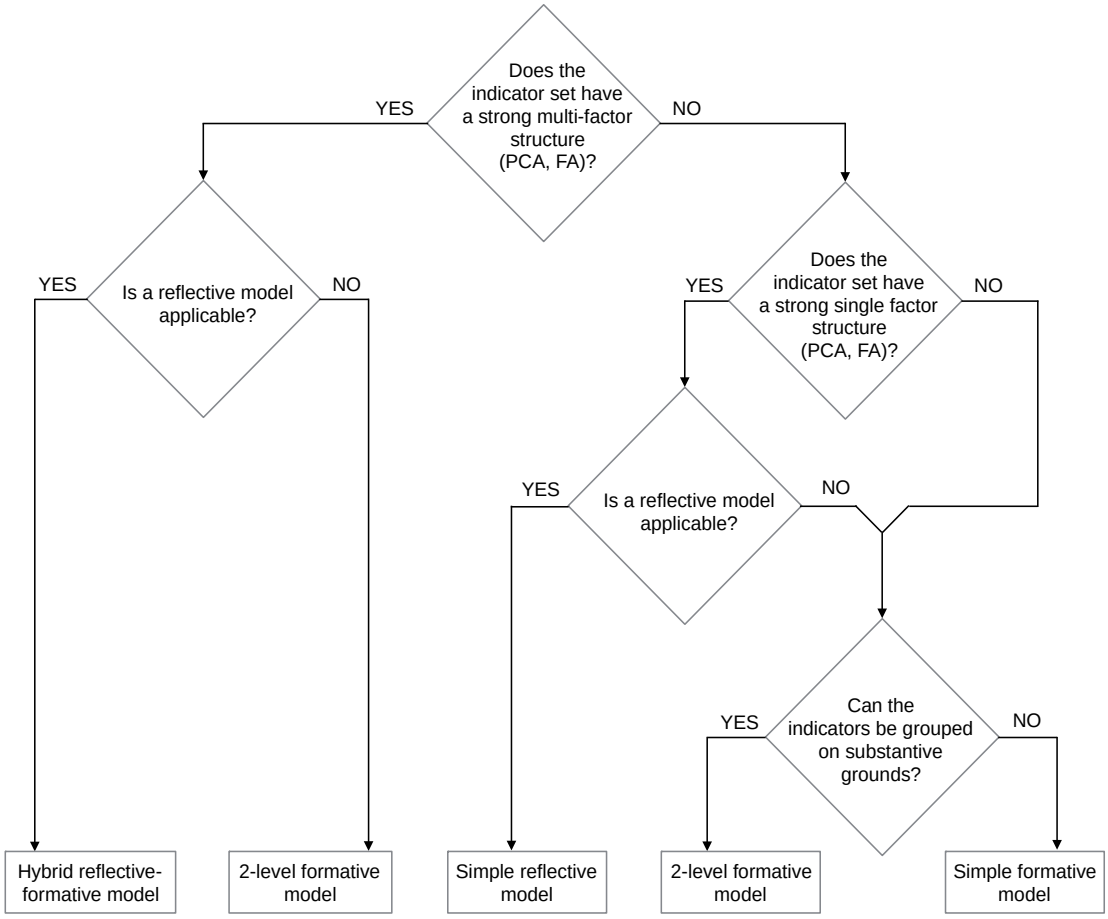


Figure 1.6: Decision tree for the choice of aggregation strategy.

1.5.4 Aggregation calculations

Two aggregation functions were chosen for use in the Australian Natural Disaster Resilience Index: Ordered Weighted Averaging (OWA) and the discrete Choquet integral. The former was used where the number of indicators or sub-indices to be aggregated was four or more. In this situation, it is difficult to specify all the possible compensatory effects between pairs of indicators, so a generic constraint can be placed on compensatory effects across all indicators, using OWA. The parameter in OWA that controls the amount of constraint placed on compensatory effects between indicators is known as the orness (James 2016). For an orness of 0.5, the OWA of a set of indicators is identical to the arithmetic mean, i.e. no constraint is placed on compensatory effects between indicators. For an orness of 0.0, the OWA of a set of indicators is identical with the value of the indicator with the smallest value, i.e. no compensatory effects are allowed. Further details and examples of OWA are provided in Volume II.

For the Australian Natural Disaster Resilience Index, the extent to which high values of some indicators could be allowed to compensate for low values of other indicators was known only approximately, or not at all. Consequently, just two orness values were used in aggregations using OWA: 0.125 for situations where there was some certainty that only minimal compensatory effects should be allowed, and an orness of 0.375 for situations where it was reasonable to assume that substantial amounts of compensation were permissible in aggregating indicators. An example of the former is indicators relating to emergency services provision – it is unlikely that high numbers of fire service volunteers could substitute for low numbers of police. An example of the latter is indicators relating to communications – high levels of mobile phone coverage could, in greater part, substitute for low levels of ADSL connectivity, given the widespread ownership of smartphones. As an aggregation method placing a generic constraint on compensatory effects, OWA implicitly involves equal weights on indicators.

Where two or three indicators or sub-indices in a formative model were to be aggregated, consideration was first given to using the discrete Choquet integral. This aggregation function allows for a comprehensive and nuanced specification of the degree of constraint to be placed on compensatory effects between indicators. If knowledge of the compensatory effects between, or among, these was insufficient, then OWA was used instead.

The parameter by which compensatory affects are adjusted for in aggregating with the discrete Choquet integral is called the fuzzy measure (James 2016), and is a set of weighting values. The weighting values can be adjusted to reflect the desired level of constraint on compensatory effects between each pair of indicators, as well as achieving a particular level of overall orness. To the extent that the importance of an indicator might be regarded as its capacity to compensate for low values of less important indicators, some of the weighting values in the fuzzy measure can be interpreted in the sense of importance weights. The discrete Choquet integral is used relatively infrequently in the construction of the Australian Natural Disaster Resilience Index. It is a fairly complex calculation, and a full explanation is provided in Volume II.

The theory of aggregation functions predicts that the functions used in the Australian Natural Disaster Resilience Index, and the chosen orness values, will result in particular differences in the distribution of aggregation results, compared to what would be obtained with a simple arithmetic, mean or with other types of aggregation functions. Accordingly, for every aggregation in the Australian Natural Disaster Resilience Index, the distribution of results for the chosen method was compared with the arithmetic mean, geometric mean and Mazziotta-Pareto Index. This provided a check that the chosen aggregation method and orness values were performing as predicted by theory. The comparisons of aggregation functions are provided in Volume II.

1.5.5 Software used in the index calculations

The Australian Natural Disaster Resilience Index was computed with the base R package (R Core Team 2016) and the following contributed packages:

- classInt (Bivand 2015) – calculate class intervals for spatial plotting;
- cluster (Maechler et al. 2016) – functions for cluster analysis;
- e1071 (Meyer, et al, 2015) – functions for skewness and kurtosis;
- lattice (Sarkar 2008) – functions for plotting;
- maptools (Bivand and Lewin-Koh 2016) – functions for spatial plotting;
- psych (Revelle 2016) – principal components analysis, sorted loadings tables;
- RcolorBrewer (Neuwirth 2014) – palettes for spatial plotting;
- rgdat (Bivand et al. 2016) – functions for reading and writing shape files; and,
- sp (Pebesma and Bivand 2005; Bivand et al. 2013) – spatial plotting.

1.6 INDEX VISUALISATION AND DISASTER RESILIENCE ASSESSMENT

The final form of the Australian Natural Disaster Resilience Index, and component coping capacity, adaptive capacity and theme sub-indices is a value in the range of 0 to 1. Values of 0 correspond to lower disaster resilience and values of 1 correspond to higher disaster resilience. These values of the Australian Natural Disaster Resilience Index, and component sub-indices, can be viewed spatially on maps, or analysed further to determine the spatial patterns of index values, find groups of SA2s with similar disaster resilience, or examine the relationships between index values and population characteristics.

1.6.1 Disaster resilience patterns

At the level of the Australian Natural Disaster Resilience Index, the 2084 SA2s were split into three bands based on index values: high capacity for disaster resilience (>75th percentile); moderate capacity for disaster resilience (25th – 75th percentile); and, low capacity for disaster resilience (<25th percentile). Each band has an associated narrative of capacity for disaster resilience. Population, land area and remoteness characteristics of the component SA2s were tallied to estimate the proportions associated with the disaster resilience bands.

The second level of the disaster resilience assessment is made up of coping and adaptive capacity sub-indexes (Figure 1.2). The coping and adaptive capacity sub-indexes range from 0 to 1, with 0 being lower coping or adaptive capacity and 1 being higher coping or adaptive capacity. The 2084 SA2s were split into three band based on coping and adaptive capacity sub-index values: high coping or adaptive capacity (>75th percentile); moderate coping or adaptive capacity (25th – 75th percentile); and, low coping or adaptive capacity (<25th percentile). Each band has an associated narrative of capacity for disaster resilience. Population, land area and remoteness characteristics of the component SA2s were tallied to estimate the proportions associated with the disaster resilience bands. Remoteness characteristics were taken from the Australian Statistical Geographical Standard remoteness structure (Figure 1.7).

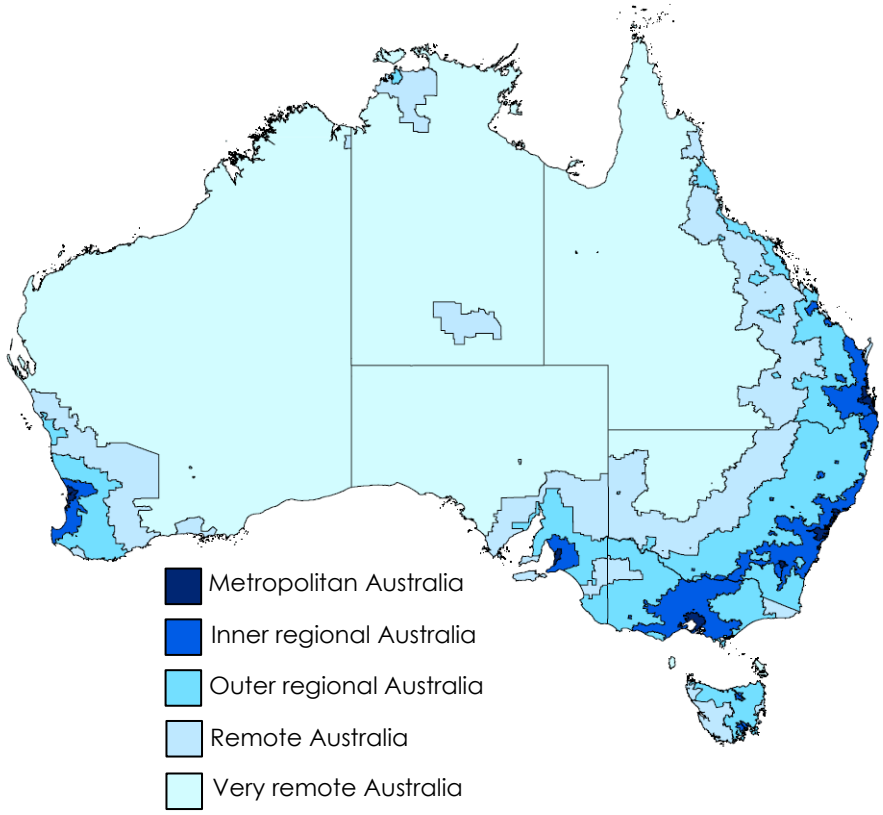


Figure 1.7: Australian Statistical Geography Standard (ASGS) 2011 remoteness structure. Modified from ABS (2011). The ASGS uses the term major cities of Australia, while the Australian Natural Disaster Resilience Index has termed this metropolitan Australia.

1.6.2 Disaster resilience typology

Many of the indicators used in the construction of the Australian Natural Disaster Resilience Index have well-understood spatial relationships. This suggests that, if the eight theme sub-indices are considered, SA2s might fall into groups with similar disaster resilience profiles. Cluster analysis was used to extract groups of SA2s with unique disaster resilience profiles.

Four different methods of cluster analysis were used to examine the cluster structure using the eight theme dimensions: hierarchical agglomerative cluster analysis; k-means analysis; partitioning around medoids; and, latent profile analysis. The choice of number of clusters was guided by the scree-type plots appropriate to each method. The agglomerative hierarchical scree plot suggested nine, five or three clusters. The k-means scree plot gave no guidance. The silhouette coefficient plot for partitioning around medoids suggested three clusters, but the low value of the silhouette coefficient for all the cluster solutions indicated that cluster structure was very weak. The plot of BIC against the number of profiles for latent profile analysis gave little guidance.

It was concluded that there is support for a three, five or nine cluster solution for the eight theme sub-indices, although the cluster structure is weak. The five cluster solution using partitioning around medoids was chosen on simple communication grounds to support further interpretive visualisation of the

Australian Natural Disaster Resilience Index using a heat-map. A nine cluster solution would overly complicate the interpretation, while a three cluster solution would be unnecessarily parsimonious. External validation of the five cluster solution using a measure of remoteness showed there were significant differences in remoteness among the five groups. This lent support for the decision to present interpretative visualisations of the Australian Natural Disaster Resilience Index as a five-group typology. When mapped, the five groups of SA2s tended to form cohesive regions, rather than being scattered randomly, further supporting the view that, although cluster structure is weak, it is nonetheless spatially meaningful. A full description of the derivation of the typology is provided in Volume II.

The disaster resilience profile associated with each of the cluster groups was determined using a three step process. First, percentiles were calculated using all 2084 SA2s within a theme to set the classes of high (>75th percentile), moderate (25th to 75th percentile) and low (<25th percentile) disaster resilience. Second, the median index values for each cluster group and theme were used to identify groups as belonging to the high, moderate or low disaster resilience band. Third, the bands were narrated using the relationships of individual indicators to the distribution of theme sub-index values (see Volume II). Summary statistics were also used to show the relationships between cluster groups and population, land area and remoteness, and the relationships between groups and the resilience, coping and adaptive capacity index values.

1.6.3 Software used in disaster resilience assessment and visualisation

In addition to the packages used for indicator conditioning and aggregation procedures, the following R contributed packages, were used to derive and visualize the typology:

- fmsb (Nakazawa 2018) – radar plots;
- mclust (Fraley and Raftery 2002; Fraley et al. 2012) – Gaussian mixture modelling;
- sensitivity (Pujol et al. 2017) – functions for sensitivity analysis;
- superheat (Barter and Yu 2017) – functions for heatmaps;
- tidyLPA (Rosenberg 2018) – latent profile analysis;
- truncnorm (Trautman et al. 2014) – function to sample from truncated normal distribution; and,
- wordcloud (Fellows 2014) – functions for labelling scatter plots.

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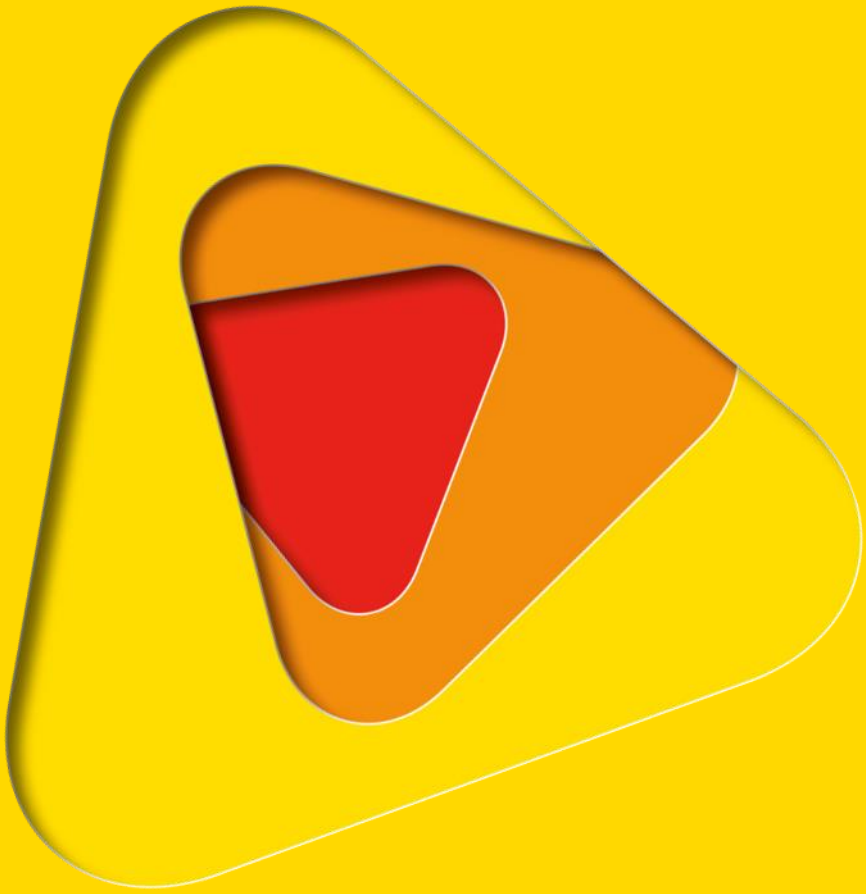
CHAPTER 2 – DISASTER RESILIENCE IN AUSTRALIA



2.1 INTRODUCTION

The Australian Natural Disaster Resilience Index ranges from 0 to 1, with 0 being lower capacity for disaster resilience and 1 being higher capacity for disaster resilience. The 2084 SA2s were split into three bands based on index values: high capacity for disaster resilience (>75th percentile); moderate capacity for disaster resilience (25th – 75th percentile); and, low capacity for disaster resilience (<25th percentile). Each band has an associated narrative of capacity for disaster resilience (Table 2.1). Population, land area and remoteness characteristics of the component SA2s were tallied to estimate the proportions associated with the disaster resilience bands.

Table 2.1: Description of high, moderate and low disaster resilience bands for the Australian Natural Disaster Resilience Index.

ANDRI Class	Percentile	Description
Low	<25th percentile ANDRI = 0 – 0.4461	Communities in areas of low disaster resilience may be limited in their capacity to use available resources to cope with adverse events, and are limited in their capacity to adjust to change through learning, adaptation and transformation. Limitations to disaster resilience may be contributed by entrenched social and economic disadvantage, less access to or provision of resources and services, lower community cohesion and limited opportunities for adaptive learning and problem solving.
Moderate	25 – 75th percentile ANDRI = 0.4462 – 0.6598	Communities in areas of moderate disaster resilience have some capacity to use available resources to cope with adverse events, and some capacity to adjust to change through learning, adaptation and transformation. Moderate disaster resilience is generally contributed by moderate levels of coping and adaptive capacity, which in turn are associated with moderate levels of economic capital, moderate provision of an access to services, moderate community cohesion and variable encouragement for adaptive learning and problem solving.
High	>75th percentile ANDRI = 0.6599 - 1	Communities in areas of high disaster resilience have enhanced capacity to use available resources to cope with adverse events, and enhanced capacity to adjust to change through learning, adaptation and transformation. Factors contributing to high disaster resilience may include employment, education, income, good access to or provision of resources and services, strong community cohesion and ample opportunities for adaptive learning and problem solving.

2.2 THE AUSTRALIAN NATURAL DISASTER RESILIENCE INDEX: DISTRIBUTION OF COMMUNITY CAPACITY FOR DISASTER RESILIENCE

2.2.1 Most of the population of Australia live in areas assessed as having moderate capacity for disaster resilience.

Visually there is a general pattern of higher capacity for disaster resilience across the populated south east areas of Australia, and around metropolitan and major regional centres (Figure 2.1). Outer regional and remote areas, particularly those in northern and central Australia, have lower capacity for disaster resilience (Figure 2.1). Factors underlying this overall pattern are discussed in the forthcoming sections.

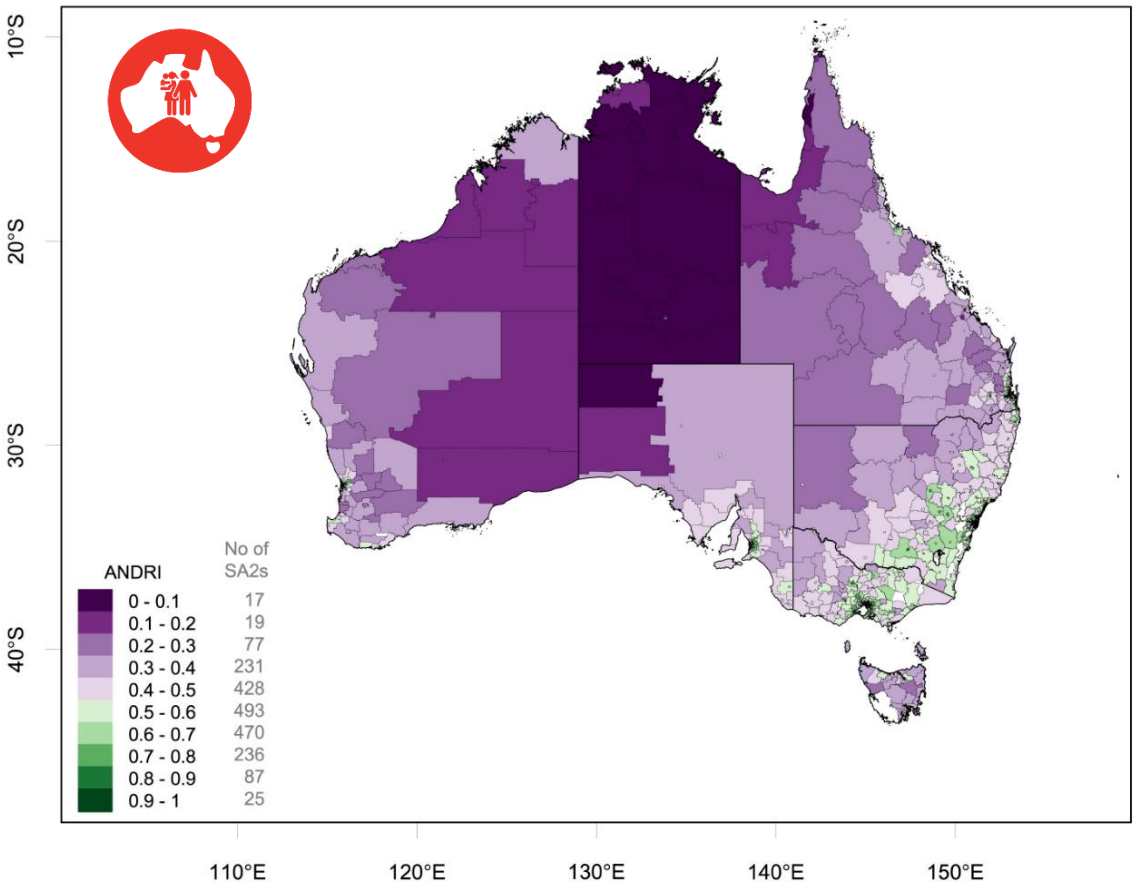


Figure 2.1: Capacity for disaster resilience in Australia assessed using the Australian Natural Disaster Resilience Index. The index ranges from 0 to 1, where 0 is lower capacity for disaster resilience and 1 is higher capacity for disaster resilience. Maps of the Australian Natural Disaster Resilience Index at the resolution of State/Territory and major metropolitan areas are shown in Appendix A.

About 52% of Australia's population, or about 12.3 million people, live in an SA2 assessed as having moderate capacity for disaster resilience (Figure 2.2 and Table 2.2). Overall, areas with moderate disaster resilience comprise 6% of Australia's land area (Table 2.2). Most of the SA2s assessed as having moderate capacity for disaster resilience occur in metropolitan, inner regional or outer regional areas, although six remote or very remote SA2s had moderate disaster resilience (Table 2.2). Areas with moderate disaster resilience have some capacity to use available resources to cope with adverse events, and some capacity to adjust to change through learning, adaptation and transformation. Moderate disaster resilience is generally contributed by moderate levels of coping and adaptive capacity, which in turn are associated with moderate levels of economic capital, moderate provision of an access to services, moderate community cohesion and variable encouragement of adaptive learning and problem solving.

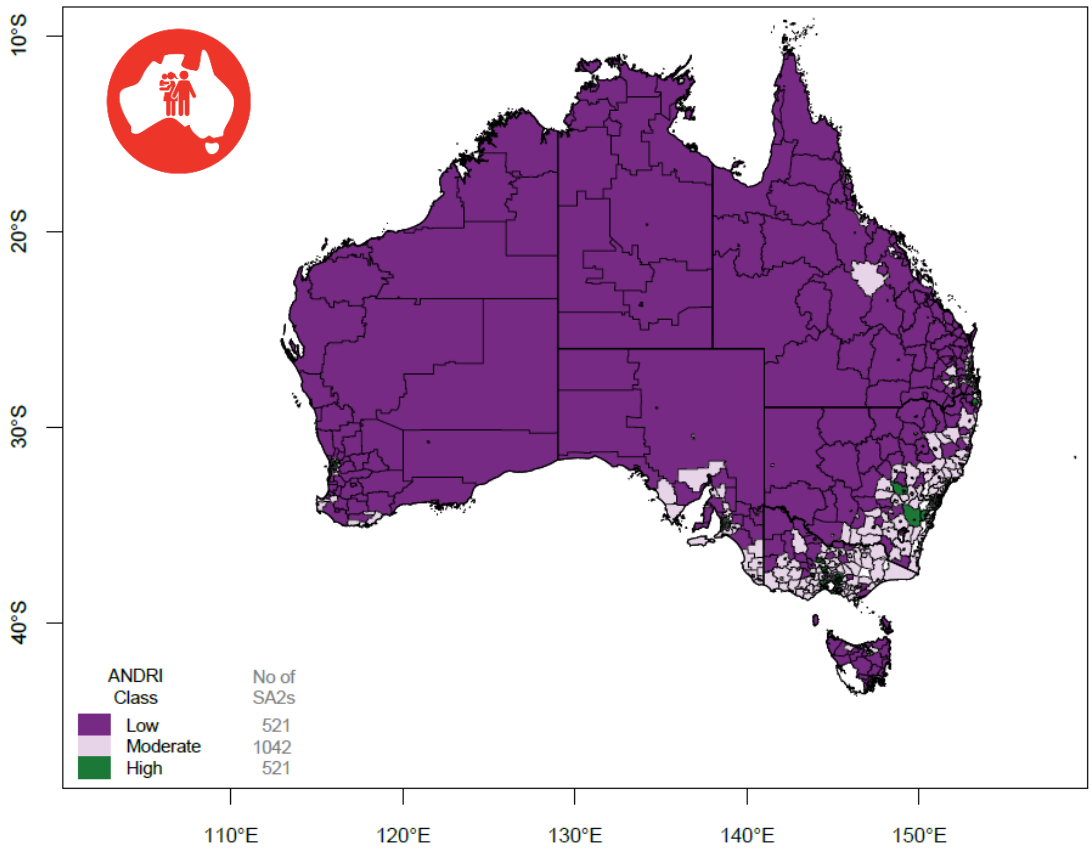


Figure 2.2: Distribution of low, moderate and high capacity for disaster resilience in Australia. Low, moderate and high bands are explained in Table 2.1. Maps of the distribution of low, moderate and high capacity for disaster resilience at the resolution of State/Territory and major metropolitan areas are shown in Appendix B.

About 32% of Australia's population, or about 7.6 million people, live in an SA2 assessed as having high capacity for disaster resilience (Figure 2.2 and Table 2.2). Areas with high disaster resilience are associated with enhanced capacity

to use available resources to cope with adverse events, and enhanced capacity to adjust to change through learning, adaptation and transformation. Factors contributing to high disaster resilience may include employment, education, income, good access to or provision of resources and services, strong community cohesion and ample opportunities for adaptive learning and problem solving.

Table 2.2: Population, land area and remoteness associated with low, moderate and high capacity for disaster resilience.

	Capacity for disaster resilience		
	Low <25th percentile 0 – 0.4461	**Moderate** 25 – 75th percentile 0.4462 – 0.6598	**High** >75th percentile 0.6599 - 1
Population*#			
Population in component SA2s	3,842,568	12,323,025	7,638,030
Percentage population in component SA2s	16.1	51.8	32.1
Land area^			
Land area of component SA2s (km²)	7,146,933	467,381	30,448
Percentage land area in component SA2s	93.5	6.1	0.4
Remoteness$			
Metropolitan Population in component SA2s	1,266,355	8,732,737	6,960,378
Metropolitan Percentage population in component SA2s	5.3	36.7	29.2
Metropolitan Number of component SA2s	111	639	453
Inner regional Population in component SA2s	1,010,165	2,637,079	655,149
Inner regional Percentage population in component SA2s	4.2	11.1	2.8
Inner regional Number of component SA2s	131	280	65
Outer regional Population in component SA2s	1,127,561	915,174	22,503
Outer regional Percentage population in component SA2s	4.7	3.8	0.09
Outer regional Number of component SA2s	189	117	3
Remote Population in component SA2s	262,327	35,717	0
Remote Percentage population in component SA2s	1.1	0.15	0
Remote Number of component SA2s	43	5	0
Very remote Population in component SA2s	176,160	2,318	0
Very remote Percentage population in component SA2s	0.74	0.01	0
Very remote Number of component SA2s	47	1	0
SA2s+			
Number of SA2s	521	1,042	521
Percentage of SA2s	25	50	25

* Computed using ABS Estimated Resident population as of 30th June 2015.
# Excludes SA2s not used in the index. The population in SA2s used in the index is 23,803,623 people. The population in SA2s not used in the index is a further 12,372 people.
^ Excludes SA2s not used in the index. The land area of SA2s used in the index is 7,644,763km². The land area of SA2s not used in the index is a further 43,047km².
$ ABS remoteness categories, ASGS 2011.
+ Excludes SA2s not used in the index. Of the 2214 SA2s in the ASGS 2011, 2084 were used in the index and 130 excluded.

About 16% of Australia's population, or about 3.8 million people, live in an SA2 assessed as having low capacity for disaster resilience (Figure 2.2 and Table 2.2). Areas with low disaster resilience are associated with low capacity to use available resources to cope with adverse events, and are likely to be limited in their capacity to adjust to change through learning, adaptation and transformation. Limitations to disaster resilience may be contributed by entrenched social and economic disadvantage, less access to or provision of resources and services, lower community cohesion and limited opportunities for adaptive learning and problem solving.

2.2.2 There is a distinct association between capacity for disaster resilience and remoteness.

Each remoteness category encompasses SA2s with a range of high to low index values. However, there is a distinct relationship between remoteness and capacity for disaster resilience (Figure 2.3). Remote and very remote SA2s are concentrated within the lower end of index values. Outer regional, inner regional and metropolitan SA2s are progressively concentrated within the higher end of index values. Thus, metropolitan SA2s are generally associated with higher capacity for disaster resilience.

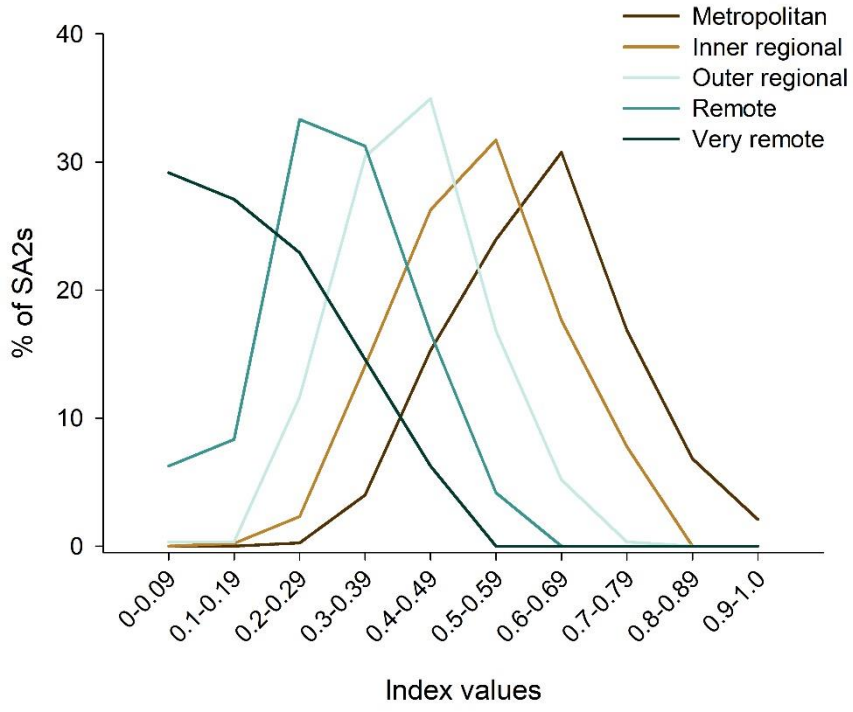


Figure 2.3: Distribution of Australian Natural Disaster Resilience Index values by remoteness categories.

2.2.3 Most areas of higher capacity for disaster resilience are located in metropolitan and inner regional Australia. Areas of higher capacity for disaster resilience comprise only 0.5% of land surface area.

Most of the SA2s assessed as having high capacity for disaster resilience occur in metropolitan and inner regional areas of Australia, with an associated population of about 7.5 million people (Figure 2.2 and Table 2.2). Only 3 outer regional SA2s had high capacity for disaster resilience, and no remote or very remote SA2s were assessed as having high disaster resilience (Table 2.2). Areas with high disaster resilience are confined to less than 0.5% of Australia's land surface area (Table 2.2).

In metropolitan areas, 38% of SA2s have high capacity for disaster resilience (Figure 2.4). This falls to only 8% outside of metropolitan areas (Figure 2.4). Non-metropolitan SA2s with high capacity for disaster resilience are located almost entirely within inner regional areas, generally in close proximity to metropolitan areas. Thus, proximity to metropolitan areas can be seen to enhance the potential for high capacity for disaster resilience.

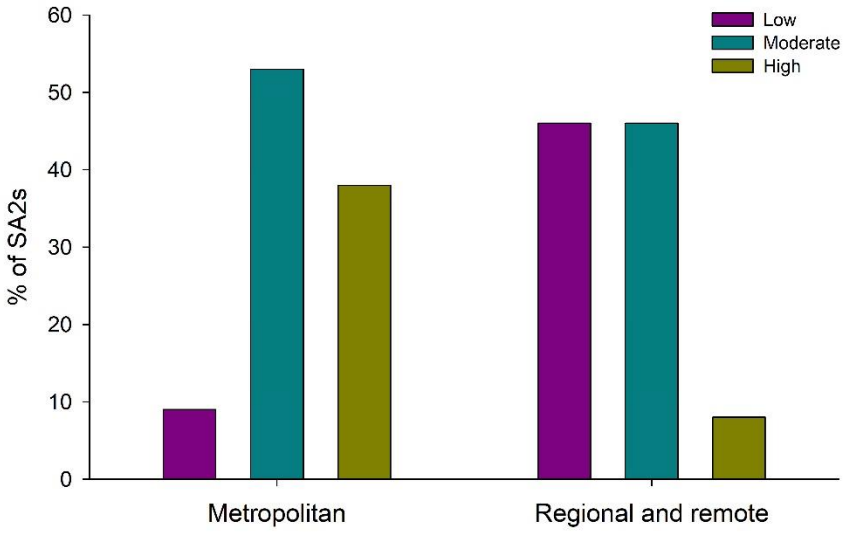


Figure 2.4: Proportion of SA2s with high, moderate and low capacity for disaster resilience in metropolitan and non-metropolitan (combined regional and remote) areas.

The SA2s with high capacity for disaster resilience are not distributed evenly through metropolitan areas. Rather, SA2s with high capacity for disaster resilience are usually clustered together, forming multiple pockets of higher capacity within the metropolitan area (Appendix B). These clusters can sometimes have substantial numbers of high capacity SA2s sharing boundaries (Appendix B). These clusters often extend in one direction from the inner suburbs through to outer ring suburbs (see, for example, the Sydney, Melbourne and Adelaide maps in Appendix B). This indicates that specific locations within

a metropolitan area can have a combination of attributes amenable to high capacity for disaster resilience.

2.2.4 Most areas of lower capacity for disaster resilience are located in outer regional, remote and very remote Australia. Areas of lower capacity for disaster resilience comprise over 93% of land surface area.

Low capacity for disaster resilience is associated with remote and very remote SA2s, comprising about 435,000 people (Table 2.2 and Figure 2.2). Areas with low disaster resilience comprise over 93% of Australia's land surface area (Table 2.2). Almost 50% of non-metro SA2s have low capacity for resilience; in metro areas it is less than 10% (Figure 2.4).

2.2.5 There are areas of lower capacity for disaster resilience in metropolitan Australia.

Despite the predominance of low capacity for disaster resilience in remote and very remote SA2s, low capacity for disaster resilience was also found in metropolitan areas. Nine percent of metropolitan SA2s, comprising about 1.3 million people, were assessed as having low capacity for disaster resilience (Figure 2.4 and Table 2.2). In most metropolitan areas, small clusters of SA2s with low capacity for disaster resilience can be observed (Appendix B). Those clusters are comprised of small numbers of SA2s and are found in outer, middle and inner city areas (Appendix B).

The "concentric zones" theory of urban sociology (Burgess 1925), which once held that the social structure of the metropolitan area could be read in terms of concentric rings progressively arranged outwards from the city centre, does not apply in the distribution of capacity for disaster resilience in the metropolitan areas. There is no clear pattern to show, for example, that SA2s on the metropolitan fringe will have lower capacity for disaster resilience than SA2s closer to the city centre. In some cities, some fringe SA2s will have low capacity for resilience, but this is not a general rule across all cities. Some inner metropolitan SA2s can also show low capacity for disaster resilience. Conversely, SA2s with high capacity for resilience can be found in inner, middle, and outer parts of metropolitan areas.

The conclusion is that while moderate disaster resilience is the dominant state across metropolitan areas, the metropolitan landscape of disaster resilience is one of localised pockets of different disaster resilience capacity. The factors used to assess disaster resilience will reflect localised differences in capacity for disaster resilience within metropolitan areas. Some metropolitan locations have a combination of factors that contribute to higher capacity for disaster resilience, while other locations have a combination of factors that contribute to lower disaster resilience.

2.2.6 Inner regional areas have greater capacity for disaster resilience than outer regional areas.

About 72% of inner regional SA2s were assessed as having moderate to high capacity for disaster resilience: 14% with high capacity and 58% with moderate capacity (Table 2.2). In contrast, only 39% of outer regional SA2s were assessed as having moderate to high capacity for disaster resilience: 1% with high capacity and 39% with moderate capacity (Table 2.2). However, most (72%) inner regional SA2s occur in the more populous eastern mainland states, highlighting the importance of the inner regional areas of the eastern mainland states in the geography of disaster resilience.

2.2.7 Patterns of capacity for disaster resilience at the National level are generally, but not always, upheld in each State or Territory.

The overall patterns of population associated with areas of high, moderate and low capacity for disaster resilience are generally, but not always, displayed in each State and Territory. New South Wales and Victoria have less of their population associated with areas of low capacity for disaster resilience than at the national level (Table 2.3). These States also have more of their population associated with areas of high capacity for disaster resilience than at the national level (Table 2.3). While Queensland and Western Australia have a similar population associated with areas of moderate disaster resilience to the national level, these States have lower than national-level proportion of the population associated with areas of high disaster resilience and higher than national-level proportion of population associated with areas of low disaster resilience (Table 2.3). South Australia has the same population distribution across areas of low, moderate and high disaster resilience as the national level.

The Northern Territory and Australian Capital Territory patterns are different from the national-level distribution. All areas of the Northern Territory are associated with low disaster resilience (Table 2.3). The Australian Capital Territory follows the national level trend for population associated with areas of moderate disaster resilience (Table 2.3). The remainder of the Australian Capital Territory population is associated with areas of low disaster resilience and none of the population is associated with areas of high disaster resilience (Table 2.3).

Table 2.3: Population and land area associated with low, moderate and high capacity for disaster resilience for each Australian State and Territory. The national-level is also shown for comparison.

	Capacity for disaster resilience		
	Low <25th percentile 0 – 0.4461	**Moderate** 25 – 75th percentile 0.4462 – 0.6598	**High** >75th percentile 0.6599 - 1
NATIONAL			
Population*#			
Population in component SA2s	3,842,568	12,323,025	7,638,030
Percentage population in component SA2s	16.1	51.8	32.1
Land area^			
Land area of component SA2s (km^2)	7,146,933	467,381	30,448
Percentage land area in component SA2s	93.5	6.1	0.4
NEW SOUTH WALES			
Population*#			
Population in component SA2s	697,199	3,733,412	3,184,250
Percentage population in component SA2s	9.2	49.0	41.8
Land area^			
Land area of component SA2s (km^2)	585,513	183,764	19,962
Percentage land area in component SA2s	74.2	23.3	2.5
VICTORIA			
Population*#			
Population in component SA2s	454,330	2,948,494	2,618,994
Percentage population in component SA2s	7.5	49.0	43.5
Land area^			
Land area of component SA2s (km^2)	81,928	132,736	6,998
Percentage land area in component SA2s	37.0	59.9	3.2
QUEENSLAND			
Population*#			
Population in component SA2s	1,173,873	2,836,002	766,851
Percentage population in component SA2s	24.6	59.4	16.1
Land area^			
Land area of component SA2s (km^2)	1,673,482	48,117	1,229
Percentage land area in component SA2s	97.1	2.8	0.1.

Table 2.3 (cont.)

	Capacity for disaster resilience		
	Low **<25th percentile** **0 – 0.4461**	**Moderate** **25 – 75th percentile** **0.4462 – 0.6598**	**High** **>75th percentile** **0.6599 - 1**
SOUTH AUSTRALIA			
Population*#			
Population in component SA2s	293,173	854,567	552,785
Percentage population in component SA2s	17.2	50.3	32.5
Land area^			
Land area of component SA2s (km²)	900,171	82,502	1,347
Percentage land area in component SA2s	91.5	8.4	0.1
WESTERN AUSTRALIA			
Population*#			
Population in component SA2s	618,219	1,488,664	433,308
Percentage population in component SA2s	24.3	58.6	17.1
Land area^			
Land area of component SA2s (km²)	2,509,286	14,509	608
Percentage land area in component SA2s	99.4	0.6	<0.1
TASMANIA			
Population*#			
Population in component SA2s	201,885	231,375	81,842
Percentage population in component SA2s	39.2	44.9	15.9
Land area^			
Land area of component SA2s (km²)	49,034	5,587	305
Percentage land area in component SA2s	89.3	10.2	0.6
NORTHERN TERRITORY			
Population*#			
Population in component SA2s	241,997	0	0
Percentage population in component SA2s	100	0	0
Land area^			
Land area of component SA2s (km²)	1,346,893	0	0
Percentage land area in component SA2s	100	0	0

Table 2.3 (cont.)

	Capacity for disaster resilience		
	Low <25th percentile 0 – 0.4461	Moderate 25 – 75th percentile 0.4462 – 0.6598	High >75th percentile 0.6599 - 1
AUSTRALIAN CAPITAL TERRITORY			
Population*#			
Population in component SA2s	161,892	230,511	0
Percentage population in component SA2s	41.3	58.7	0
Land area (km²)^			
Land area of component SA2s	629	167	0
Percentage land area in component SA2s	79.1	20.9	0

* Computed using ABS Estimated Resident population as of 30th June 2015.
# Excludes SA2s not used in the index. The total population in SA2s used in the index is 23,803,623 people. The total population in SA2s not used in the index is a further 12,372 people.
^ Excludes SA2s not used in the index. The land area of SA2s used in the index is 7,644,763km². The land area of SA2s not used in the index is a further 43,047km².

2.2.8 Implications of the spatial distribution of disaster resilience in Australia

Disaster resilience is a protective characteristic that acts to reduce the effects of, and losses from, natural hazard events. Disaster resilience arises from the capacities of social, economic and government to prepare for, respond to and recover from a natural hazard event, and to learn, adapt and transform in anticipation of future natural hazard events. The state of disaster resilience in Australia is one of non-uniformly distributed disaster resilience. The assessment of disaster resilience using the Australian Natural Disaster Resilience Index shows that communities in Australia do not all have the same capacity for disaster resilience. About 52% of the population live in areas with moderate capacity for disaster resilience, about 32% in areas with high capacity for disaster resilience and about 16% in areas with low capacity for disaster resilience.

Differences in the capacity of communities for disaster resilience might be associated with unequal impacts of, and outcomes from, a natural hazard event. Disaster resilience is a complex interplay of factors that influence coping and adaptive capacity, including social and economic characteristics, the provision of government and other services, community capital and governance regimes. In areas of high capacity for disaster resilience, the status of these factors enhances the ability of communities to use available resources to prepare for, respond to and recover from natural hazard events and to adapt and transform in the face of future events. In areas of low capacity for disaster resilience, the status of these factors constrains the ability of communities to use available resources to prepare for, respond to and recover

from natural hazard events and to adapt and transform in the face of future events. In areas of moderate capacity for disaster resilience factors occur in many combinations to both constrain and support the ability of communities to use available resources to prepare for, respond to and recover from natural hazard events and to adapt and transform in the face of future events.

Findings from analyzing the distribution of the Australian Natural Disaster Resilience Index reveal that the capacity for disaster resilience is not distributed uniformly across Australia. There is a strong geographic signal in capacity for disaster resilience. Outer regional, remote and very remote areas are generally associated with low capacity for disaster resilience, while metropolitan and inner regional areas are generally associated with high or moderate capacity for disaster resilience. This geographic pattern of disaster resilience echoes that found in social and economic assessments of education (ACARA 2016), health (NRHA 2016; AIHW 2018), planning (Horney et al. 2017), employment (Hajkowicz et al. 2016) and income (NRHA & ACOSS 2013; ACOSS & UNSW 2018), where outer regional, remote and very remote areas generally experience poorer outcomes in comparison to metropolitan areas. The outcomes of lower disaster resilience capacity may include: longer and more complex disaster recovery; increased post-disaster out-migration; disruptive regional economic change; under-resourced or distant government services to support natural hazard planning, response and mitigation functions; and, limited access to digital services and information. However, remoteness is often associated with community cohesion and capital, where community bonds may self-generate support and resources before, during and after emergencies (see Chapter 4).

The strong geographic signal in capacity for disaster resilience is also associated with vastly different land areas. Areas of low capacity for disaster resilience make up 93.5% of Australia's land area because component outer regional, remote and very remote SA2s are large in area, but have low population densities. In contrast, areas of high capacity for disaster resilience make up only 0.4% of Australia's land area because component SA2s are frequently metropolitan, and have high population densities. Thus, population and land area interact to generate a non-uniform distribution of disaster resilience capacity. This has significant implications for planning for and resourcing improvements to disaster resilience capacity, because lower disaster resilience capacity, low population and large land areas generally occur together.

Despite the broadly observed associations between disaster resilience and remoteness, lower disaster resilience is not always confined to outer regional, remote and very remote areas. Approximately 9.5% of Australia's population, or about 2.3 million people, live in metropolitan and inner regional areas that have a low capacity for disaster resilience. The location of areas of low capacity for disaster resilience in metropolitan and inner regional areas signals a different set of challenges for planning for and resourcing improvements to

disaster resilience capacity. For these communities, remoteness is not a barrier to disaster resilience as they are embedded within well-resourced, highly populated surrounding regions. Rather, these communities may have social characteristics that work against disaster resilience outcomes, despite their metropolitan or inner regional location. Influencing these social characteristics, such as length of residence, community cohesion and need for assistance is generally beyond the focus of any one public agency or strategy and highlights the interconnectedness among different aspects of resilience.

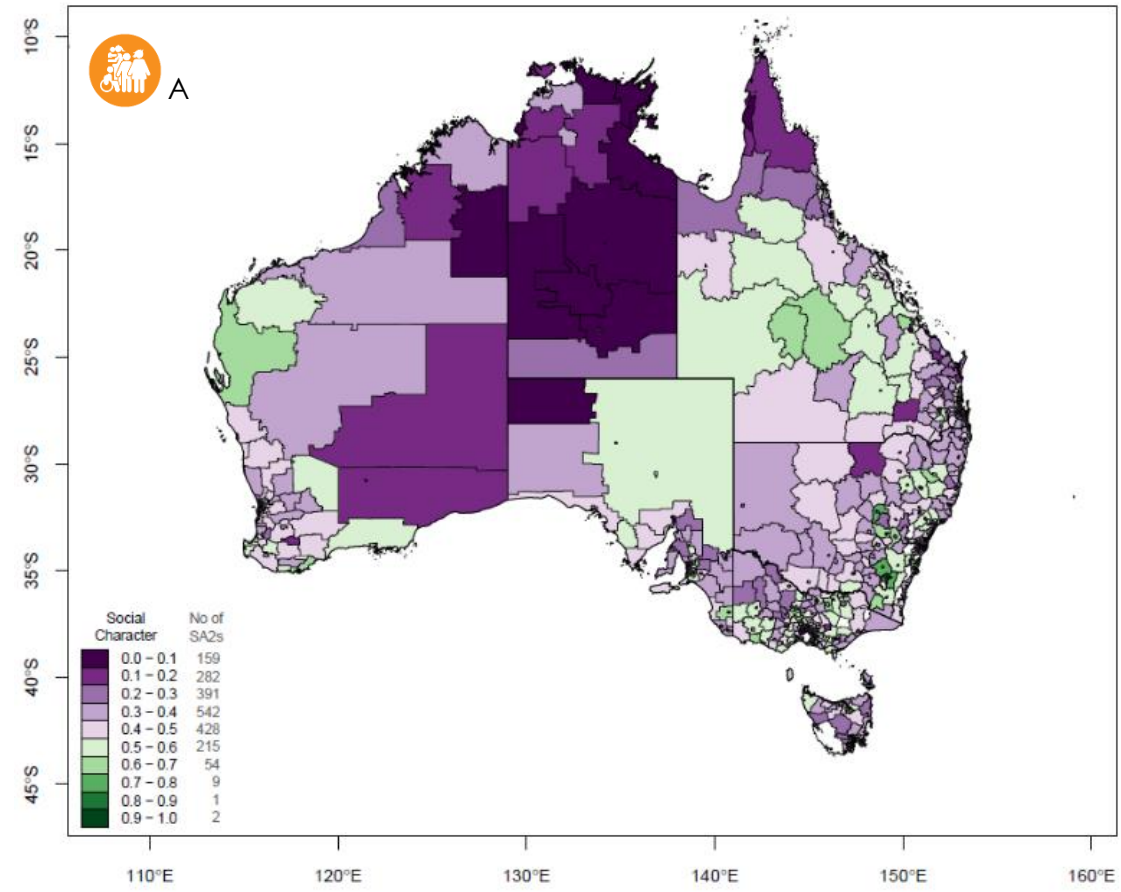
2.3 DISASTER RESILIENCE THEMES: FACTORS ENHANCING AND CONSTRAINING DISASTER RESILIENCE IN AUSTRALIA

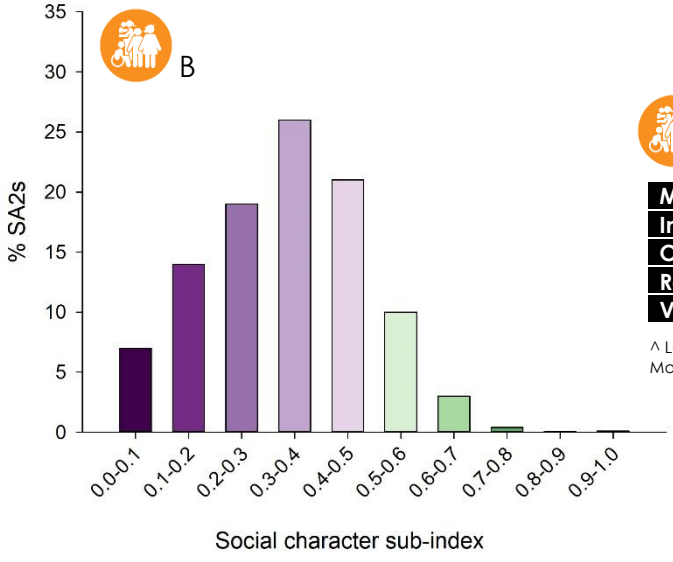
2.3.1 Social character often constrains the capacity for disaster resilience in Australia. Geographic distribution of the social character sub-index is mixed; however, lower values of the social character sub-index are concentrated in metropolitan and very remote areas.

Social character represents the social and demographic factors that influence the ability to prepare for and recover from a natural hazard event (see Table 1.1). The social character theme sub-index is derived from social and demographic indicators of language proficiency, length of residence, need for assistance, family or household composition, sex, age and education (see Table 1.2). Low social character corresponds to sub-index values in the <25th percentile, moderate social character corresponds to sub-index values in the 50th – 75th percentile and high social character corresponds to sub-index values in the >75th percentile (Figure 2.5).

Visually, there is a mixed distribution of social character throughout Australia (Figure 2.5a and b). There is a high proportion of SA2s with low social character in very remote areas but also in metropolitan areas (Figure 2.5c). Thus, there is concentration of lower social character at the poles of the remoteness classes. The inner parts of cities often show low social character and the trend is for greater proximity to the centre of metropolitan areas to correspond to lower social character sub-index values. As 34% of metropolitan SA2s have low social character sub-index values, social character is a barrier to capacity for disaster resilience in metropolitan areas. This suggests that the social character theme is an exception to the otherwise high capacity for disaster resilience in metropolitan areas demonstrated by the overall Australian Natural Disaster Resilience Index.

Inner regional areas have the greatest proportion of SA2s assessed as having high social character (Figure 2.5c). Similarly, inner regional, outer regional, and remote areas have relatively high proportions of SA2s with moderate social character sub-index values (Figure 2.5c). This suggests that social character may enhance the capacity for disaster resilience in regional areas.





C

	Total SA2s	% SA2s^		
		Low	Mod	High
Metropolitan	1203	34	48	18
Inner regional	476	10	47	43
Outer regional	309	11	66	23
Remote	48	12	54	33
Very remote	48	48	23	29

^ Low = <25th percentile of the social character sub-index values. Moderate = 25th – 75th percentile. High = >75th percentile.

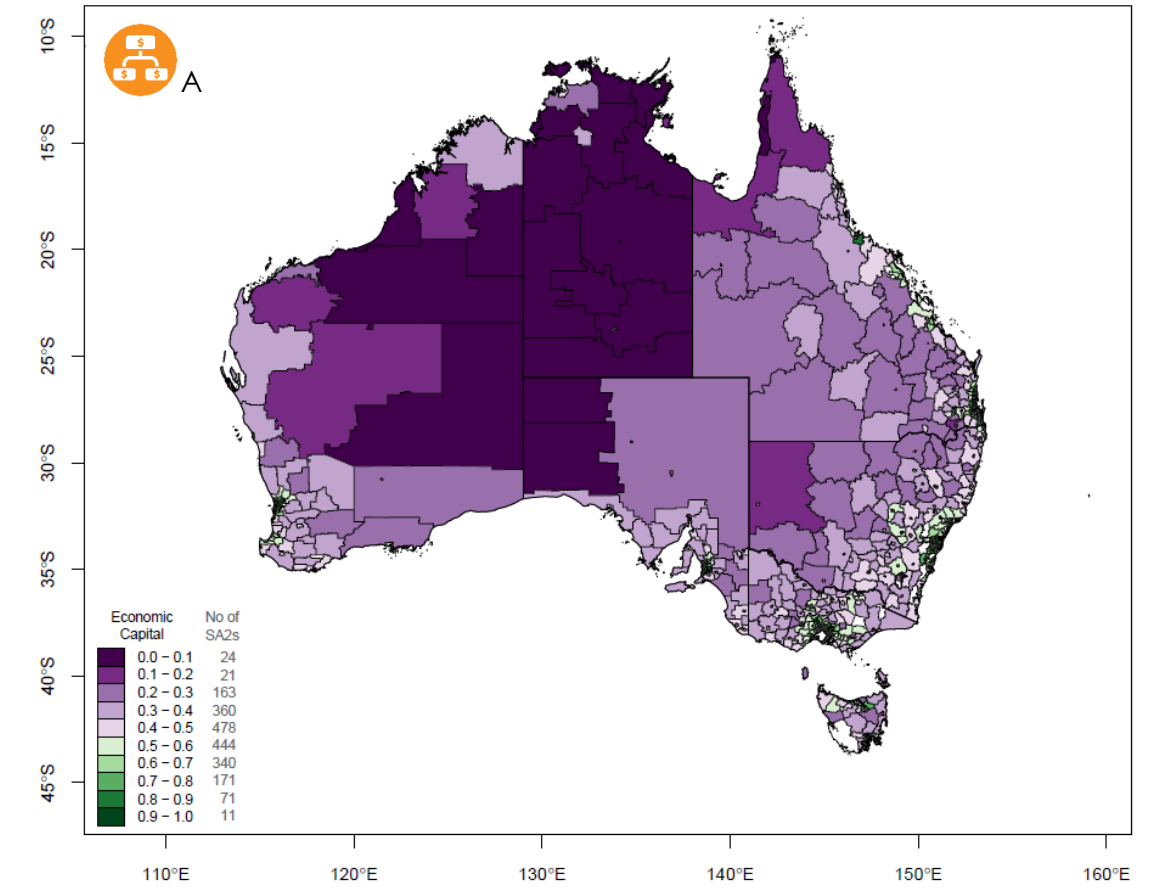
Figure 2.5: Distribution of social character sub-index values. A) Mapped social character sub-index values. The index ranges from 0 to 1, where 0 is lower capacity for disaster resilience and 1 is higher capacity for disaster resilience. B) Proportion of SA2s across the range of social character sub-index values. C) Proportion of SA2s in remoteness categories associated with low, moderate and high social character sub-index values.

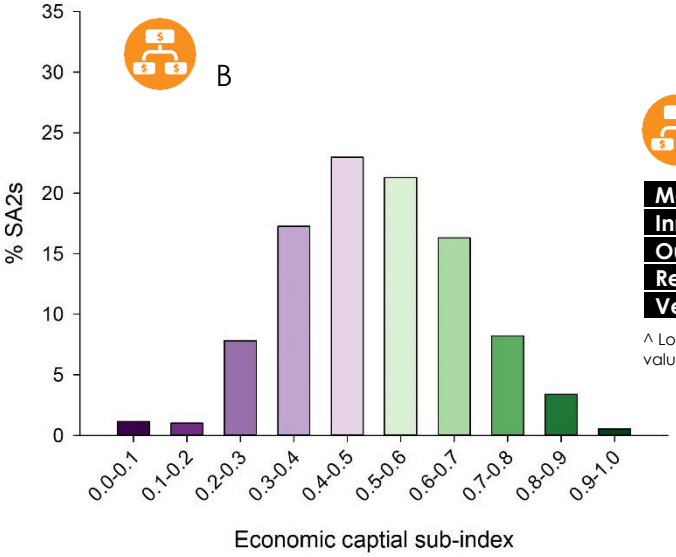
2.3.2 Australia has a mix of areas with higher and lower economic capital. All areas can experience constraints on disaster resilience associated with low economic capital. However, lower economic capital is most pronounced in remote and very remote areas, while higher economic capital is most pronounced in metropolitan and inner regional areas.

Economic capital represents the economic factors that influence the ability to prepare for and recover from a natural hazard event (see Table 1.1). The economic capital theme sub-index is derived from economic indicators of home ownership, income and the economy (see Table 1.2). Low economic capital corresponds to sub-index values in the <25th percentile, moderate economic capital corresponds to sub-index values in the 50th – 75th percentile and high economic capital corresponds to sub-index values in the >75th percentile (Figure 2.6).

Visually, higher economic capital is almost entirely confined to the coastal rim, with the capital cities and their surrounding inner regional areas the hubs of economic capital (Figure 2.6a and c). Most metropolitan and inner regional SA2s are associated with moderate economic capital (Figure 2.6c). Inside metropolitan areas, 35% of SA2s were assessed as having high economic capital (Figure 2.6c): these SA2s are located in middle and outer suburbs. Areas of lower economic capital do occur within metropolitan areas: 18% of SA2s were assessed as having low economic capital (Figure 2.6c), largely in the inner city and inner suburbs of the metropolitan area.

Beyond the capital cities, lower economic capital is associated with increasing remoteness (Figure 2.6a). A high proportion of outer regional, remote and very remote SA2s were assessed as having low economic capital (Figure 2.6c). Thus, the more remote the SA2, the more likely it is that capacity for disaster resilience will be constrained by lower economic capital.





C

	Total SA2s	% SA2s^		
		Low	Mod	High
Metropolitan	1203	18	47	35
Inner regional	476	15	66	18
Outer regional	309	48	47	5
Remote	48	83	17	0
Very remote	48	98	2	0

^ Low = <25th percentile of the economic capital sub-index values. Moderate = 25th – 75th percentile. High = >75th percentile.

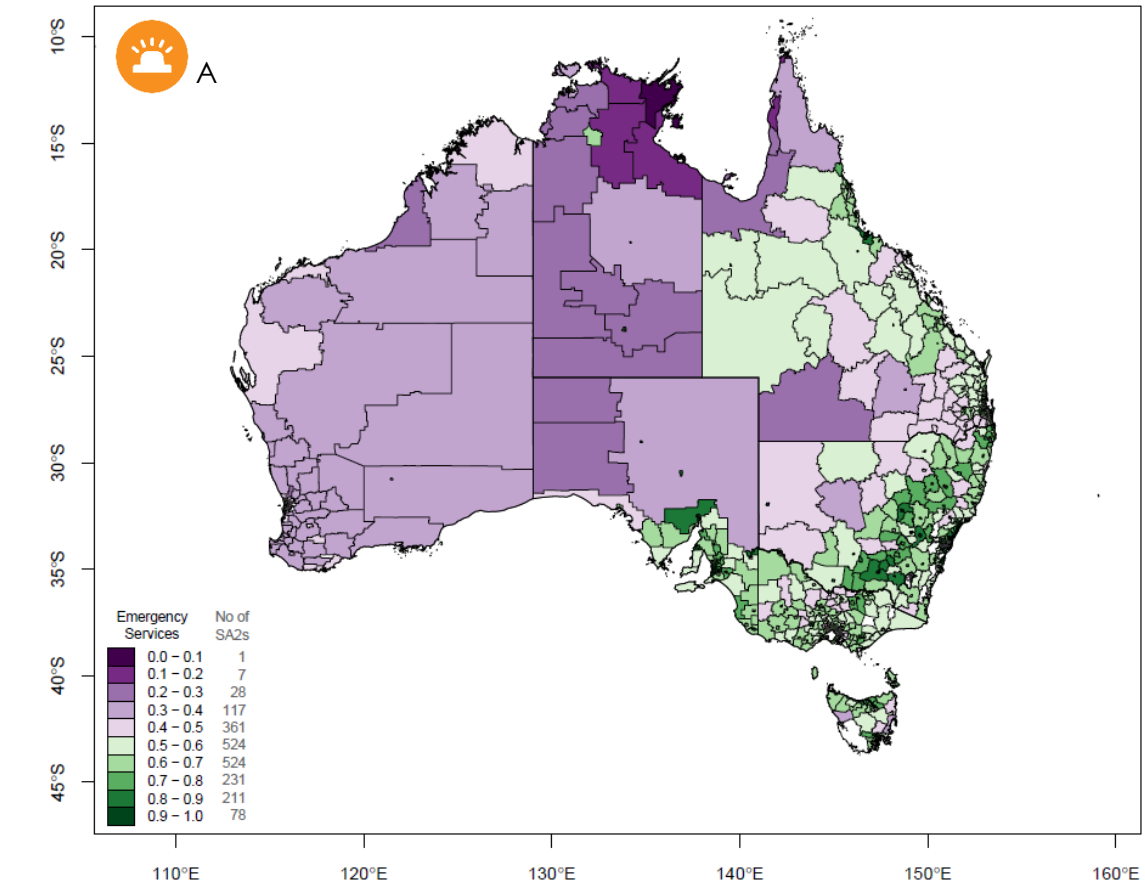
Figure 2.6: Distribution of economic capital sub-index values. A) Mapped economic capital sub-index values. The index ranges from 0 to 1, where 0 is lower capacity for disaster resilience and 1 is higher capacity for disaster resilience. B) Proportion of SA2s across the range of economic capital sub-index values. C) Proportion of SA2s in remoteness categories associated with low, moderate and high economic capital sub-index values.

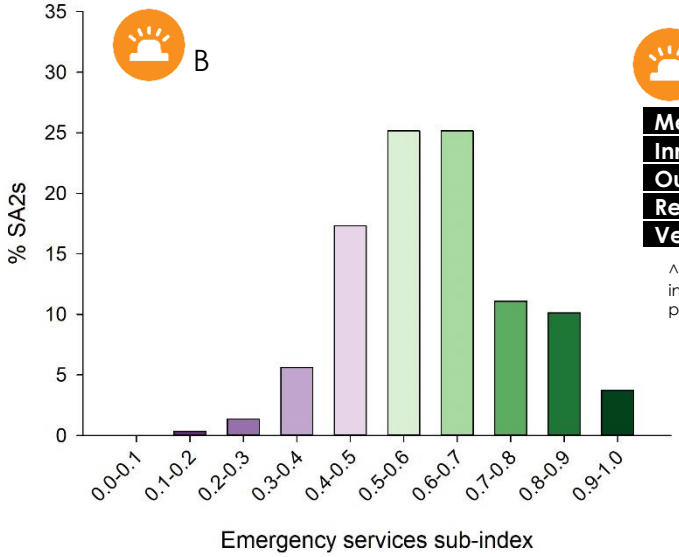
2.3.3 Emergency services generally enable the capacity for disaster resilience in Australia. The emergency services sub-index is usually moderate to high, although considerable variation can still be evident within and between regional and metropolitan areas.

Emergency services represent the presence, capability and resourcing of emergency services and the potential to respond to a natural hazard event (see Table 1.1). The emergency services theme sub-index is derived from indicators of the health and emergency services workforces, expenditure and geographic remoteness (see Table 1.2). Low emergency services corresponds to sub-index values in the <25th percentile, moderate emergency services corresponds to sub-index values in the 50th – 75th percentile and high emergency services corresponds to sub-index values in the >75th percentile (Figure 2.7).

Visually, there is a mixed distribution of emergency services throughout Australia (Figure 2.7a and b). Inner and outer regional areas have large proportions of SA2s with moderate to high emergency services, although this is principally in the eastern states (Figure 2.7a and b). Increasing remoteness tends to be associated with lower emergency services (Figure 2.7c). However, this varies between the eastern and western parts of Australia. Remote and very remote areas of the western states have lower emergency services while remote and very remote areas of the eastern states have moderate emergency services (Figure 2.7a). This suggests a bifurcated pattern in the way that emergency services enable disaster resilience.

Metropolitan areas also show variability in the distribution of emergency services (Figure 2.7a). Some metropolitan areas are comprised almost entirely of SA2s with higher emergency services while other areas can have lower emergency services. Thus, there is no consistent pattern in the emergency services across all metropolitan areas. On the whole, inner and outer regional areas compare reasonably well to the metropolitan areas in the emergency services theme, with all having the greatest proportion of SA2s assessed as having moderate to high sub-index values.





C

	Total SA2s	% SA2s^		
		Low	Mod	High
Metropolitan	1203	27	50	24
Inner regional	476	15	56	29
Outer regional	309	20	52	28
Remote	48	56	25	19
Very remote	48	81	17	2

^ Low = <25th percentile of the emergency services sub-index values. Moderate = 25th – 75th percentile. High = >75th percentile.

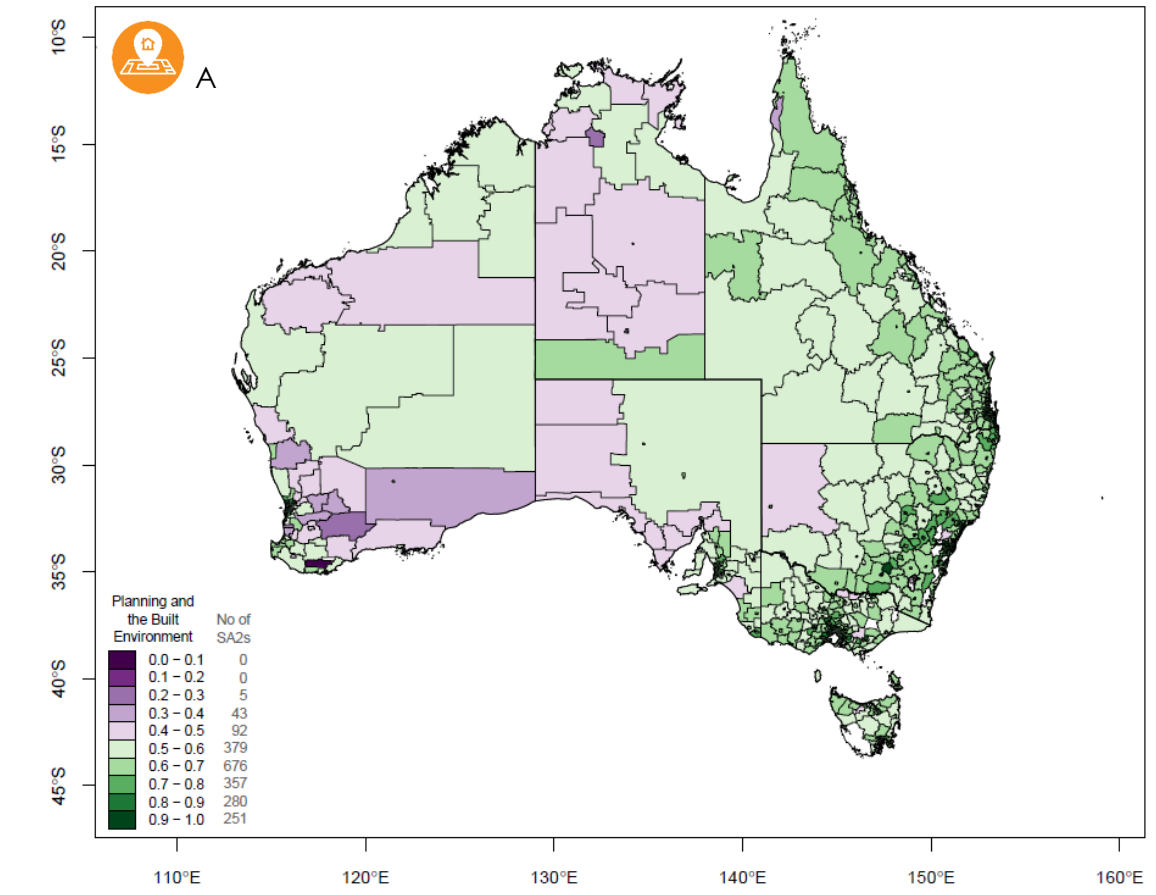
Figure 2.7: Distribution of emergency services sub-index values. A) Mapped emergency services sub-index values. The index ranges from 0 to 1, where 0 is lower capacity for disaster resilience and 1 is higher capacity for disaster resilience. B) Proportion of SA2s across the range of emergency services sub-index values. C) Proportion of SA2s in remoteness categories associated with low, moderate and high emergency services sub-index values.

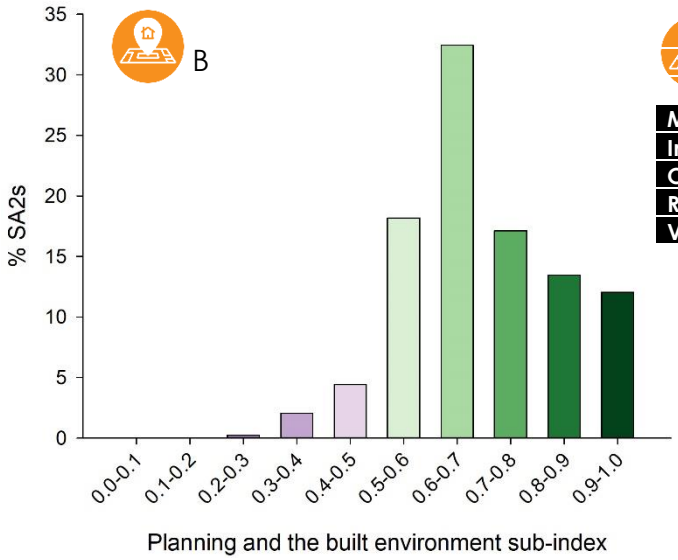
2.3.4 Planning and the built environment is not a significant barrier to the capacity for disaster resilience in Australia. The planning and the built environment sub-index is moderate to high in most areas of Australia, with the exception of some remote and very remote areas.

Planning and the built environment represents the preparation for natural hazard events using strategies of mitigation, planning or risk management (see Table 1.1). The planning and the built environment theme sub-index is derived from indicators of building age and type, emergency planning and urban and regional planning (see Table 1.2). Low planning and the built environment corresponds to sub-index values in the <25th percentile, moderate planning and the built environment corresponds to sub-index values in the 50th – 75th percentile and high planning and the built environment corresponds to sub-index values in the >75th percentile (Figure 2.8).

The planning and the built environment sub-index is generally above 0.5, leading to most SA2s being assessed as moderate or high (Figure 2.8). Moderate to high planning and the built environment tends to occur in metropolitan, inner regional and outer regional areas (Figure 2.8c). Metropolitan SA2s are often assessed as having high planning and the built environment, but some metropolitan SA2s have low sub-index values, potentially indicating a lack of integration or oversight in systems of planning for natural hazards.

Increasing remoteness tends to be associated with lower planning and the built environment (Figure 2.8c). However, this varies between the eastern and western parts of Australia. Remote and very remote areas of the western states have lower planning and the built environment while remote and very remote areas of the eastern states have moderate planning and the built environment (Figure 2.8a). Nonetheless, even remote and very remote SA2 index values are not close to 0, suggesting some attention to planning for natural hazards. Therefore, planning and the built environment predominantly enables the capacity for disaster resilience in Australia.





C

	Total SA2s	% SA2s^		
		Low	Mod	High
Metropolitan	1203	15	46	39
Inner regional	476	21	69	10
Outer regional	309	51	46	3
Remote	48	77	23	0
Very remote	48	94	6	0

^ Low = <25th percentile of the planning and the built environment sub-index values. Moderate = 25th – 75th percentile. High = >75th percentile.

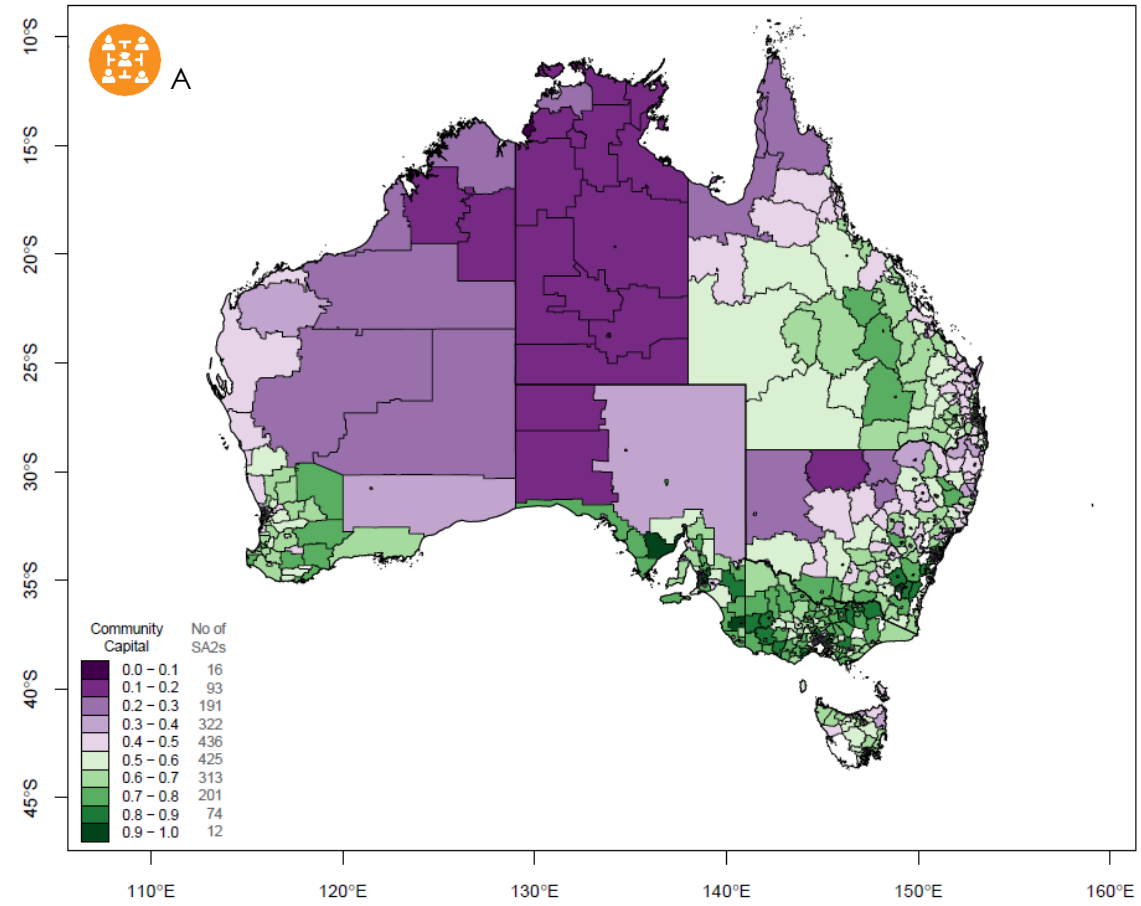
Figure 2.8: Distribution of planning and the built environment sub-index values. A) Mapped planning and the built environment sub-index values. The index ranges from 0 to 1, where 0 is lower capacity for disaster resilience and 1 is higher capacity for disaster resilience. B) Proportion of SA2s across the range of planning and the built environment sub-index values. C) Proportion of SA2s in remoteness categories associated with low, moderate and high planning and the built environment sub-index values.

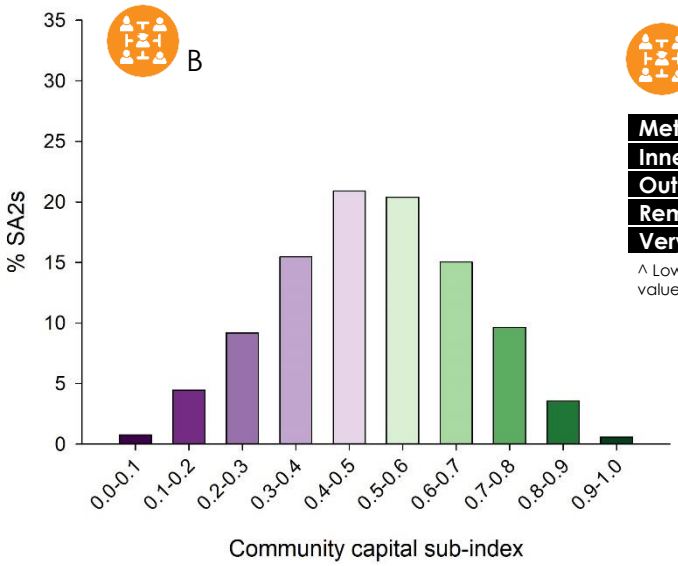
2.3.5 Australia has a mix of areas with higher and lower community capital. Higher community capital occurs in regional areas. In cities, areas of higher and lower community capital are often clustered.

Community capital represents the cohesion and connectedness of the community (see Table 1.1). The community capital theme sub-index is derived from indicators of crime and safety, access to services, household support, place attachment and wellbeing (see Table 1.2). Low community capital corresponds to sub-index values in the <25th percentile, moderate community capital corresponds to sub-index values in the 50th – 75th percentile and high community capital corresponds to sub-index values in the >75th percentile (Figure 2.9).

Visually, areas of moderate to high community capital are distributed through the eastern, southern, and southwestern periphery of Australia (Figure 2.9a). Most of the SA2s in inner regional and outer regional areas are associated with moderate to high community capital (Figure 2.9c). Remoteness increases the proportion of SA2s with low community capital (Figure 2.9c). Thus, the capacity for disaster resilience in inner and outer regional areas is enhanced by community capital.

While most metropolitan SA2s were assessed as having moderate community capital, metropolitan areas also exhibit polarisation in community capital (Figure 2.9c). Thirty percent of SA2s have low community capital and twenty-two percent have high community capital (Figure 2.9c). These areas of high and low community capital correspond to often quite distinct but adjacent metropolitan areas. Thus, the capacity for disaster resilience in metropolitan areas can be constrained or enhanced by community capital.





C

	Total SA2s	% SA2s^		
		Low	Mod	High
Metropolitan	1203	30	48	22
Inner regional	476	9	57	34
Outer regional	309	21	55	24
Remote	48	40	35	25
Very remote	48	69	23	8

^ Low = <25th percentile of the community capital sub-index values. Moderate = 25th – 75th percentile. High = >75th percentile.

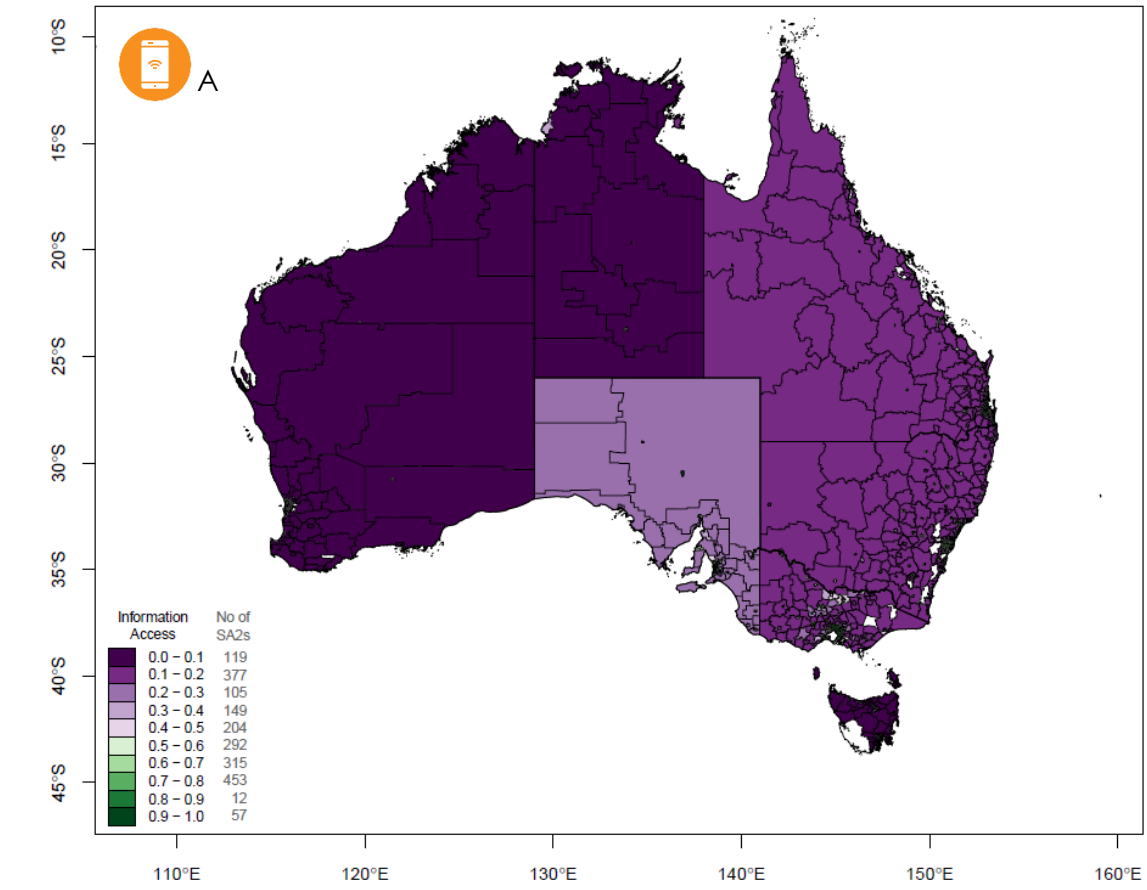
Figure 2.9: Distribution of community capital sub-index values. A) Mapped community capital sub-index values. The index ranges from 0 to 1, where 0 is lower capacity for disaster resilience and 1 is higher capacity for disaster resilience. B) Proportion of SA2s across the range of community capital sub-index values. C) Proportion of SA2s in remoteness categories associated with low, moderate and high community capital sub-index values.

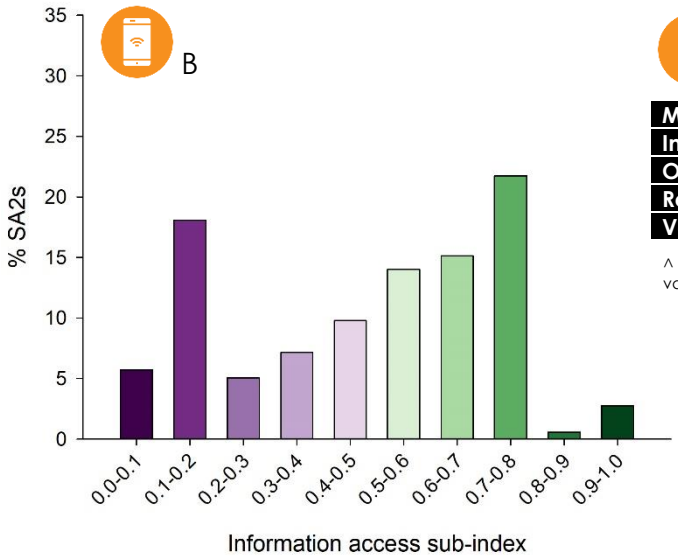
2.3.6 Information access is a significant barrier to the capacity for disaster resilience in Australia, particularly in regional and remote areas.

Information access represents the potential for communities to engage with natural hazard information (see Table 1.1). The information access theme sub-index is derived from indicators of internet and mobile phone coverage, and community engagement and hazard education (see Table 1.2). Low information access corresponds to sub-index values in the <25th percentile, moderate information access corresponds to sub-index values in the 50th – 75th percentile and high information access corresponds to sub-index values in the >75th percentile (Figure 2.10).

Visually, most of regional and remote Australia is associated with lower information access (Figure 2.10a). A large proportion of remote and very remote SA2s were assessed as having low information access (Figure 2.10c). Inner regional and outer regional areas also have a large proportion of SA2s assessed as having low information access but also some with moderate information access (Figure 2.10c). Very few regional or remote SA2s are associated with high information access (Figure 2.10c). Thus, information access is a substantial barrier to capacity for disaster resilience in regional and remote areas.

Information access is highest in metropolitan areas (Figure 2.10c). However there is some polarisation of information access in these areas. Urban fringe SA2s are more likely to have low information access. Further inside the metropolitan boundary, in more established suburbs, the pattern shifts to a majority of SA2s with moderate to high information access. Thus, capacity for disaster resilience is generally enhanced by information access in metropolitan areas, although there are some metropolitan areas of low information access similar to remote and regional areas.





C

	Total SA2s	% SA2s^		
		Low	Mod	High
Metropolitan	1203	4	57	38
Inner regional	476	49	45	6
Outer regional	309	53	37	10
Remote	48	69	29	2
Very remote	48	75	21	4

^ Low = <25th percentile of the information access sub-index values. Moderate = 25th – 75th percentile. High = >75th percentile.

Figure 2.10: Distribution of information access sub-index values. A) Mapped information access sub-index values. The index ranges from 0 to 1, where 0 is lower capacity for disaster resilience and 1 is higher capacity for disaster resilience. B) Proportion of SA2s across the range of information access sub-index values. C) Proportion of SA2s in remoteness categories associated with low, moderate and high information access sub-index values.

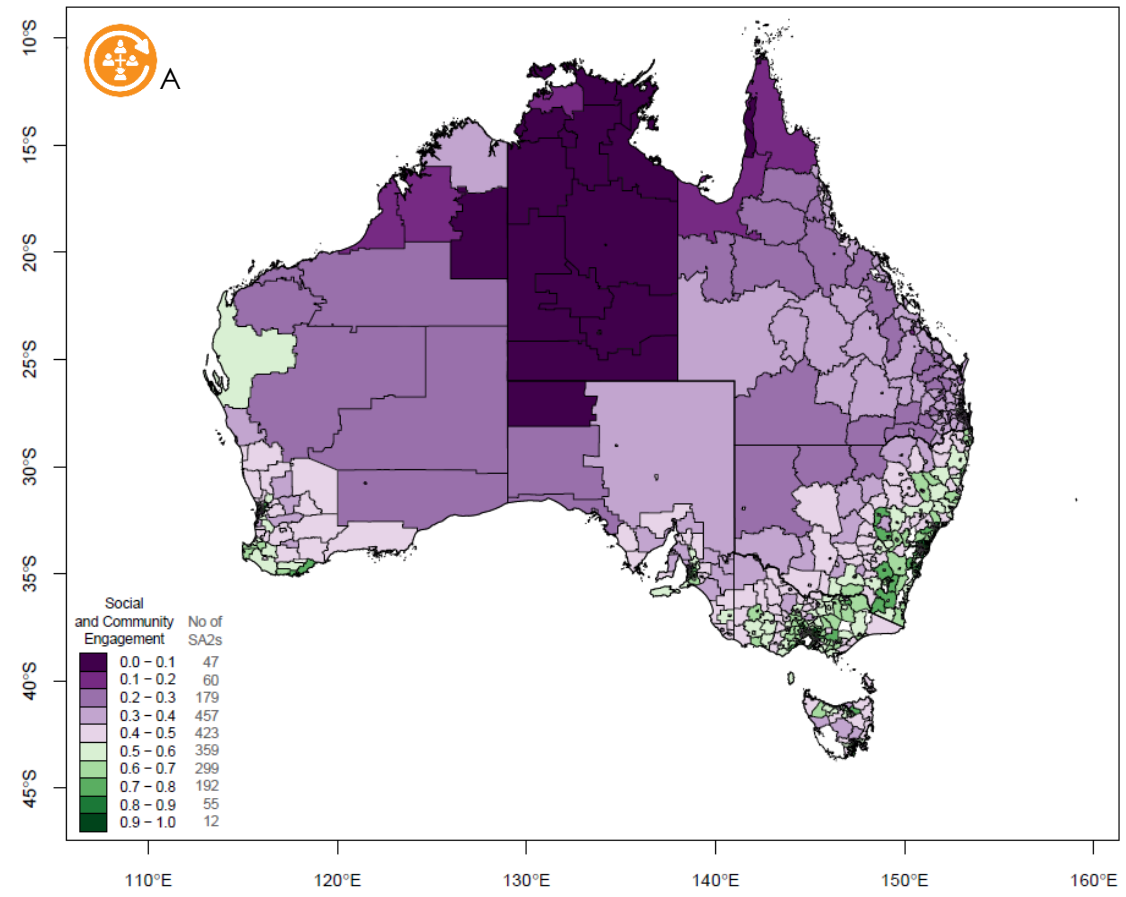
2.3.7 Many areas of Australia are associated with moderate social and community engagement. High social and community engagement is concentrated in metropolitan and inner regional areas and low social and community engagement is concentrated in remote and very remote areas.

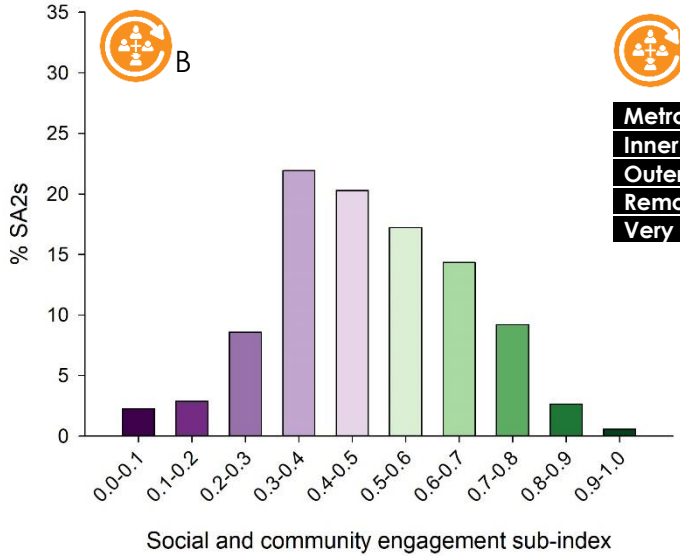
Social and community engagement represents the adaptive capacity within communities to learn and transform in the face of complex change (see Table 1.1). The social and community engagement sub-index is derived from indicators of skills for learning, social engagement and satisfaction (see Table 1.2). Low social and community engagement corresponds to sub-index values in the <25th percentile, moderate social and community engagement corresponds to sub-index values in the 50th – 75th percentile and high social and community engagement corresponds to sub-index values in the >75th percentile (Figure 2.11).

Visually, areas of moderate to high social and community engagement are concentrated in metropolitan and inner regional areas and around the south east of Australia (Figure 2.11a and c). Social and community engagement sub-index values decrease with increasing remoteness (Figure 2.11a).

Most metropolitan and inner regional SA2s were assessed as having moderate to high social and community engagement (Figure 2.11c). Thirty-two percent of metropolitan SA2s have high social and community engagement (Figure 2.11c). However, there are metropolitan and inner regional SA2s with low social and community engagement (Figure 2.11c). These tend to be clustered, suggesting that localised factors influence the distribution of social and community engagement in these areas.

Moderate social and community engagement is sustained in outer regional, remote and very remote SA2s (Figure 2.11c). However, remote and very remote SA2s also have high proportions of low social and community engagement, suggesting that in these areas, social and community engagement often presents a barrier to disaster resilience.





C

	Total SA2s	% SA2s^		
		Low	Mod	High
Metropolitan	1203	18	50	32
Inner regional	476	21	54	25
Outer regional	309	42	52	6
Remote	48	60	40	0
Very remote	48	88	13	0

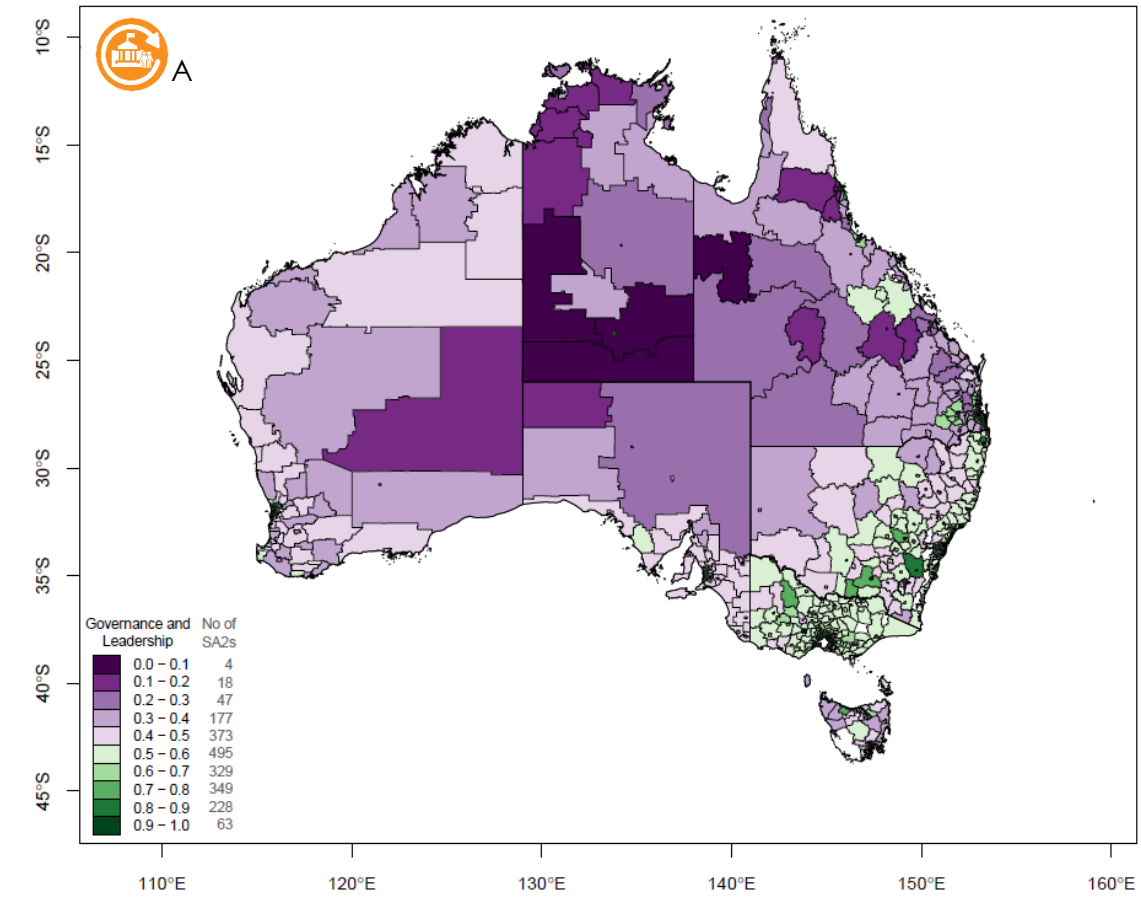
Figure 2.11: Distribution of social and community engagement sub-index values. A) Mapped social and community engagement sub-index values. The index ranges from 0 to 1, where 0 is lower capacity for disaster resilience and 1 is higher capacity for disaster resilience. B) Proportion of SA2s across the range of social and community engagement sub-index values. C) Proportion of SA2s in remoteness categories associated with low, moderate and high social and community engagement sub-index values.

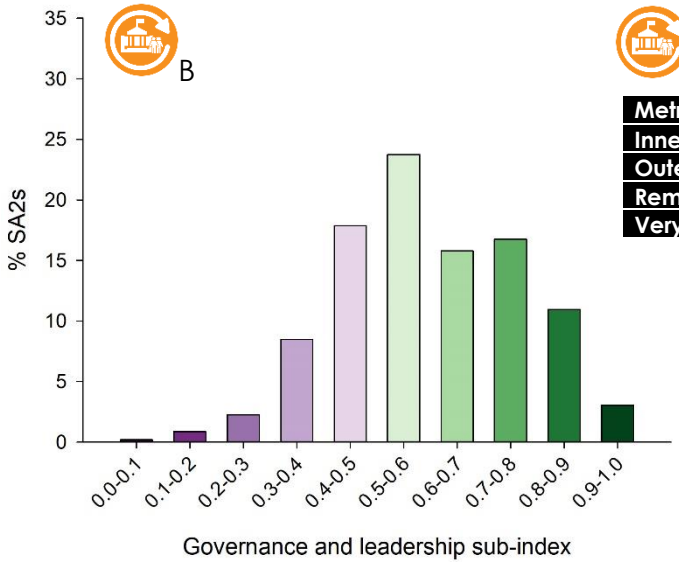
2.3.8 Moderate to high governance and leadership is concentrated in metropolitan and inner regional areas. Increasing remoteness decreases governance and leadership capacities.

Governance and leadership represents the adaptive capacity within organisations to adaptively learn, review and adjust policies or procedures, or to transform organisational practices (see Table 1.1). The governance and leadership sub-index is derived from indicators of regional research and development capacity and the emergency service governance environment (see Table 1.2). Low governance and leadership corresponds to sub-index values in the <25th percentile, moderate governance and leadership corresponds to sub-index values in the 50th – 75th percentile and high governance and leadership corresponds to sub-index values in the >75th percentile (Figure 2.12).

Visually, areas of moderate to high governance and leadership are concentrated in the south east of Australia (Figure 2.12a and c). High governance and leadership is concentrated in metropolitan areas (Figure 2.12c). Many metropolitan areas exhibit clusters of SA2s with high or moderate governance and leadership surrounded by lower governance and leadership.

Some outer regional SA2s have moderate governance and leadership sub-index values, but these are scattered in their distribution (Figure 2.12a). Increasing remoteness is associated with lower governance and leadership sub-index values and most of these areas were assessed as having low governance and leadership capacity (Figure 2.12a and c). Thus, governance and leadership can enhance or become a barrier to disaster resilience, depending on location.





C

	Total SA2s	% SA2s^		
		Low	Mod	High
Metropolitan	1203	11	51	37
Inner regional	476	33	61	6
Outer regional	309	47	52	0
Remote	48	75	25	0
Very remote	48	96	4	0

Figure 2.12: Distribution of governance and leadership sub-index values. A) Mapped governance and leadership sub-index values. The index ranges from 0 to 1, where 0 is lower capacity for disaster resilience and 1 is higher capacity for disaster resilience. B) Proportion of SA2s across the range of governance and leadership sub-index values. C) Proportion of SA2s in remoteness categories associated with low, moderate and high governance and leadership sub-index values.

2.3.9 Implications of the factors influencing disaster resilience in Australia

The particular combination of factors that influence capacity for disaster resilience differs from place to place. This generates a heterogeneous and complex picture of the factors associated with disaster resilience in Australia. For example, some areas have high social and community capital which enhances disaster resilience, but are limited by the provision and resourcing of government services such as emergency services, planning or information. In other areas, the provision and resourcing of government services is high but disaster resilience is constrained by entrenched social disadvantage. The combinations of factors contributing to the capacity for disaster resilience are discussed further in Chapter 4. Nonetheless, the heterogeneity and complexity revealed through the assessment of disaster resilience at a national scale suggests that activities such as policy development, community-engagement, community-planning and risk assessment should account for the way that different factors influence disaster resilience in different areas. Such community complexity is challenging to understand, measure and integrate, but resonates with the recognized need for communities to build disaster resilience in the face of ongoing and increasing hazard threats.

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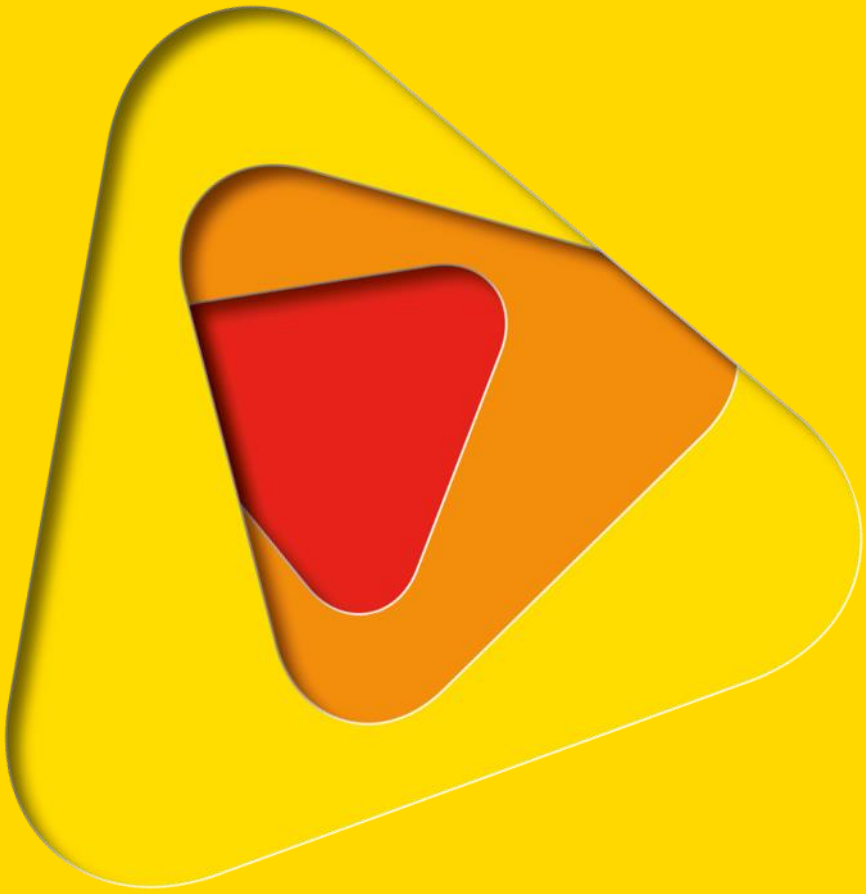
CHAPTER 3 – DISASTER RESILIENCE IN AUSTRALIA: COPING AND ADAPTIVE CAPACITY



3.1 INTRODUCTION

The second level of the disaster resilience assessment is made up of coping and adaptive capacity sub-indexes (Figure 1.2). The coping and adaptive capacity sub-indexes range from 0 to 1, with 0 being lower coping or adaptive capacity and 1 being higher coping or adaptive capacity. The 2084 SA2s were split into three band based on coping and adaptive capacity sub-index values: high coping or adaptive capacity (>75th percentile); moderate coping or adaptive capacity (25th – 75th percentile); and, low coping or adaptive capacity (<25th percentile). Each band has an associated narrative of capacity for disaster resilience (Table 3.1). Population, land area and remoteness characteristics of the component SA2s were tallied to estimate the proportions associated with the disaster resilience bands.

Table 3.1: Description of high, moderate and low coping and adaptive capacity bands.

Capacity	Class	Percentile	Description
Coping	Low	<25th percentile 0 – 0.3945	Communities in areas of low coping capacity may be constrained in their capacity to use available resources to cope with adverse events and to prepare for, absorb and recover from a natural hazard event.
	Moderate	25 – 75th percentile 0.3946 – 0.6311	Communities in areas of moderate coping capacity have some capacity to use available resources to cope with adverse events and to prepare for, absorb and recover from a natural hazard event.
	High	>75th percentile 0.6312 - 1	Communities in areas of high coping capacity have enhanced capacity to use available resources to cope with adverse events and to prepare for, absorb and recover from a natural hazard event.
Adaptive	Low	<25th percentile 0 – 0.4515	Communities in areas of low adaptive capacity may be constrained in their capacity to adjust to change through learning, adaptation and transformation.
	Moderate	25 – 75th percentile 0.4516 – 0.6656	Communities in areas of moderate adaptive capacity have some capacity to adjust to change through learning, adaptation and transformation.
	High	>75th percentile 0.6657 - 1	Communities in areas of high adaptive capacity have enhanced capacity to adjust to change through learning, adaptation and transformation.

3.2 INDEX RESULTS: COPING AND ADAPTIVE CAPACITY

Visually there is a general pattern of higher coping capacity along the eastern state coastal fringe, and around metropolitan and major regional centres (Figure 3.1). Higher adaptive capacity is concentrated into south eastern Australia and in metropolitan and major regional centres (Figure 3.2). Regional and remote areas, particularly those in Northern Australia, have lower coping and adaptive capacity (Figure 3.1 and Figure 3.2).

About 72% of Australia's population, or 17.2 million people, live in SA2s assessed as having a combination of moderate or high coping and adaptive capacity (Table 3.2). These SA2s comprise about 4.3% of Australia's land area (Table 3.2). About 11% of the population, or 2.6 million people, live in SA2s assessed as having low adaptive capacity but moderate or high coping capacity (Table 3.2). These SA2s comprise about 3.4% of Australia's land area (Table 3.2). Conversely, about 10% of the population, or 2.4 million people, live in SA2s assessed as having low coping capacity but moderate or high adaptive capacity (Table 3.2). These SA2s comprise about 6.7% of Australia's land area (Table 3.2). The remaining 9% of the population, or 1.6 million people, live in SA2s assessed as having low coping and adaptive capacity (Table 3.2). However, these SA2s comprise 85.7% of Australia's land area (Table 3.2).

These population and land area patterns of disaster resilience can be explained in large part by remoteness. Most of the population assessed as having high or moderate coping and adaptive capacity occurs in metropolitan (58%) or inner regional (12%) areas (Table 3.3). Populations located in some outer regional, remote and very remote areas have moderate or high coping capacity, but no remote or very remote areas are associated with high adaptive capacity (Table 3.3). All remoteness classes – metropolitan through to very remote – were associated with the combination of low coping and low adaptive capacity (Table 3.3).

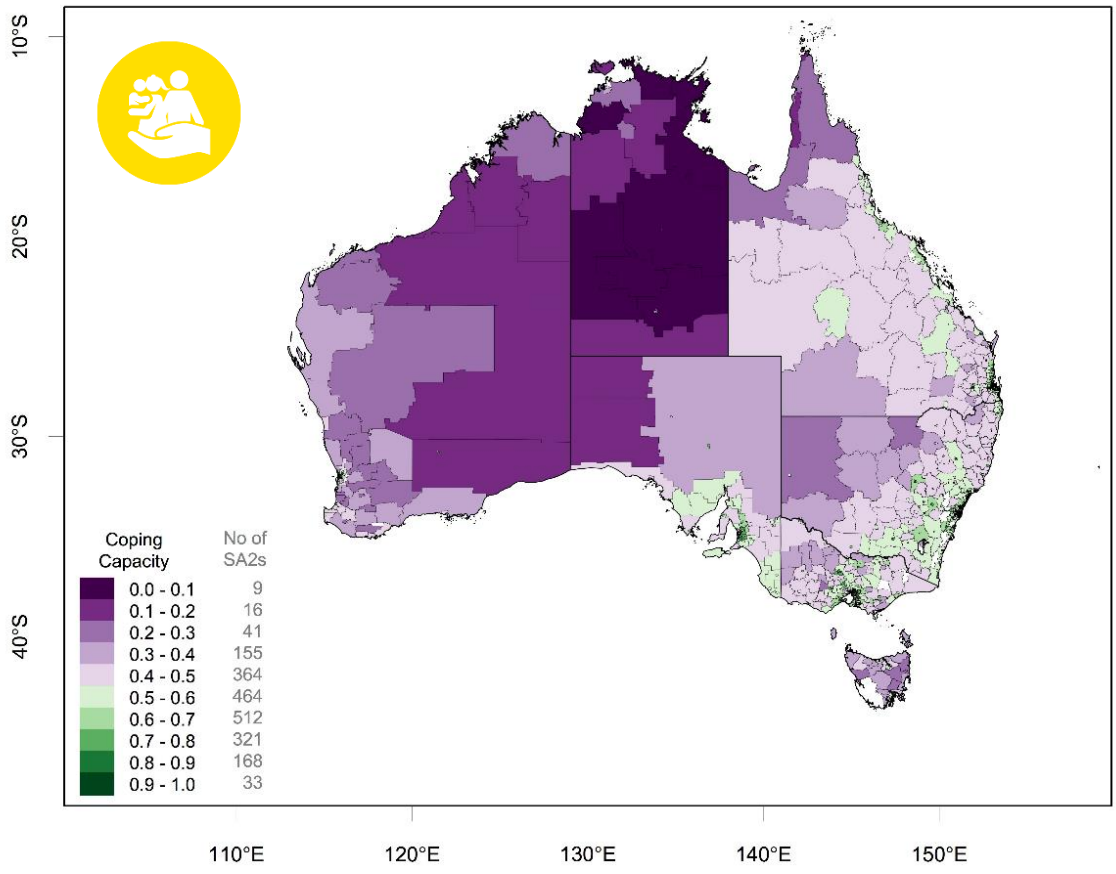


Figure 3.1: Coping capacity in Australia. The sub-index ranges from 0 to 1, where 0 is lower disaster resilience and 1 is higher disaster resilience. Maps of coping capacity at the resolution of State/Territory and major metropolitan areas are shown in Appendix C.

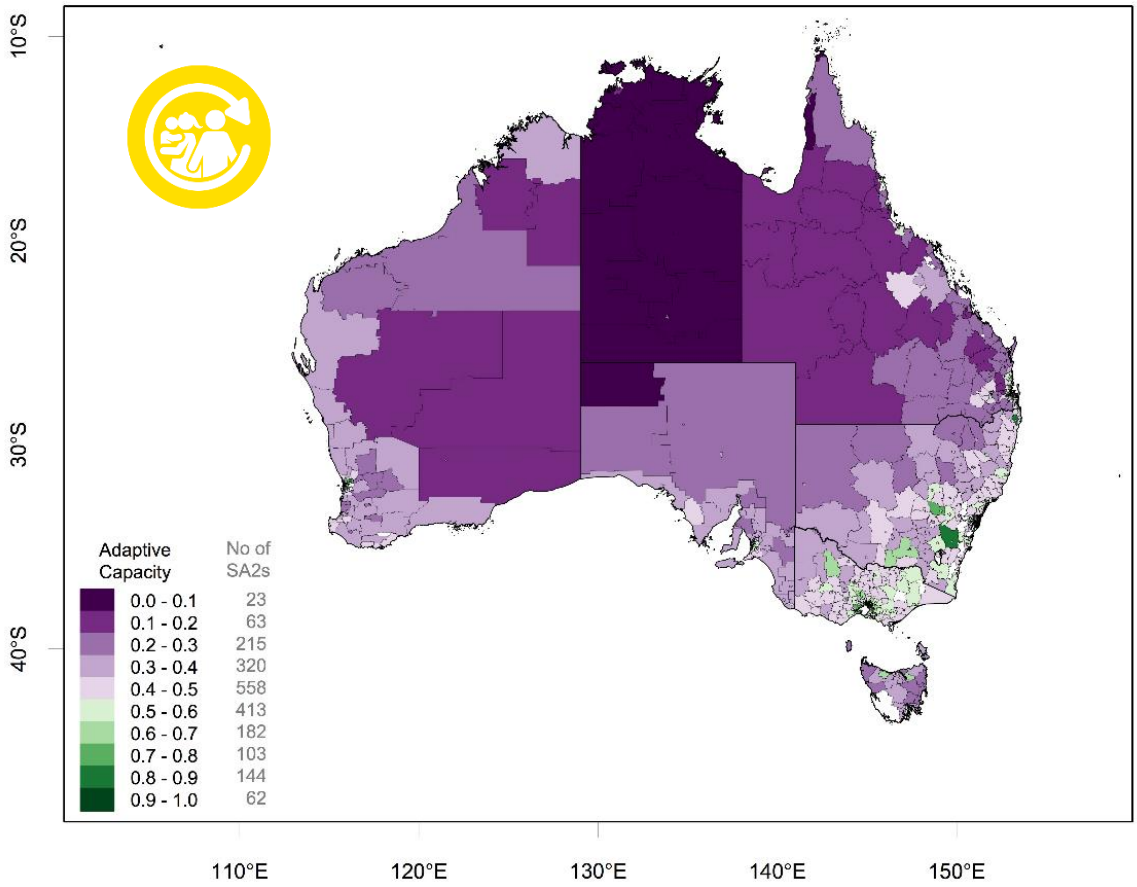


Figure 3.2: Adaptive capacity in Australia. The sub-index ranges from 0 to 1, where 0 is lower disaster resilience and 1 is higher disaster resilience. Maps of adaptive capacity at the resolution of State/Territory and major metropolitan areas are shown in Appendix C.

Table 3.2: Population and land area associated with low, moderate and high coping and adaptive capacity.

		COPING CAPACITY		
		Low **<25th percentile** **0 – 0.3945**	**Moderate** **25 – 75th percentile** **0.3946 – 0.6311**	**High** **>75th percentile** **0.6312 - 1**
ADAPTIVE CAPACITY	**Low** **<25th percentile** **0 – 0.4515**	**Population* #** 1,653,084 (6.9%) **Area^** 6,548,084 km² (85.7%)	**Population** 2,184,525 (9.2%) **Area** 258,247km² (3.4%)	**Population** 376,507 (1.6%) **Area** 1,027 km² (0.01%)
	Moderate **25 – 75th percentile** **0.4516 – 0.6656**	**Population** 1,863,726 (7.8%) **Area** 501,887 km² (6.6%)	**Population** 6,404,662 (26.9%) **Area** 256,254 km² (3.4%)	**Population** 3,194,350 (13.4%) **Area** 7,943 km² (0.1%)
	High **>75th percentile** **0.6657 - 1**	**Population** 530,303 (2.2%) **Area** 10,958 km² (0.1%)	**Population** 4,482,181 (18.8%) **Area** 55,577km² (0.7%)	**Population** 3,114,285 (13.1%) **Area** 4,786 km² (0.1%)

* Populations were computed using ABS Estimated Resident population as of 30th June 2015.
# All values exclude SA2s not used in the index. The total population in SA2s used in the index is 23,803,623 people. The total population in SA2s not used in the index is a further 12,372 people.
^ All values exclude SA2s not used in the index. The land area of SA2s used in the index is 7,644,763km². The land area of SA2s not used in the index is a further 43,047km².

Table 3.3: Remoteness associations with low, moderate and high coping and adaptive capacity. Figures are the population and percentage of total population in each remoteness category. Remoteness codes: M = metropolitan; IR = inner regional; OR = outer regional; R = remote; VR = very remote.

		COPING CAPACITY		
		Low **<25th percentile** **0 – 0.3945**	**Moderate** **25 – 75th percentile** **0.3946 – 0.6311**	**High** **>75th percentile** **0.6312 - 1**
ADAPTIVE CAPACITY	**Low** **<25th percentile** **0 – 0.4515**	M 390,383 (1.6%)* # IR 315, 827 (1.3%) OR 563,687 (2.4%) R 221,011 (0.9%) VR 162,176 (0.7%)	M 972,559 (4.1%) IR 594,447 (2.5%) OR 571,409 (2.4%) R 36,514 (0.2%) VR 9,596 (<0.1%)	M 195,117 (0.8%) IR 111,187 (0.5%) OR 65,868 (0.3%) R 4,335 (<0.1%) VR 0 (0%)
	Moderate **25 – 75th percentile** **0.4516 – 0.6656**	M 1,051,099 (4.4%) IR 510,717 (2.1%) OR 286,077 (1.2%) R 11,445 (<0.1%) VR 4,388 (<0.1%)	M 4,371,683 (18.4%) IR 1,587,353 (6.7%) OR 418,569 (1.7%) R 24,739 (0.1%) VR 2,318 (<0.1%)	M 2,509,662 (10.5%) IR 572,686 (2.4%) OR 112,002 (0.5%) R 0 (0%) VR 0 (0%)
	High **>75th percentile** **0.6657 - 1**	M 495,329 (2.1%) IR 17,652 (0.1%) OR 0 (0%) R 0 (0%) VR 0 (0%)	M 4,088,084 (17.2%) IR 363 793 (1.5%) OR 30 304 (0.2%) R 0 (0%) VR 0 (0%)	M 2,885,554 (12.1%) IR 228 731 (1.0%) OR 17,322 (0.1%) R 0 (0%) VR 0 (0%)

* Populations were computed using ABS Estimated Resident population as of 30th June 2015.
# All values exclude SA2s not used in the index. The total population in SA2s used in the index is 23,803,623 people. The total population in SA2s not used in the index is a further 12,372 people.

3.3 IMPLICATIONS OF THE DISTRIBUTION OF COPING AND ADAPTIVE CAPACITY IN AUSTRALIA

Assessment of disaster resilience requires consideration of the capacities within a system that influence a community's ability to absorb and persist in the presence of natural hazards and which enable learning, adjustment and transformation. The Australian Natural Disaster Resilience Index takes the view that coping and adaptation emerge from social processes that develop the capacities required to anticipate and withstand unpredictable and adverse events such as natural hazards (Parsons et al. 2016). Coping capacity captures the characteristics of a system that allow it to anticipate, act, achieve goals, and manage resources, or which are associated with absorptive capacity and mobilization when a natural hazard event occurs (Parsons et al. 2016). Adaptation is the decision making processes and actions undertaken to adjust to current or future predicted change. The capacities which enable adaptation are related to the existence of institutions and networks that learn and store knowledge and experience, create flexibility in problem solving and balance power among interest groups (Folke et al. 2002; Parsons et al. 2016).

About 72% of Australia's population, or 17.2 million people, live in SA2s assessed as having a combination of moderate or high coping and adaptive capacity. Communities with these combinations of coping and adaptive capacity are supported by social processes that develop the capacities to anticipate and withstand unpredictable and adverse events such as natural hazards and to adjust to current or future predicted change. As with the national scale assessment of disaster resilience, the areas of strong coping and adaptive capacity tend to occur in the most highly populated areas - metropolitan or inner regional areas. Thus, the systems generating coping and adaptive capacities are enhanced in these areas.

About 9% of the population, or 1.6 million people, live in SA2s assessed as having a combination of low coping and adaptive capacity. Areas with the combination of low coping and adaptive capacity face constraints on their ability to anticipate and withstand unpredictable and adverse events such as natural hazards and to adjust to current or future predicted change. These constraints may arise from the status of social, economic or government processes and the ways that these inhibit access to resources and opportunities or the ability for flexibility and agility.

Communities may also have a combination of strength in coping or adaptive capacity and constraint in the other. About 21% of the population, or 5 million people, live in SA2s with these combinations. The extent to which good coping capacity can compensate for inhibited adaptive capacity is not clear, because the characteristics make different contributions through the disaster management cycle. For example, adaptive capacity (at least the way we have defined it in this assessment) applies to changes and reforms that tend to be made outside crisis periods in response to an unpredictable future hazards,

although they may happen in response to a particular event. Coping capacity relates to the macro-system of factors that influence the capacity to prepare for, respond to and recover from hazard events. Thus, a strength in either capacity is advantageous.

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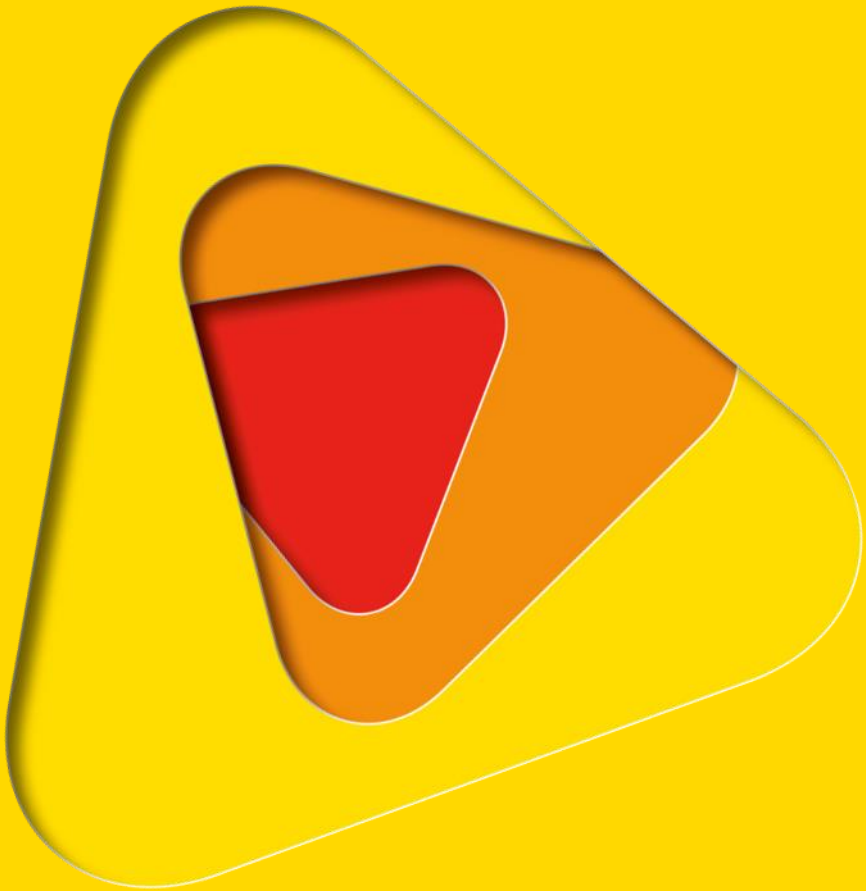
CHAPTER 4 – ENABLERS OF AND CONSTRAINTS ON DISASTER RESILIENCE: DISASTER RESILIENCE PROFILES IN AUSTRALIA



4.1 INTRODUCTION

The themes (Table 1.1) that influence disaster resilience in different locations in Australia are summarised using a typology. A typology identifies SA2s that have similar characteristic patterns of theme sub-index values, and places these SA2s together into groups (Figure 4.1). Thus, the SA2s within a group are similar to each other, but each group has a different disaster resilience profile. The profile associated with each group can then be used to understand disaster resilience in local communities and the strengths and opportunities for enhancing or improving disaster resilience.

4.1.1 The typology groups

Cluster analysis revealed five groups of SA2s, each with a different disaster resilience profile (Figure 4.1). High and low theme sub-index values were associated with each group (Figure 4.2). For example, Group 4 has high economic capital theme sub-index values while Group 3 has much lower economic capital theme sub-index values (Figure 4.2). Based on median values, each group could then be placed into a band of high, moderate or low disaster resilience (Table 4.1). For example, Group 4 falls into the high band for economic capital while Group 3 falls into the low band (Table 4.1). These bands have an associated narration (Table 4.2), forming the basis for interpreting the typology.

Groups also have characteristic associations with population, land area and remoteness classes (Figure 4.1) and with the overall Australian Natural Disaster Resilience Index values (Table 4.4). This highlights the coherence between the patterns appearing in the three hierarchical levels of index generation. For example, Group 4 has the largest population, is made up of mostly metropolitan and inner regional SA2s and covers a relatively small land area (Table 4.3). Group 4 also has the highest average Australian Natural Disaster Resilience Index values, and coping and adaptive capacity sub-index values (Table 4.4).

The disaster resilience profile of each typology group is discussed in detail in the following sections.

Maps of the typology groups are given in Appendix D.

The typology group for each SA2 assessed is shown in Appendix E.

Figure 4.1: Overall results of the cluster analysis to extract groups of SA2s with similar disaster resilience profiles. The five groups extracted from the cluster analysis are shown on the left. Associated with each group is a set of SA2s (thin lines) with a sub-index value for each theme. These are colour coded as purple (lower sub-index values) and green (higher sub-index values). On the right, the overall Australian Natural Disaster Resilience Index value for each SA2 is shown, ranging from 0 (lower disaster resilience) to 1 (higher disaster resilience). These are colour coded by remoteness, with brown being metropolitan and blue being remote and very remote SA2s.

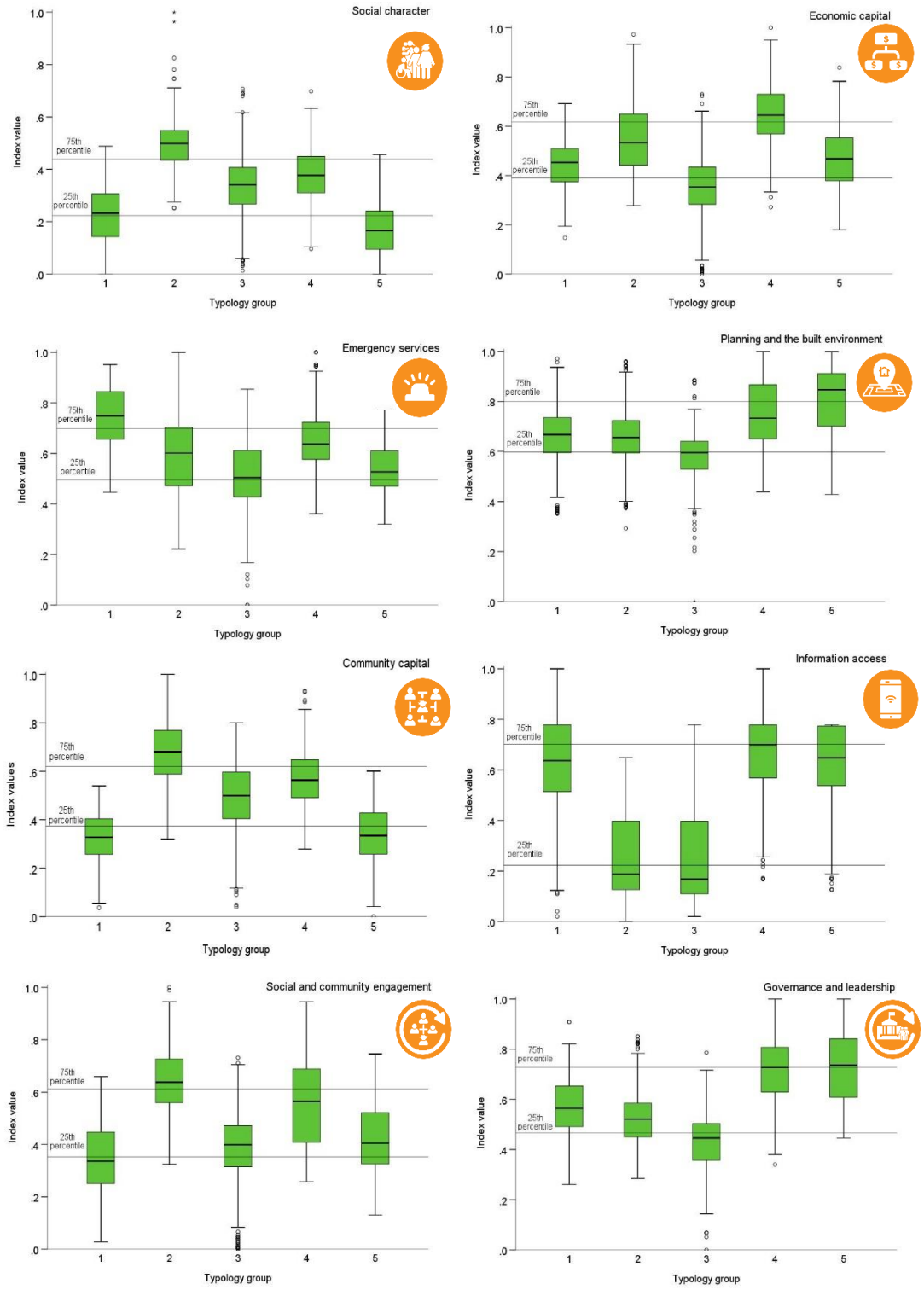


Figure 4.2: Index values for individual themes, arrayed by typology groups. The horizontal 75th and 25th percentile lines are for each theme overall, using all 2084 SA2 values. Box plots show the median, 25th – 75th percentile and the interquartile range for the SA2s within a typology group.

Table 4.1: Classification of typology groups into classes of high (H), moderate (M) and low (L) capacity for each disaster resilience theme. Low = median <25th percentile of overall theme index value, moderate = median in 50th – 75th percentile of overall theme index value, high = median >75th percentile of overall theme index value. Cases marked with * have a median that falls on or very close to the boundary between two classes. Boxplots showing the index values are presented in Figure 4.2.

Theme	Typology group				
	1	2	3	4	5
Social character	M*	H	M	M	L
Economic capital	M	M	L	H	M
Emergency services	H	M	L*	M	M
Planning and the built environment	M	M	L*	M	H
Community capital	L	H	M	M	L
Information access	M	L	L	H*	M
Social and community engagement	L	H	M	M	M
Governance and leadership	M	M	L	H*	H

Table 4.2: Description of high, medium and low classes applied to typology groups.

Theme	Class	Description
Social character 	**High**	These communities have social and demographic characteristics that should enhance the capacity to prepare for, respond to and recover from natural hazard events. In general, enhanced capacity comes from higher levels of education, employment and English language proficiency and a somewhat lower need for assistance.
	Moderate	These communities have some social and demographic characteristics that support the capacity to prepare for, respond to and recover from natural hazard events, but may also have some social and demographic characteristics that constrain this capacity. The combination of supporting and constraining social and demographic characteristics will vary across SA2s within the group, but it is likely that communities will have mid-range levels of education, employment and English language proficiency.
	Low	These communities have social and demographic characteristics that may constrain their capacity to prepare for, respond to and recover from natural hazard events. The circumstances limiting this capacity will vary, but it is likely that many of these communities will have lower levels of education, employment and English language proficiency. Further constraints on capacity may come from a higher need for assistance and a relatively higher proportion of the working population in occupations other than management and professional occupations.
Economic capital 	**High**	These communities have economic characteristics that should enhance the capacity to prepare for, respond to and recover from natural hazard events. The enhanced capacity of these communities arises through access by individuals and households to greater economic resources. This will occur where fewer households are paying rent, and income levels are higher. Enhanced capacity also derives from a diversified economy.
	Moderate	These communities have some economic characteristics that support the capacity to prepare for, respond to and recover from natural hazard events, but may also have some economic characteristics that constrain this capacity. The combination of supporting and constraining economic characteristics will vary across SA2s within the group, but it is likely that communities will have mid-range proportions of renters and mid-range income levels. Their economies are likely to be only moderately diversified.
	Low	These communities have economic characteristics that may constrain their capacity to prepare for, respond to and recover from natural hazard events. The circumstances limiting this capacity will vary, but it is likely that these communities will have relatively high proportions of rental households and low income households, resulting in a limited capacity to buffer external financial shocks. In many cases this will be exacerbated by an economy dominated by a single industry sector.

Table 4.2 (cont.)

Theme	Class	Description
Emergency services 	**High**	The presence, capability and resourcing of emergency services should enhance the capacity of these communities to respond to natural hazard events. While the combination of emergency services characteristics will vary across SA2s within the group, it is likely that most of these communities will have relatively high levels of emergency service volunteers, well-resourced ambulance services and good access to medical services.
	Moderate	Some characteristics of emergency services supports the capacity of these communities to respond to natural hazard events, while other emergency services characteristics may constrain this capacity. The combination of supporting and constraining emergency services characteristics will vary across SA2s within this group, but most communities are likely have high levels of emergency services volunteers and well-resourced ambulance organisations. Capacity to respond to natural hazard events may be constrained by poorer access to medical services.
	Low	These communities have emergency services characteristics that may constrain their capacity to respond to natural hazard events. Constraint largely arises because of remoteness, which limits the availability of emergency and other services. Due to other sources of disadvantage, these communities may have a greater presence of welfare support workers and police, but these positive aspects of response capacity are offset by their very limited access to medical services.
Planning and the built environment 	**High**	Planning systems and the character of the built environment should enhance the capacity of these communities to prepare for natural hazard events using strategies of mitigation, planning or risk management. While the combination of planning and built environment characteristics may vary across SA2s within the group, most of these communities are likely to have newer residential and commercial or industrial buildings, and high standards of emergency and other planning systems. Many of these communities will also be in well-resourced local government areas.
	Moderate	These communities have some planning system and built environment characteristics that support their capacity to prepare for, respond to and recover from natural hazard events using strategies of mitigation, planning or risk management. However, there may also be some planning system and built environment characteristics that constrain this capacity. The combination of supporting and constraining planning and the built environment characteristics will vary across SA2s in the group, but it is likely that many communities will have a significant proportion of older buildings. Others with fewer older buildings may be constrained instead by emergency and other planning systems that could be improved to a higher standard.
	Low	Planning systems and the character of the built environment may constrain the capacity of these communities to prepare for natural hazard events using strategies of mitigation, planning or risk management. While the characteristics constraining this capacity will vary across SA2s in the group, most communities are likely to have a predominance of older building stock and relatively more people residing in caravans or improvised dwellings.

Table 4.2 (cont.)

Theme	Class	Description
Community capital 	**High**	The cohesion and connectedness of these communities should enhance the capacity to coordinate and cooperate for mutual benefit, including preparing for, responding to and recovering from natural hazard events. These communities are likely to have low crime rates, and be safe, supportive and relatively well-off neighbourhoods with significant levels of community participation activity such as volunteering.
	Moderate	The cohesion and connectedness of these communities supports the capacity to coordinate and cooperate for mutual benefit, including preparing for, responding to and recovering from natural hazard events. However, there may be some community capital characteristics that constrain this capacity. The combination of supporting and constraining circumstances will vary across SA2s in the group, but capacity may be constrained by mid-range crime rates, slightly less supportive and well-off neighbourhoods and lower levels of volunteering.
	Low	The cohesion and connectedness of these communities may constrain the capacity to coordinate and cooperate for mutual benefit, including preparing for, responding to and recovering from natural hazard events. The circumstances constraining this capacity will vary across SA2s in the group but are likely to arise from a high incidence of crime, low community safety and other factors that limit social support and community participation. The level of volunteering activity is also likely to be low.
Information access 	**High**	These communities have enhanced capacity to engage with natural hazard information and to access knowledge associated with natural hazard preparation, self-reliance and response. Generally this enhanced capacity will be associated with good telecommunications access and, to a lesser extent, engagement in hazard education.
	Moderate	These communities have some capacity to engage with natural hazard information and to access knowledge associated with natural hazard preparation, self-reliance and response. There may be some constraints on capacity arising from less than universal telecommunications access.
	Low	These communities have constrained capacity to engage with natural hazard information and to access knowledge associated with natural hazard preparation, self-reliance and response. The main characteristic contributing to reduced capacity is limited telecommunications access.

Table 4.2 (cont.)

Theme	Class	Description
Social and community engagement 	**High**	These communities have enhanced capacity to adaptively learn and transform in response to complex change, including that associated with natural hazards. The enhanced capacity of these communities for learning and transformation may arise through high levels of past participation in education, high life satisfaction and a stable population.
	Moderate	These communities have some capacity to adaptively learn and transform in response to complex change, including that associated with natural hazards, but may also face some constraints on this capacity. While the characteristics supporting and constraining capacity will vary across SA2s in the group, but these communities can be expected to have mid-range levels of in and out migration, suggesting a slightly less stable population.
	Low	These communities have constrained capacity to adaptively learn and transform in response to complex change, including that associated with natural hazards. The characteristics constraining capacity will vary across SA2s in the group, but are most likely to arise from low levels of past and present participation in education. Some communities may also be constrained by high levels of population turnover.
Governance and leadership 	**High**	These communities are associated with a governance environment that should enhance the capacity of organisations to adaptively learn, transform and adjust to complex change, including that related to natural hazards. Enhanced capacity may be contributed by the presence of research organisations and innovative commercial firms, and an emergency services sector with a capacity for agility, flexibility and adaptation.
	Moderate	These communities are associated with a governance environment that supports the capacity of organisations to adaptively learn, transform and adjust to complex change, including that related to natural hazards. However, the governance environment may also face some constraints on this capacity, associated with the need for improvement in research presence, innovation or agency agility, flexibility and adaptation.
	Low	These communities are associated with a governance environment that may be limited by the capacity of organisations to adaptively learn, transform and adjust to complex change, including that related to natural hazards. The characteristics constraining capacity will vary across SA2s in the group, but it is likely that these communities do not have the benefit of research organisation presence and innovative commercial firms. Levels of local economic development support may also be limited.

Table 4.3: Population, land area and remoteness associated with typology groups. Percentages are the proportion of all SA2s in that remoteness category, and sum vertically.

	Typology group				
	Group 1	Group 2	Group 3	Group 4	Group 5
Population*#	3,567,512	3,266,777	3,156,814	7,474,525	6,337,995
% population	15.0	13.7	13.3	31.4	26.6
Land area (km^2)^	10,399	405,546	7,211,800	10,689	6,328
% land area^	0.1	5.3	94.3	0.1	0.1
Number of SA2s+	308	389	447	572	368
Metropolitan SA2s$	158 (13%)	125 (10%)	70 (6%)	495 (41%)	355 (30%)
Inner regional SA2s$	70 (15%)	204 (43%)	133 (28%)	59 (12%)	10 (2%)
Outer regional SA2s$	73 (24%)	55 (18%)	161 (52%)	17 (6%)	3 (1%)
Remote SA2s$	6 (13%)	4 (8%)	37 (77%)	1 (2%)	0 (0%)
Very remote SA2s$	1 (2%)	1 (2%)	46 (96%)	0 (0%)	0 (0%)

* Computed using ABS Estimated Resident population as of 30th June 2015.
# Excludes SA2s not used in the index. The population in SA2s used in the index is 23,803,623 people. The population in SA2s not used in the index is a further 12,372 people.
^ Excludes SA2s not used in the index. The land area of SA2s used in the index is 7,644,763km^2. The land area of SA2s not used in the index is a further 43,047km^2.
+ Excludes SA2s not used in the index. Of the 2214 SA2s in the ASGS 2011, 2084 were used in the index and 130 excluded.
$ ABS remoteness categories, ASGS 2011.

Table 4.4: Disaster resilience index, coping capacity and adaptive capacity index values associated with typology groups. SD = standard deviation and CV = coefficient of variation.

		Typology group				
		Group 1	Group 2	Group 3	Group 4	Group 5
Disaster resilience index	Mean	0.4787	0.5731	0.3717	0.7020	0.5731
	SD	0.1156	0.0976	0.1126	0.1057	0.0984
	CV	24%	17%	30%	15%	17%
	Median	0.4891	0.5635	0.3909	0.6903	0.5726
Coping capacity index	Mean	0.5023	0.4931	0.3410	0.6824	0.5014
	SD	0.1286	0.1223	0.1244	0.1215	0.1126
	CV	26%	25%	36%	18%	22%
	Median	0.5229	0.4868	0.3534	0.6806	0.5100
Adaptive capacity index	Mean	0.4458	0.6155	0.3930	0.6887	0.6095
	SD	0.1262	0.1120	0.1330	0.1546	0.1361
	CV	28%	18%	34%	22%	22%
	Median	0.4441	0.6082	0.4174	0.6632	0.5878

4.2 TYPOLOGY GROUP 1

The disaster resilience strengths associated with communities with the Typology Group 1 disaster resilience profile are emergency services, economic capital, planning and the built environment, information access and governance and leadership (Table 4.5). Thus, these communities are generally well- supported by government services that enhance disaster preparation, response and recovery, identify and mitigate risk and guide organisations through complex change.

Constraints to disaster resilience arise from community capital, social and community engagement and social character (Table 4.5). Thus, there are opportunities for building disaster resilience in these communities through improved attention to vulnerable groups, community cohesion and enhancing community capacity to adjust to complex change.

The SA2s with this disaster resilience profile are listed in Table 4.6. All States and Territories have SA2s with this disaster resilience profile, with the exception of the ACT. SA2s with this disaster resilience profile are located across a mix of areas: metropolitan, inner regional, outer regional and remote (Table 4.3). Maps of the typology groups are given in Appendix D.

Typology Group 1 corresponds to 0.1% of Australia's land area (Table 4.3). Approximately 15% of the population, or 3.6 million people, live in areas with this disaster resilience profile (Table 4.3). There are 308 SA2s across Australia with this disaster resilience profile (Table 4.3), or 15% of all 2,084 SA2s assessed.

Table 4.5: Overview of the disaster resilience profile of Typology Group 1.

Typology group	Group 1
Number of SA2s	308
Mean ANDRI value	0.4787
Approximate population and proportion of total	3.6 million 15%
Land area and proportion of total	10,399 km^2 0.1%
Location	SA2s in Typology Group 1 are located across a mix of areas: metropolitan, inner regional, outer regional and remote (Table 4.3). Table 4.6 lists the SA2s within typology Group 1.
Disaster resilience strengths 	**Emergency services (High)** The presence, capability and resourcing of emergency services should enhance the capacity of these communities to respond to natural hazard events. While the combination of emergency services characteristics will vary across SA2s within the group, it is likely that most of these communities will have relatively high levels of emergency service volunteers, well-resourced ambulance services and good access to medical services.
	Economic capital (Moderate) These communities have some economic characteristics that support the capacity to prepare for, respond to and recover from natural hazard events, but may also have some economic characteristics that constrain this capacity. The combination of supporting and constraining economic characteristics will vary across SA2s within the group, but it is likely that communities will have mid-range proportions of renters and mid-range income levels. Their economies are likely to be only moderately diversified
	Planning and the built environment (Moderate) These communities have some planning system and built environment characteristics that support their capacity to prepare for, respond to and recover from natural hazard events using strategies of mitigation, planning or risk management. However, there may also be some planning system and built environment characteristics that constrain this capacity. The combination of supporting and constraining planning and the built environment characteristics will vary across SA2s in the group, but it is likely that many communities will have a significant proportion of older buildings. Others with fewer older buildings may be constrained instead by emergency and other planning systems that could be improved to a higher standard.
	Information access (Moderate) These communities have some capacity to engage with natural hazard information and to access knowledge associated with natural hazard preparation, self-reliance and response. There may be some constraints on capacity arising from less than universal telecommunications access
	Governance and leadership (Moderate) These communities are associated with a governance environment that supports the capacity of organisations to adaptively learn, transform and adjust to complex change, including that related to natural hazards. However, the governance environment may also face some constraints on this capacity, associated with the need for improvement in research presence, innovation or agency agility, flexibility and adaptation.

Table 4.5 (cont.)

Barriers to disaster resilience 	**Community capital (Low)** The cohesion and connectedness of these communities may constrain the capacity to coordinate and cooperate for mutual benefit, including preparing for, responding to and recovering from natural hazard events. The circumstances constraining this capacity will vary across SA2s in the group but are likely to arise from a high incidence of crime, low community safety and other factors that limit social support and community participation. The level of volunteering activity is also likely to be low.
	Social and community engagement (Low) These communities have constrained capacity to adaptively learn and transform in response to complex change, including that associated with natural hazards. The characteristics constraining capacity will vary across SA2s in the group, but are most likely to arise from low levels of past and present participation in education. Some communities may also be constrained by high levels of population turnover.
	Social character (Low) These communities have social and demographic characteristics that may constrain their capacity to prepare for, respond to and recover from natural hazard events. The circumstances limiting this capacity will vary, but it is likely that many of these communities will have lower levels of education, employment and English language proficiency. Further constraints on capacity may come from a higher need for assistance and a relatively higher proportion of the working population in occupations other than management and professional occupations.

Table 4.6: List of SA2s in Typology Group 1. SA2s are arranged by State/Territory and then regions. SA2 names are based on ASGS (2011).

Goulburn	NSW	Wollongong	NSW	Junee	NSW
Karabar	NSW	Kempsey	NSW	Wagga Wagga - West	NSW
Queanbeyan	NSW	Nambucca Heads	NSW	Nowra	NSW
Queanbeyan - East	NSW	Taree	NSW	St Georges Basin - Erowal Bay	NSW
Gosford - Springfield	NSW	Albury - North	NSW	Blacktown (East) - Kings Park	NSW
Umina - Booker Bay - Patonga	NSW	Lavington	NSW	Blacktown (North) - Marayong	NSW
Woy Woy - Blackwall	NSW	Moree	NSW	Blacktown (South)	NSW
Wyoming	NSW	Gunnedah	NSW	Doonside - Woodcroft	NSW
Bateau Bay - Killarney Vale	NSW	Tamworth - West	NSW	Seven Hills - Toongabbie	NSW
Blue Haven - San Remo	NSW	Belmont South - Blacksmiths	NSW	Riverstone - Marsden Park	NSW
Budgewoi - Buff Point - Halekulani	NSW	Mount Hutton - Windale	NSW	Bidwill - Hebersham - Emerton	NSW
Gorokan - Kanwal - Charmhaven	NSW	Bolton Point - Teralba	NSW	Lethbridge Park - Tregear	NSW
Summerland Point - Gwandalan	NSW	Beresfield - Hexham	NSW	Mount Druitt - Whalan	NSW
The Entrance	NSW	Hamilton - Broadmeadow	NSW	Botany	NSW
Toukley - Norah Head	NSW	Mayfield - Warabrook	NSW	Mascot - Eastlakes	NSW
Tuggerah - Kangy Angy	NSW	Newcastle - Cooks Hill	NSW	Pagewood - Hillsdale - Daceyville	NSW
Warnervale - Wadalba	NSW	Shortland - Jesmond	NSW	Bass Hill - Georges Hall	NSW
Wyong	NSW	Stockton - Fullerton Cove	NSW	Rockdale - Banksia	NSW
Broken Hill	NSW	Waratah - North Lambton	NSW	Bradbury - Wedderburn	NSW
Dubbo - East	NSW	Wickham - Carrington - Tighes Hill	NSW	Campbelltown - Woodbine	NSW
Dubbo - West	NSW	Ballina	NSW	Claymore - Eagle Vale - Raby	NSW
Cessnock	NSW	Brunswick Heads - Ocean Shores	NSW	Ingleburn - Denham Court	NSW
Maitland	NSW	Byron Bay	NSW	Leumeah - Minto Heights	NSW
Berkeley - Warrawong - Windang	NSW	Evans Head	NSW	Macquarie Fields - Glenfield	NSW
Albion Park Rail	NSW	Casino	NSW	Minto - St Andrews	NSW
Shellharbour - Flinders	NSW	Lismore	NSW	Rosemeadow - Glen Alpine	NSW
Shellharbour - Oak Flats	NSW	Kingscliff - Fingal Head	NSW	Kingswood - Werrington	NSW
Warilla	NSW	Murwillumbah	NSW	Penrith	NSW
Corrimal - Tarrawanna - Bellambi	NSW	Tweed Heads	NSW	Yarramundi - Londonderry	NSW

Table 4.6 (cont.) Group 1

St Marys - Colyton	NSW	Yorkeys Knob - Machans Beach	QLD	North Mackay	QLD
Maryborough (Vic.)	VIC	Cairns City	QLD	Caboolture	QLD
Bendigo	VIC	Manoora	QLD	Morayfield - East	QLD
California Gully - Eaglehawk	VIC	Manunda	QLD	Margate - Woody Point	QLD
Morwell	VIC	Westcourt - Bungalow	QLD	Redcliffe	QLD
Brunswick	VIC	White Rock	QLD	Caloundra - Kings Beach	QLD
Brunswick East	VIC	Woree	QLD	Maroochydore - Kuluin	QLD
Brunswick West	VIC	Innisfail	QLD	Noosaville	QLD
Coburg	VIC	Gladstone	QLD	Tewantin	QLD
Ascot Vale	VIC	West Gladstone	QLD	Darling Heights	QLD
Prahran - Windsor	VIC	Berserker	QLD	Drayton - Harristown	QLD
South Yarra - East	VIC	Gracemere	QLD	Gatton	QLD
Bundoora - West	VIC	Lakes Creek	QLD	Newtown (Qld)	QLD
Lalor	VIC	Park Avenue	QLD	North Toowoomba - Harlaxton	QLD
Thomastown	VIC	Parkhurst - Kawana	QLD	Ingham	QLD
Coburg North	VIC	Rockhampton City	QLD	Aitkenvale	QLD
Fawkner	VIC	The Range - Allenstown	QLD	Condon - Rasmussen	QLD
Glenroy - Hadfield	VIC	Coolangatta	QLD	Deeragun	QLD
Broadmeadows	VIC	Durack	QLD	Garbutt - West End	QLD
Campbellfield - Coolaroo	VIC	Inala - Richlands	QLD	Gulliver - Currajong - Vincent	QLD
Footscray	VIC	Wacol	QLD	Heatley	QLD
Maribyrnong	VIC	Brassall	QLD	Hermit Park - Rosslea	QLD
Seddon - Kingsville	VIC	Bundamba	QLD	Hyde Park - Pimlico	QLD
West Footscray - Tottenham	VIC	Ipswich - Central	QLD	Kirwan - East	QLD
Yarraville	VIC	Ipswich - East	QLD	Magnetic Island	QLD
Frankston	VIC	Leichhardt - One Mile	QLD	Oonoonba	QLD
Frankston North	VIC	North Ipswich - Tivoli	QLD	South Townsville - Railway Estate	QLD
Rosebud - McCrae	VIC	Riverview	QLD	Townsville City - North Ward	QLD
Mildura	VIC	Logan Central	QLD	Wulguru - Roseneath	QLD
Brisbane City	QLD	Mackay	QLD	Ashfield - Kepnock	QLD

Table 4.6 (cont.) Group 1

Bundaberg	QLD	Para Hills	SA	Richmond (SA)	SA
Bundaberg East - Kalkie	QLD	Parafield Gardens	SA	Port Pirie	SA
Bundaberg North - Gooburrum	QLD	Paralowie	SA	Kadina	SA
Millbank - Avoca	QLD	Pooraka	SA	Moonta	SA
Svensson Heights - Norville	QLD	Salisbury	SA	Wallaroo	SA
Walkervale - Avenell Heights	QLD	Salisbury East	SA	Port Lincoln	SA
Gympie - North	QLD	Salisbury North	SA	Whyalla	SA
Pialba - Eli Waters	QLD	Hope Valley - Modbury	SA	Coober Pedy	SA
Point Vernon	QLD	Edwardstown	SA	Port Augusta	SA
Torquay - Scarness - Kawungan	QLD	Mitchell Park	SA	Mount Gambier	SA
Urangan - Wondunna	QLD	Morphettville	SA	Berri	SA
Maryborough (Qld)	QLD	Warradale	SA	Murray Bridge	SA
Adelaide	SA	Aldinga	SA	Renmark	SA
North Adelaide	SA	Christie Downs	SA	Calista	WA
Paradise - Newton	SA	Christies Beach	SA	Rokeby	TAS
Rostrevor - Magill	SA	Hackham West - Huntfield Heights	SA	Berriedale - Chigwell	TAS
Norwood (SA)	SA	Morphett Vale - East	SA	Claremont (Tas.)	TAS
Payneham - Felixstow	SA	Morphett Vale - West	SA	Derwent Park - Lutana	TAS
Gawler - South	SA	Seaford (SA)	SA	Glenorchy	TAS
Craigmore - Blakeview	SA	Beverley	SA	Moonah	TAS
Davoren Park	SA	Flinders Park	SA	West Moonah	TAS
Elizabeth	SA	Hindmarsh - Brompton	SA	Invermay	TAS
Elizabeth East	SA	Royal Park - Hendon - Albert Park	SA	Kings Meadows - Punchbowl	TAS
Munno Para West - Angle Vale	SA	Seaton - Grange	SA	Mowbray	TAS
Smithfield - Elizabeth North	SA	Woodville - Cheltenham	SA	Newnham - Mayfield	TAS
Virginia - Waterloo Corner	SA	Largs Bay - Semaphore	SA	Ravenswood	TAS
Enfield - Blair Athol	SA	North Haven	SA	South Launceston	TAS
Northgate - Oakden - Gilles Plains	SA	Port Adelaide	SA	Waverley - St Leonards	TAS
Windsor Gardens	SA	The Parks	SA	Acton - Upper Burnie	TAS
Ingle Farm	SA	Plympton	SA	Burnie - Wivenhoe	TAS

Table 4.6 (cont.) Group 1

Parklands - Camdale	TAS	Durack - Marlow Lagoon	NT
Romaine - Havenview	TAS	Gray	NT
Devonport	TAS	Moulden	NT
East Devonport	TAS	Palmerston - North	NT
Darwin City	NT	Rosebery - Bellamack	NT
Fannie Bay - The Gardens	NT	Woodroffe	NT
Larrakeyah	NT	Charles	NT
Ludmilla - The Narrows	NT	Flynn (NT)	NT
Parap	NT	Larapinta	NT
Stuart Park	NT	Mount Johns	NT
Alawa	NT	Ross	NT
Anula	NT		
Berrimah	NT		
Brinkin - Nakara	NT		
Coconut Grove	NT		
Jingili	NT		
Karama	NT		
Leanyer	NT		
Lyons (NT)	NT		
Malak - Marrara	NT		
Millner	NT		
Moil	NT		
Nightcliff	NT		
Rapid Creek	NT		
Tiwi	NT		
Wagaman	NT		
Wanguri	NT		
Wulagi	NT		
Bakewell	NT		
Driver	NT		

4.3 TYPOLOGY GROUP 2

The disaster resilience strengths associated with communities with the Typology Group 2 disaster resilience profile are social character, community capital, social and community engagement, economic capital, planning and the built environment, emergency services and governance and leadership (Table 4.7). Thus, the disaster resilience of these communities is contributed by social cohesion, economic resources, well-resourced government services that enhance disaster preparation, response and recovery, identify and mitigate risk and guide organisations through complex change.

Constraints to disaster resilience arise from information access (Table 4.7). Thus there are opportunities for building resilience through improving access to telecommunications and increasing the engagement of communities with natural hazard information before, during and after natural hazard events.

The SA2s with this disaster resilience profile are listed in Table 4.8. All States and Territories have SA2s with this disaster resilience profile, with the exception of the NT. SA2s with this disaster resilience profile are predominantly inner regional, but also contain a moderate proportion of outer regional and metropolitan SA2s (Table 4.3). Maps of the typology groups are given in Appendix D.

Typology Group 2 corresponds to 5.3% of Australia's land area (Table 4.3). Approximately 14% of the population, or 3.3 million people, live in areas with this disaster resilience profile (Table 4.3). There are 389 SA2s across Australia with this disaster resilience profile (Table 4.3), or 19% of all 2,084 SA2s assessed.

Table 4.7: Overview of the disaster resilience profile of Typology Group 2.

Typology group	Group 2
Number of SA2s	389
Mean ANDRI value	0.5731
Approximate population and proportion of total	3.3 million 14%
Land area and proportion of total	405,546 km^2 5.3%
Location	SA2s in Typology Group 2 are predominantly inner regional, but also contain a moderate proportion of outer regional and metropolitan SA2s (Table 4.3). Table 4.8 lists the SA2s within Typology Group 2.
Disaster resilience strengths 	**Social character (High)** These communities have social and demographic characteristics that should enhance the capacity to prepare for, respond to and recover from natural hazard events. In general, enhanced capacity comes from higher levels of education, employment and English language proficiency and a somewhat lower need for assistance.
	Community capital (High) The cohesion and connectedness of these communities should enhance the capacity to coordinate and cooperate for mutual benefit, including preparing for, responding to and recovering from natural hazard events. These communities are likely to have low crime rates, and be safe, supportive and relatively well-off neighbourhoods with significant levels of community participation activity such as volunteering.
	Social and community engagement (High) These communities have enhanced capacity to adaptively learn and transform in response to complex change, including that associated with natural hazards. The enhanced capacity of these communities for learning and transformation may arise through high levels of past participation in education, high life satisfaction and a stable population.
	Economic capital (Moderate) These communities have some economic characteristics that support the capacity to prepare for, respond to and recover from natural hazard events, but may also have some economic characteristics that constrain this capacity. The combination of supporting and constraining economic characteristics will vary across SA2s within the group, but it is likely that communities will have mid-range proportions of renters and mid-range income levels. Their economies are likely to be only moderately diversified.
	Planning and the built environment (Moderate) These communities have some planning system and built environment characteristics that support their capacity to prepare for, respond to and recover from natural hazard events using strategies of mitigation, planning or risk management. However, there may also be some planning system and built environment characteristics that constrain this capacity. The combination of supporting and constraining planning and the built environment characteristics will vary across SA2s in the group, but it is likely that many communities will have a significant proportion of older buildings. Others with fewer older buildings may be constrained instead by emergency and other planning systems that could be improved to a higher standard.

Table 4.7 (cont.)

Disaster resilience strengths (cont.)	**Emergency services (Moderate)** Some characteristics of emergency services supports the capacity of these communities to respond to natural hazard events, while other emergency services characteristics may constrain this capacity. The combination of supporting and constraining emergency services characteristics will vary across SA2s within this group, but most communities are likely have high levels of emergency services volunteers and well resourced ambulance organisations. Capacity to respond to natural hazard events may be constrained by poorer access to medical services.
	Governance and leadership (Moderate) These communities are associated with a governance environment that supports the capacity of organisations to adaptively learn, transform and adjust to complex change, including that related to natural hazards. However, the governance environment may also face some constraints on this capacity, associated with the need for improvement in research presence, innovation or agency agility, flexibility and adaptation.
Barriers to disaster resilience 	**Information access (Low)** These communities have constrained capacity to engage with natural hazard information and to access knowledge associated with natural hazard preparation, self-reliance and response. The main characteristic contributing to reduced capacity is limited telecommunications access.

Table 4.8: List of SA2s in Typology Group 2. SA2s are arranged by State/Territory and then regions. SA2 names are based on ASGS (2011).

Goulburn Region	NSW	Dungog	NSW	Armidale Region - South	NSW
Yass	NSW	Singleton Region	NSW	Walcha	NSW
Yass Region	NSW	Maitland - North	NSW	Tamworth Region	NSW
Braidwood	NSW	Maitland - West	NSW	Morisset - Cooranbong	NSW
Queanbeyan Region	NSW	Anna Bay	NSW	West Wallsend - Barnsley - Killingworth	NSW
Cooma	NSW	Nelson Bay Peninsula	NSW	Ballina Region	NSW
Cooma Region	NSW	Seaham - Woodville	NSW	Bangalow	NSW
Jindabyne - Berridale	NSW	Williamtown - Medowie - Karuah	NSW	Lennox Head - Skennars Head	NSW
Bega - Tathra	NSW	Muswellbrook Region	NSW	Lismore Region	NSW
Bega-Eden Hinterland	NSW	Scone	NSW	Murwillumbah Region	NSW
Eurobodalla Hinterland	NSW	Scone Region	NSW	Pottsville	NSW
Merimbula - Tura Beach	NSW	Dapto - Avondale	NSW	Tumut Region	NSW
Moruya - Tuross Head	NSW	Horsley - Kembla Grange	NSW	Cootamundra	NSW
Avoca Beach - Copacabana	NSW	Albion Park - Macquarie Pass	NSW	Wagga Wagga Region	NSW
Box Head - MacMasters Beach	NSW	Kiama	NSW	Berry - Kangaroo Valley	NSW
Calga - Kulnura	NSW	Kiama Downs - Minnamurra	NSW	North Nowra - Bomaderry	NSW
Jilliby - Yarramalong	NSW	Kiama Hinterland - Gerringong	NSW	Tomerong - Wandandian - Woollamia	NSW
Ourimbah - Fountaindale	NSW	Helensburgh	NSW	Ulladulla Region	NSW
Bathurst Region	NSW	Thirroul - Austinmer - Coalcliff	NSW	Bowral	NSW
Lithgow Region	NSW	Laurieton - Bonny Hills	NSW	Hill Top - Colo Vale	NSW
Mudgee Region - West	NSW	Port Macquarie Region	NSW	Mittagong	NSW
Blayney	NSW	Wauchope	NSW	Moss Vale - Berrima	NSW
Orange - North	NSW	Albury - East	NSW	Robertson - Fitzroy Falls	NSW
Orange Region	NSW	Albury - South	NSW	Southern Highlands	NSW
Coramba - Nana Glen - Bucca	NSW	Albury Region	NSW	Kellyville	NSW
Korora - Emerald Beach	NSW	Corowa Region	NSW	Dural - Kenthurst - Wisemans Ferry	NSW
Sawtell - Boambee	NSW	Moama	NSW	Galston - Laughtondale	NSW
Dubbo Region	NSW	Tocumwal - Finley - Jerilderie	NSW	Bilpin - Colo - St Albans	NSW
Branxton - Greta - Pokolbin	NSW	Armidale	NSW	Kurrajong Heights - Ebenezer	NSW
Cessnock Region	NSW	Armidale Region - North	NSW	Pitt Town - McGraths Hill	NSW

Table 4.8 (cont.) Group 2

Lane Cove - Greenwich	NSW	Gordon (Vic.)	VIC	Chiltern - Indigo Valley	VIC
Asquith - Mount Colah	NSW	Golden Plains - North	VIC	Towong	VIC
Berowra - Brooklyn - Cowan	NSW	Maiden Gully	VIC	West Wodonga	VIC
Normanhurst - Thornleigh - Westleigh	NSW	White Hills - Ascot	VIC	Wodonga	VIC
St Ives	NSW	Bendigo Region - South	VIC	Yackandandah	VIC
Turramurra	NSW	Castlemaine	VIC	Drouin	VIC
Mosman	NSW	Castlemaine Region	VIC	Mount Baw Baw Region	VIC
Balgowlah - Clontarf - Seaforth	NSW	Kyneton	VIC	Trafalgar (Vic.)	VIC
Avalon - Palm Beach	NSW	Woodend	VIC	Warragul	VIC
Bayview - Elanora Heights	NSW	Bendigo Region - North	VIC	Bairnsdale	VIC
Terrey Hills - Duffys Forest	NSW	Bannockburn	VIC	Bruthen - Omeo	VIC
Bargo	NSW	Golden Plains - South	VIC	Lakes Entrance	VIC
Douglas Park - Appin	NSW	Winchelsea	VIC	Paynesville	VIC
Picton - Tahmoor - Buxton	NSW	Lara	VIC	Foster	VIC
The Oaks - Oakdale	NSW	Lorne - Anglesea	VIC	Korumburra	VIC
Blackheath - Megalong Valley	NSW	Queenscliff	VIC	Leongatha	VIC
Blaxland - Warrimoo - Lapstone	NSW	Torquay	VIC	Wonthaggi - Inverloch	VIC
Katoomba - Leura	NSW	Alexandra	VIC	Churchill	VIC
Lawson - Hazelbrook - Linden	NSW	Kilmore - Broadford	VIC	Traralgon	VIC
Springwood - Winmalee	NSW	Mansfield (Vic.)	VIC	Yallourn North - Glengarry	VIC
Wentworth Falls	NSW	Nagambie	VIC	Longford - Loch Sport	VIC
Mulgoa - Luddenham - Orchard Hills	NSW	Seymour Region	VIC	Maffra	VIC
Pennant Hills - Cheltenham	NSW	Yea	VIC	Kinglake	VIC
Heathcote - Waterfall	NSW	Benalla	VIC	Panton Hill - St Andrews	VIC
Menai - Lucas Heights - Woronora	NSW	Benalla Region	VIC	Wallan	VIC
Ballarat - North	VIC	Rutherglen	VIC	Whittlesea	VIC
Smythes Creek	VIC	Wangaratta	VIC	Gisborne	VIC
Bacchus Marsh Region	VIC	Wangaratta Region	VIC	Macedon	VIC
Creswick - Clunes	VIC	Beechworth	VIC	Riddells Creek	VIC
Daylesford	VIC	Bright - Mount Beauty	VIC	Romsey	VIC

Table 4.8 (cont.) Group 2

Sunbury	VIC	Otway	VIC	Mount Barker Region	SA
Warrandyte - Wonga Park	VIC	Brookfield - Kenmore Hills	QLD	Nairne	SA
Belgrave - Selby	VIC	Babinda	QLD	Uraidla - Summertown	SA
Healesville - Yarra Glen	VIC	Rockhampton Region - West	QLD	One Tree Hill	SA
Lilydale - Coldstream	VIC	Guanaba - Springbrook	QLD	Golden Grove	SA
Monbulk - Silvan	VIC	Tamborine - Canungra	QLD	Redwood Park	SA
Wandin - Seville	VIC	Currumbin Valley - Tallebudgera	QLD	Belair	SA
Yarra Valley	VIC	Clermont	QLD	Clarendon	SA
Beaconsfield - Officer	VIC	Mackay Harbour	QLD	McLaren Vale	SA
Bunyip - Garfield	VIC	Seaforth - Calen	QLD	Barossa - Angaston	SA
Emerald - Cockatoo	VIC	Walkerston - Eton	QLD	Light	SA
Bacchus Marsh	VIC	Upper Caboolture	QLD	Lyndoch	SA
Flinders	VIC	Dayboro	QLD	Nuriootpa	SA
Mount Martha	VIC	Samford Valley	QLD	Tanunda	SA
Ararat Region	VIC	Eumundi - Yandina	QLD	Clare	SA
Horsham	VIC	Noosa Hinterland	QLD	Gilbert Valley	SA
Horsham Region	VIC	Caloundra Hinterland	QLD	Jamestown	SA
Stawell	VIC	Glass House Mountains	QLD	Kimba - Cleve - Franklin Harbour	SA
West Wimmera	VIC	Maroochy Hinterland	QLD	Le Hunte - Elliston	SA
Echuca	VIC	Cambooya - Wyreema	QLD	Kangaroo Island	SA
Lockington - Gunbower	VIC	Gowrie (Qld)	QLD	Strathalbyn	SA
Moira	VIC	Highfields	QLD	Strathalbyn Region	SA
Shepparton Region - East	VIC	Lockyer Valley - West	QLD	Victor Harbor	SA
Glenelg (Vic.)	VIC	Bohle Plains	QLD	Grant	SA
Hamilton (Vic.)	VIC	Northern Beaches	QLD	Kingston - Robe	SA
Southern Grampians	VIC	Townsville - South	QLD	Naracoorte Region	SA
Colac Region	VIC	Adelaide Hills	SA	Augusta	WA
Corangamite - South	VIC	Hahndorf - Echunga	SA	Busselton	WA
Moyne - East	VIC	Lobethal - Woodside	SA	Busselton Region	WA
Moyne - West	VIC	Mount Barker	SA	Margaret River	WA

Table 4.8 (cont.) Group 2

Capel	WA	Chittering	WA	Huonville - Franklin	TAS
Dardanup	WA	Toodyay	WA	Burnie - Ulverstone Region	TAS
Gelorup - Dalyellup - Stratham	WA	Old Beach - Otago	TAS	Penguin - Sulphur Creek	TAS
Bridgetown - Boyup Brook	WA	Bellerive - Rosny	TAS	Latrobe	TAS
Donnybrook - Balingup	WA	Cambridge	TAS	Miandetta - Don	TAS
City Beach	WA	Geilston Bay - Risdon	TAS	Port Sorell	TAS
Claremont (WA)	WA	Howrah - Tranmere	TAS	Quoiba - Spreyton	TAS
Cottesloe	WA	Lindisfarne - Rose Bay	TAS	Turners Beach - Forth	TAS
Floreat	WA	South Arm	TAS	North West	TAS
Mosman Park - Peppermint Grove	WA	Austins Ferry - Granton	TAS	Waratah	TAS
Nedlands - Dalkeith - Crawley	WA	Kingston - Huntingfield	TAS	Aranda	ACT
Swanbourne - Mount Claremont	WA	Kingston Beach - Blackmans Bay	TAS	Cook	ACT
Glen Forrest - Darlington	WA	Margate - Snug	TAS	Evatt	ACT
Helena Valley - Koongamia	WA	Taroona - Bonnet Hill	TAS	Flynn (ACT)	ACT
Mundaring	WA	Lenah Valley - Mount Stuart	TAS	Fraser	ACT
Swan View - Greenmount - Midvale	WA	Mount Nelson - Dynnyrne	TAS	Giralang	ACT
Gidgegannup	WA	South Hobart - Fern Tree	TAS	Hawker	ACT
The Vines	WA	West Hobart	TAS	Kaleen	ACT
Roleystone	WA	Dodges Ferry - Lewisham	TAS	Latham	ACT
Kalamunda - Maida Vale - Gooseberry Hill	WA	Sorell - Richmond	TAS	McKellar	ACT
Lesmurdie - Bickley - Carmel	WA	Legana	TAS	Melba	ACT
Mundijong	WA	Prospect Vale - Blackstone	TAS	Spence	ACT
Serpentine - Jarrahdale	WA	Riverside	TAS	Weetangera	ACT
East Fremantle	WA	Trevallyn	TAS	ACT - South West	ACT
Bateman	WA	Grindelwald - Lanena	TAS	Hall	ACT
Esperance	WA	Hadspen - Carrick	TAS	Nicholls	ACT
Albany Region	WA	Westbury	TAS	Hackett	ACT
Bayonet Head - Lower King	WA	Dilston - Lilydale	TAS	Deakin	ACT
Denmark	WA	Perth - Evandale	TAS	Forrest	ACT
Little Grove - Elleker	WA	Bruny Island - Kettering	TAS	Yarralumla	ACT

Table 4.8 (cont.) Group 2

Calwell	ACT
Chisholm	ACT
Conder	ACT
Fadden	ACT
Gordon (ACT)	ACT
Gowrie (ACT)	ACT
Isabella Plains	ACT
Kambah	ACT
Macarthur	ACT
Monash	ACT
Oxley (ACT)	ACT
Theodore	ACT
Wanniassa	ACT
Chapman	ACT
Duffy	ACT
Fisher	ACT
Holder	ACT
Rivett	ACT
Stirling	ACT
Waramanga	ACT
Weston	ACT
Curtin	ACT
Farrer	ACT
Garran	ACT
Hughes	ACT
Isaacs	ACT
O'Malley	ACT
Pearce	ACT
Torrens	ACT

4.4 TYPOLOGY GROUP 3

The disaster resilience strengths associated with communities with the typology Group 3 disaster resilience profile are social character, community capital and social and community engagement (Table 4.9). Thus, the disaster resilience of these communities is contributed by a strong pro-social setting characterised by community coherence, community capital and capacity for communities to adapt to complex change. Although these factors were classed as moderate (Table 4.9) they suggest the potential for community as a resource and asset to prepare for, respond to and recover from disasters, and to adapt to complex change.

Communities with the group 3 disaster resilience profile face the greatest structural constraints to disaster resilience, in comparison to the other profiles. Constraints to disaster resilience arise from economic capital, planning and the built environment, emergency services, information access and governance and leadership (Table 4.9). Thus there are many factors that could be addressed to improve disaster resilience in these communities, usually sitting outside community control. These include improving economic prosperity, systems of planning for hazards, access to telecommunications and access to and provisioning of emergency services.

The SA2s with this disaster resilience profile are listed in Table 4.10. All States and Territories have SA2s with this disaster resilience profile. The majority of remote and very remote SA2s have this disaster resilience profile, but there are also many outer regional and inner regional SA2s with this disaster resilience profile, and a few metropolitan SA2s (Table 4.3). Maps of the typology groups are given in Appendix D.

Typology Group 3 corresponds to 94.3% of Australia's land area (Table 4.3). Approximately 13% of the population, or 3.2 million people, live in areas with this disaster resilience profile (Table 4.3). There are 447 SA2s across Australia with this disaster resilience profile (Table 4.3), or 21% of all 2,084 SA2s assessed.

Table 4.9: Overview of the disaster resilience profile of Typology Group 3.

Typology group	Group 3
Number of SA2s	447
Mean ANDRI value	0.3717
Approximate population and proportion of total	3.2 million 13%
Land area and proportion of total	7,211,800 km^2 94.3%
Location	Most of the SA2s in Typology Group 3 are inner regional and outer regional (Table 4.3). Typology Group 3 also contains the majority (96%) of remote and very remote SA2s (Table 4.3). Table 4.10 lists the SA2s within Typology Group 3.
Disaster resilience strengths 	**Social character (Moderate)** These communities have some social and demographic characteristics that support the capacity to prepare for, respond to and recover from natural hazard events, but may also have some social and demographic characteristics that constrain this capacity. The combination of supporting and constraining social and demographic characteristics will vary across SA2s within the group, but it is likely that communities will have mid-range levels of education, employment and English language proficiency.
	Community capital (Moderate) The cohesion and connectedness of these communities supports the capacity to coordinate and cooperate for mutual benefit, including preparing for, responding to and recovering from natural hazard events. However, there may be some community capital characteristics that constrain this capacity. The combination of supporting and constraining circumstances will vary across SA2s in the group, but capacity may be constrained by mid-range crime rates, slightly less supportive and well-off neighbourhoods and lower levels of volunteering.
	Social and community engagement (Moderate) These communities have some capacity to adaptively learn and transform in response to complex change, including that associated with natural hazards, but may also face some constraints on this capacity. While the characteristics supporting and constraining capacity will vary across SA2s in the group, but these communities can be expected to have mid-range levels of in and out migration, suggesting a slightly less stable population.
Barriers to disaster resilience 	**Economic capital (Low)** These communities have economic characteristics that may constrain their capacity to prepare for, respond to and recover from natural hazard events. The circumstances limiting this capacity will vary, but it is likely that these communities will have relatively high proportions of rental households and low income households, resulting in a limited capacity to buffer external financial shocks. In many cases this will be exacerbated by an economy dominated by a single industry sector.
	Planning and the built environment (Low) Planning systems and the character of the built environment may constrain the capacity of these communities to prepare for natural hazard events using strategies of mitigation, planning or risk management. While the characteristics constraining this capacity will vary across SA2s in the group, most communities are likely to have a predominance of older building stock and relatively more people residing in caravans or improvised dwellings.

Table 4.9 (cont.)

Barriers to disaster resilience (cont.)	**Emergency services (Low)** These communities have emergency services characteristics that may constrain their capacity to respond to natural hazard events. Constraint largely arises because of remoteness, which limits the availability of emergency and other services. Due to other sources of disadvantage, these communities may have a greater presence of welfare support workers and police, but these positive aspects of response capacity are offset by their very limited access to medical services.
	Information access (Low) These communities have constrained capacity to engage with natural hazard information and to access knowledge associated with natural hazard preparation, self-reliance and response. The main characteristic contributing to reduced capacity is limited telecommunications access.
	Governance and leadership (Low) These communities are associated with a governance environment that may be limited by the capacity of organisations to adaptively learn, transform and adjust to complex change, including that related to natural hazards. The characteristics constraining capacity will vary across SA2s in the group, but it is likely that these communities do not have the benefit of research organisation presence and innovative commercial firms. Levels of local economic development support may also be limited.

Table 4.10: List of SA2s in Typology Group 3. SA2s are arranged by State/Territory and then regions. SA2 names are based on ASGS (2011).

Young	NSW	Coonamble	NSW	Glen Innes	NSW
Young Region	NSW	Nyngan - Warren	NSW	Inverell	NSW
Bombala	NSW	Walgett - Lightning Ridge	NSW	Inverell Region - East	NSW
Batemans Bay	NSW	Far West	NSW	Inverell Region - West	NSW
Batemans Bay - South	NSW	Coonabarabran	NSW	Tenterfield	NSW
Broulee - Tomakin	NSW	Gilgandra	NSW	Moree Region	NSW
Eden	NSW	Narromine	NSW	Narrabri	NSW
Narooma - Bermagui	NSW	Wellington	NSW	Narrabri Region	NSW
Lake Munmorah - Mannering Park	NSW	Singleton	NSW	Gunnedah Region	NSW
Oberon	NSW	Raymond Terrace	NSW	Quirindi	NSW
Condobolin	NSW	Tea Gardens - Hawks Nest	NSW	Mullumbimby	NSW
Cowra	NSW	Muswellbrook	NSW	Casino Region	NSW
Cowra Region	NSW	Bulahdelah - Stroud	NSW	Kyogle	NSW
Forbes	NSW	Forster	NSW	Tweed Heads - South	NSW
Grenfell	NSW	Forster-Tuncurry Region	NSW	Griffith (NSW)	NSW
Parkes (NSW)	NSW	Tuncurry	NSW	Griffith Region	NSW
Parkes Region	NSW	Kempsey Region	NSW	Leeton	NSW
West Wyalong	NSW	Macksville - Scotts Head	NSW	Narrandera	NSW
Lithgow	NSW	Nambucca Heads Region	NSW	Tumbarumba	NSW
Mudgee	NSW	South West Rocks	NSW	Tumut	NSW
Mudgee Region - East	NSW	Port Macquarie - West	NSW	Gundagai	NSW
Grafton	NSW	Gloucester	NSW	Temora	NSW
Grafton Region	NSW	Old Bar - Manning Point - Red Head	NSW	Culburra Beach	NSW
Maclean - Yamba - Iluka	NSW	Taree Region	NSW	Huskisson - Vincentia	NSW
Bellingen	NSW	Wingham	NSW	Sussex Inlet - Berrara	NSW
Dorrigo	NSW	Hay	NSW	Ulladulla	NSW
Urunga	NSW	Wentworth - Buronga	NSW	Cobbitty - Leppington	NSW
Woolgoolga - Arrawarra	NSW	Wentworth-Balranald Region	NSW	Avoca	VIC
Bourke - Brewarrina	NSW	Deniliquin	NSW	Beaufort	VIC
Cobar	NSW	Deniliquin Region	NSW	Maryborough Region	VIC

Table 4.10 (cont.) Group 3

Heathcote	VIC	Yarrawonga	VIC	Pittsworth	QLD
Loddon	VIC	Mooroopna	VIC	Wambo	QLD
Euroa	VIC	Shepparton - North	VIC	Clifton - Greenmount	QLD
Seymour	VIC	Shepparton - South	VIC	Southern Downs - East	QLD
Upper Yarra Valley	VIC	Shepparton Region - West	VIC	Southern Downs - West	QLD
Myrtleford	VIC	Portland	VIC	Stanthorpe	QLD
Orbost	VIC	Camperdown	VIC	Stanthorpe Region	QLD
Moe - Newborough	VIC	Corangamite - North	VIC	Warwick	QLD
Rosedale	VIC	Redland Islands	QLD	Central Highlands - East	QLD
Yarram	VIC	Johnstone	QLD	Central Highlands - West	QLD
Koo Wee Rup	VIC	Tully	QLD	Emerald	QLD
Rockbank - Mount Cottrell	VIC	Yarrabah	QLD	Agnes Water - Miriam Vale	QLD
Ararat	VIC	Daintree	QLD	Banana	QLD
Nhill Region	VIC	Port Douglas	QLD	Biloela	QLD
St Arnaud	VIC	Atherton	QLD	Boyne Island - Tannum Sands	QLD
Yarriambiack	VIC	Herberton	QLD	Clinton - New Auckland	QLD
Merbein	VIC	Kuranda	QLD	Gladstone Hinterland	QLD
Mildura Region	VIC	Malanda - Yungaburra	QLD	Telina - Toolooa	QLD
Red Cliffs	VIC	Mareeba	QLD	Bouldercombe	QLD
Buloke	VIC	Balonne	QLD	Emu Park	QLD
Gannawarra	VIC	Chinchilla	QLD	Frenchville - Mount Archer	QLD
Kerang	VIC	Goondiwindi	QLD	Glenlee - Rockyview	QLD
Robinvale	VIC	Inglewood - Waggamba	QLD	Mount Morgan	QLD
Swan Hill	VIC	Miles - Wandoan	QLD	Norman Gardens	QLD
Swan Hill Region	VIC	Roma	QLD	Rockhampton - West	QLD
Kyabram	VIC	Roma Region	QLD	Rockhampton Region - East	QLD
Rochester	VIC	Tara	QLD	Rockhampton Region - North	QLD
Rushworth	VIC	Crows Nest - Rosalie	QLD	Yeppoon	QLD
Cobram	VIC	Jondaryan	QLD	Boonah	QLD
Numurkah	VIC	Millmerran	QLD	Esk	QLD

Table 4.10 (cont.) Group 3

Lockyer Valley - East	QLD	Mount Isa	QLD	Burrum - Fraser	QLD
Lowood	QLD	Mount Isa Region	QLD	Granville	QLD
Rosewood	QLD	Northern Highlands	QLD	Maryborough Region - South	QLD
Beaudesert	QLD	Barcaldine - Blackall	QLD	Tinana	QLD
Bowen	QLD	Charleville	QLD	Lewiston - Two Wells	SA
Broadsound - Nebo	QLD	Far Central West	QLD	Mallala	SA
Collinsville	QLD	Far South West	QLD	Goyder	SA
Moranbah	QLD	Longreach	QLD	Wakefield - Barunga West	SA
Andergrove - Beaconsfield	QLD	Ayr	QLD	Peterborough - Mount Remarkable	SA
Eimeo - Rural View	QLD	Burdekin	QLD	Port Pirie Region	SA
Pioneer Valley	QLD	Charters Towers	QLD	Yorke Peninsula - North	SA
Sarina	QLD	Dalrymple	QLD	Yorke Peninsula - South	SA
Shoal Point - Bucasia	QLD	Ingham Region	QLD	Ceduna	SA
South Mackay	QLD	Palm Island	QLD	Eyre Peninsula	SA
Airlie - Whitsundays	QLD	Douglas	QLD	West Coast (SA)	SA
Proserpine	QLD	Kelso	QLD	Western	SA
Beachmere - Sandstone Point	QLD	Bargara - Burnett Heads	QLD	APY Lands	SA
Bribie Island	QLD	Bundaberg Region - North	QLD	Flinders Ranges	SA
Kilcoy	QLD	Bundaberg Region - South	QLD	Outback	SA
Woodford - D'Aguilar	QLD	Gayndah - Mundubbera	QLD	Goolwa - Port Elliot	SA
Aurukun	QLD	Gin Gin	QLD	Yankalilla	SA
Cape York	QLD	Kingaroy	QLD	Millicent	SA
Croydon - Etheridge	QLD	Kingaroy Region - North	QLD	Naracoorte	SA
Kowanyama - Pormpuraaw	QLD	Kingaroy Region - South	QLD	Penola	SA
Northern Peninsula	QLD	Monto - Eidsvold	QLD	Tatiara	SA
Tablelands	QLD	Nanango	QLD	Wattle Range	SA
Torres	QLD	Cooloola	QLD	Barmera	SA
Torres Strait Islands	QLD	Gympie Region	QLD	Karoonda - Lameroo	SA
Weipa	QLD	Kilkivan	QLD	Loxton	SA
Carpentaria	QLD	Booral - River Heads	QLD	Loxton Region	SA

Table 4.10 (cont.) Group 3

Mannum	SA	Anketell - Wandi	WA	Port Hedland	WA
Murray Bridge Region	SA	Casuarina - Wellard (East)	WA	Roebourne	WA
Renmark Region	SA	Baldivis	WA	South Hedland	WA
The Coorong	SA	Rockingham	WA	Albany	WA
Waikerie	SA	Safety Bay - Shoalwater	WA	Gnowangerup	WA
Australind - Leschenault	WA	Esperance Region	WA	Katanning	WA
Collie	WA	Carnarvon	WA	Kojonup	WA
Eaton - Pelican Point	WA	Exmouth	WA	McKail - Willyung	WA
Harvey	WA	Boulder	WA	Plantagenet	WA
Waroona	WA	Kalgoorlie	WA	Cunderdin	WA
Manjimup	WA	Kalgoorlie - North	WA	Dowerin	WA
Pemberton	WA	Kambalda - Coolgardie - Norseman	WA	Gingin - Dandaragan	WA
Dawesville - Bouvard	WA	Leinster - Leonora	WA	Merredin	WA
Falcon - Wannanup	WA	Broome	WA	Moora	WA
Mandurah	WA	Derby - West Kimberley	WA	Mukinbudin	WA
Mandurah - East	WA	Halls Creek	WA	Northam	WA
Mandurah - South	WA	Kununurra	WA	York - Beverley	WA
Pinjarra	WA	Roebuck	WA	Brookton	WA
Mount Hawthorn - Leederville	WA	Geraldton	WA	Kulin	WA
North Perth	WA	Geraldton - East	WA	Murray	WA
Wembley - West Leederville - Glendalough	WA	Geraldton - North	WA	Narrogin	WA
Chidlow	WA	Geraldton - South	WA	Wagin	WA
Wanneroo	WA	Irwin	WA	Bridgewater - Gagebrook	TAS
Yanchep	WA	Meekatharra	WA	Brighton - Pontville	TAS
Gosnells	WA	Morawa	WA	Mornington - Warrane	TAS
Maddington - Orange Grove - Martin	WA	Northampton - Mullewa - Greenough	WA	Risdon Vale	TAS
Forrestfield - Wattle Grove	WA	Ashburton (WA)	WA	New Norfolk	TAS
Byford	WA	East Pilbara	WA	Beauty Point - Beaconsfield	TAS
Fremantle	WA	Karratha	WA	Deloraine	TAS
Fremantle - South	WA	Newman	WA	George Town	TAS

Table 4.10 (cont.) Group 3

Longford	TAS	Alligator	NT	Harrison	ACT
Northern Midlands	TAS	Daly	NT	Ngunnawal	ACT
Scottsdale - Bridport	TAS	Thamarrurr	NT	Palmerston	ACT
St Helens - Scamander	TAS	Tiwi Islands	NT	Ainslie	ACT
Central Highlands	TAS	West Arnhem	NT	Braddon	ACT
Derwent Valley	TAS	Anindilyakwa	NT	Campbell	ACT
Southern Midlands	TAS	East Arnhem	NT	Civic	ACT
Cygnet	TAS	Nhulunbuy	NT	Dickson	ACT
Geeveston - Dover	TAS	Elsey	NT	Downer	ACT
Forestier - Tasman	TAS	Gulf	NT	Lyneham	ACT
Triabunna - Bicheno	TAS	Katherine	NT	O'Connor (ACT)	ACT
Somerset	TAS	Victoria River	NT	Reid	ACT
West Ulverstone	TAS	Bruce	ACT	Turner	ACT
Wynyard	TAS	Charnwood	ACT	Watson	ACT
Sheffield - Railton	TAS	Dunlop	ACT	Griffith (ACT)	ACT
King Island	TAS	Florey	ACT	Kingston - Barton	ACT
Smithton	TAS	Higgins	ACT	Narrabundah	ACT
West Coast (Tas.)	TAS	Holt	ACT	Red Hill (ACT)	ACT
Woolner - Bayview - Winnellie	NT	Macgregor (ACT)	ACT	Banks	ACT
Howard Springs	NT	Macquarie	ACT	Bonython	ACT
Humpty Doo	NT	Page	ACT	Gilmore	ACT
Virginia	NT	Scullin	ACT	Greenway	ACT
Weddell	NT	ACT - East	ACT	Richardson	ACT
East Side	NT	Amaroo	ACT	Chifley	ACT
Petermann - Simpson	NT	Bonner	ACT	Lyons (ACT)	ACT
Sandover - Plenty	NT	Casey	ACT	Mawson	ACT
Tanami	NT	Crace	ACT	Phillip	ACT
Yuendumu - Anmatjere	NT	Forde	ACT		
Barkly	NT	Franklin	ACT		
Tennant Creek	NT	Gungahlin	ACT		

4.5 TYPOLOGY GROUP 4

SA2s with this disaster resilience profile are best placed overall to cope with and adapt to complex change associated with natural hazards. The disaster resilience strengths associated with communities with the Typology Group 4 disaster resilience profile are economic capital, information access, governance and leadership, which all correspond to high disaster resilience, and social character, planning and the built environment, emergency services, community capital and social and community engagement, which all correspond to moderate disaster resilience (Table 4.11). Thus, communities with this disaster resilience profile are socially cohesive, economically well-resourced, well-supported by government services and able to adapt to complex change.

This disaster resilience profile is not characterised by any apparent constraints to disaster resilience, in comparison to the other profiles. All eight themes of disaster resilience were classified as corresponding to moderate or high disaster resilience (Table 4.11).

The SA2s with this disaster resilience profile are listed in Table 4.12. All States have SA2s with this disaster resilience profile, but the ACT or the NT does not have any SA2s with this disaster resilience profile. SA2s with this disaster resilience profile are predominantly metropolitan, but also contain a small proportion of inner regional SA2s (Table 4.3). Maps of the typology groups are given in Appendix D.

Typology Group 4 corresponds to 0.1% of Australia's land area (Table 4.3). Approximately 31% of the population, or 7.5 million people, live in areas with this disaster resilience profile (Table 4.3). There are 572 SA2s across Australia with this disaster resilience profile (Table 4.3), or 27% of all 2,084 SA2s assessed.

Table 4.11: Overview of the disaster resilience profile of Typology Group 4.

Typology group	Group 4
Number of SA2s	572
Mean ANDRI value	0.7020
Approximate population and proportion of total	7.5 million 31%
Land area and proportion of total	10,689 km^2 0.1%
Location	SA2s in group 4 are predominantly metropolitan, but also contain a small proportion of inner regional SA2s (Table 4.3). Table 4.12 lists the SA2s within Typology Group 4.
Disaster resilience strengths 	**Economic capital (High)** These communities have economic characteristics that should enhance the capacity to prepare for, respond to and recover from natural hazard events. The enhanced capacity of these communities arises through access by individuals and households to greater economic resources. This will occur where fewer households are paying rent, and income levels are higher. Enhanced capacity also derives from a diversified economy.
	Information access (High) These communities have enhanced capacity to engage with natural hazard information and to access knowledge associated with natural hazard preparation, self-reliance and response. Generally this enhanced capacity will be associated with good telecommunications access and, to a lesser extent, engagement in hazard education.
	Governance and leadership (High) These communities are associated with a governance environment that should enhance the capacity of organisations to adaptively learn, transform and adjust to complex change, including that related to natural hazards. Enhanced capacity may be contributed by the presence of research organisations and innovative commercial firms, and an emergency services sector with a capacity for agility, flexibility and adaptation.
	Social character (Moderate) These communities have some social and demographic characteristics that support the capacity to prepare for, respond to and recover from natural hazard events, but may also have some social and demographic characteristics that constrain this capacity. The combination of supporting and constraining social and demographic characteristics will vary across SA2s within the group, but it is likely that communities will have mid-range levels of education, employment and English language proficiency.
	Planning and the built environment (Moderate) These communities have some planning system and built environment characteristics that support their capacity to prepare for, respond to and recover from natural hazard events using strategies of mitigation, planning or risk management. However, there may also be some planning system and built environment characteristics that constrain this capacity. The combination of supporting and constraining planning and the built environment characteristics will vary across SA2s in the group, but it is likely that many communities will have a significant proportion of older buildings. Others with fewer older buildings may be constrained instead by emergency and other planning systems that could be improved to a higher standard.

Table 4.11 (cont.)

Disaster resilience strengths (cont.)	**Emergency services (Moderate)** Some characteristics of emergency services supports the capacity of these communities to respond to natural hazard events, while other emergency services characteristics may constrain this capacity. The combination of supporting and constraining emergency services characteristics will vary across SA2s within this group, but most communities are likely have high levels of emergency services volunteers and well-resourced ambulance organisations. Capacity to respond to natural hazard events may be constrained by poorer access to medical services.
	Community capital (Moderate) The cohesion and connectedness of these communities supports the capacity to coordinate and cooperate for mutual benefit, including preparing for, responding to and recovering from natural hazard events. However, there may be some community capital characteristics that constrain this capacity. The combination of supporting and constraining circumstances will vary across SA2s in the group, but capacity may be constrained by mid-range crime rates, slightly less supportive and well-off neighbourhoods and lower levels of volunteering.
	Social and community engagement (Moderate) These communities have some capacity to adaptively learn and transform in response to complex change, including that associated with natural hazards, but may also face some constraints on this capacity. While the characteristics supporting and constraining capacity will vary across SA2s in the group, but these communities can be expected to have mid-range levels of in and out migration, suggesting a slightly less stable population.
Barriers to disaster resilience	No themes classed as low

Table 4.12: List of SA2s in Typology Group 4. SA2s are arranged by State/Territory and then regions. SA2 names are based on ASGS (2011).

Queanbeyan West - Jerrabomberra	NSW	Valentine - Eleebana	NSW	Oatley - Hurstville Grove	NSW
Erina - Green Point	NSW	Warners Bay - Boolaroo	NSW	Peakhurst - Lugarno	NSW
Kariong	NSW	Bonnells Bay - Silverwater	NSW	Concord - Mortlake - Cabarita	NSW
Kincumber - Picketts Valley	NSW	Edgeworth - Cameron Park	NSW	Drummoyne - Rodd Point	NSW
Narara	NSW	Toronto - Awaba	NSW	Five Dock - Abbotsford	NSW
Niagara Park - Lisarow	NSW	Wangi Wangi - Rathmines	NSW	Balmain	NSW
Point Clare - Koolewong	NSW	Adamstown - Kotara	NSW	Leichhardt - Annandale	NSW
Saratoga - Davistown	NSW	Lambton - New Lambton	NSW	Lilyfield - Rozelle	NSW
Terrigal - North Avoca	NSW	Maryland - Fletcher - Minmi	NSW	Willoughby - Castle Cove - Northbridge	NSW
Wamberal - Forresters Beach	NSW	Merewether - The Junction	NSW	Gordon - Killara	NSW
Chittaway Bay - Tumbi Umbi	NSW	Wallsend - Elermore Vale	NSW	Lindfield - Roseville	NSW
Bathurst	NSW	Goonellabah	NSW	Pymble	NSW
Bathurst - East	NSW	Wagga Wagga - East	NSW	Wahroonga - Warrawee	NSW
Orange	NSW	Wagga Wagga - North	NSW	Cremorne - Cammeray	NSW
Dubbo - South	NSW	Wagga Wagga - South	NSW	Manly - Fairlight	NSW
Maitland - East	NSW	Baulkham Hills (East)	NSW	Newport - Bilgola	NSW
Thornton - Millers Forest	NSW	Baulkham Hills (West) - Bella Vista	NSW	Warriewood - Mona Vale	NSW
Unanderra - Mount Kembla	NSW	Castle Hill	NSW	Beacon Hill - Narraweena	NSW
Balgownie - Fairy Meadow	NSW	Cherrybrook	NSW	Cromer	NSW
Figtree - Keiraville	NSW	Glenhaven	NSW	Dee Why - North Curl Curl	NSW
Woonona - Bulli - Russell Vale	NSW	West Pennant Hills	NSW	Forestville - Killarney Heights	NSW
Port Macquarie - East	NSW	Rouse Hill - Beaumont Hills	NSW	Frenchs Forest - Belrose	NSW
Corowa	NSW	Lalor Park - Kings Langley	NSW	Freshwater - Brookvale	NSW
Tamworth - East	NSW	Double Bay - Bellevue Hill	NSW	Manly Vale - Allambie Heights	NSW
Tamworth - North	NSW	Dover Heights	NSW	Narrabeen - Collaroy	NSW
Belmont - Bennetts Green	NSW	Paddington - Moore Park	NSW	Camden - Ellis Lane	NSW
Charlestown - Dudley	NSW	Rose Bay - Vaucluse - Watsons Bay	NSW	Elderslie - Harrington Park	NSW
Glendale - Cardiff - Hillsborough	NSW	Woollahra	NSW	Mount Annan - Currans Hill	NSW
Redhead	NSW	Coogee - Clovelly	NSW	Cambridge Park	NSW
Swansea - Caves Beach	NSW	Panania - Milperra - Picnic Point	NSW	Castlereagh - Cranebrook	NSW

Table 4.12 (cont.) Group 4

Emu Plains - Leonay	NSW	Delacombe	VIC	Ashburton (Vic.)	VIC
Glenmore Park - Regentville	NSW	East Bendigo - Kennington	VIC	Balwyn	VIC
Jamisontown - South Penrith	NSW	Flora Hill - Spring Gully	VIC	Balwyn North	VIC
Warragamba - Silverdale	NSW	Kangaroo Flat - Golden Square	VIC	Camberwell	VIC
Richmond - Clarendon	NSW	Strathfieldsaye	VIC	Glen Iris - East	VIC
Windsor - Bligh Park	NSW	Belmont	VIC	Hawthorn	VIC
Erskine Park	NSW	Geelong	VIC	Hawthorn East	VIC
St Clair	NSW	Geelong West - Hamlyn Heights	VIC	Kew	VIC
Carlingford	NSW	Grovedale	VIC	Kew East	VIC
Greystanes - Pemulwuy	NSW	Highton	VIC	Surrey Hills (West) - Canterbury	VIC
North Rocks	NSW	Leopold	VIC	Bulleen	VIC
Winston Hills	NSW	Newtown (Vic.)	VIC	Doncaster	VIC
Epping - North Epping	NSW	North Geelong - Bell Park	VIC	Doncaster East	VIC
Gladesville - Huntleys Point	NSW	Clifton Springs	VIC	Templestowe	VIC
Hunters Hill - Woolwich	NSW	Ocean Grove - Barwon Heads	VIC	Templestowe Lower	VIC
North Ryde - East Ryde	NSW	Portarlington	VIC	Blackburn	VIC
Chipping Norton - Moorebank	NSW	Phillip Island	VIC	Blackburn South	VIC
Caringbah - Lilli Pilli	NSW	Sale	VIC	Box Hill North	VIC
Cronulla - Kurnell - Bundeena	NSW	Pascoe Vale South	VIC	Burwood East	VIC
Gymea - Grays Point	NSW	Alphington - Fairfield	VIC	Surrey Hills (East) - Mont Albert	VIC
Miranda - Yowie Bay	NSW	Essendon - Aberfeldie	VIC	Beaumaris	VIC
Sylvania - Taren Point	NSW	Moonee Ponds	VIC	Brighton (Vic.)	VIC
Engadine - Loftus	NSW	East Melbourne	VIC	Brighton East	VIC
Illawong - Alfords Point	NSW	Albert Park	VIC	Cheltenham - Highett (West)	VIC
Oyster Bay - Como - Jannali	NSW	Elwood	VIC	Hampton	VIC
Sutherland - Kirrawee	NSW	Armadale	VIC	Sandringham - Black Rock	VIC
Alfredton	VIC	Toorak	VIC	Bentleigh - McKinnon	VIC
Ballarat	VIC	Carlton North - Princes Hill	VIC	Bentleigh East	VIC
Ballarat - South	VIC	Fitzroy North	VIC	Carnegie	VIC
Buninyong	VIC	Yarra - North	VIC	Caulfield - North	VIC

Table 4.12 (cont.) Group 4

Caulfield - South	VIC	Mill Park - North	VIC	Vermont South	VIC
Elsternwick	VIC	Airport West	VIC	Chirnside Park	VIC
Hughesdale	VIC	Keilor	VIC	Kilsyth	VIC
Murrumbeena	VIC	Keilor East	VIC	Montrose	VIC
Ormond - Glen Huntly	VIC	Niddrie - Essendon West	VIC	Mooroolbark	VIC
Aspendale Gardens - Waterways	VIC	Strathmore	VIC	Mount Dandenong - Olinda	VIC
Carrum - Patterson Lakes	VIC	Pascoe Vale	VIC	Mount Evelyn	VIC
Chelsea - Bonbeach	VIC	Sunbury - South	VIC	Upwey - Tecoma	VIC
Chelsea Heights	VIC	Gladstone Park - Westmeadows	VIC	Berwick - North	VIC
Cheltenham - Highett (East)	VIC	Bayswater	VIC	Pearcedale - Tooradin	VIC
Edithvale - Aspendale	VIC	Boronia - The Basin	VIC	Dingley Village	VIC
Mentone	VIC	Ferntree Gully	VIC	Glen Waverley - East	VIC
Moorabbin - Heatherton	VIC	Knoxfield - Scoresby	VIC	Glen Waverley - West	VIC
Mordialloc - Parkdale	VIC	Lysterfield	VIC	Mount Waverley - North	VIC
Malvern - Glen Iris	VIC	Rowville - Central	VIC	Mount Waverley - South	VIC
Malvern East	VIC	Rowville - North	VIC	Mulgrave	VIC
Bundoora - East	VIC	Rowville - South	VIC	Oakleigh - Huntingdale	VIC
Greensborough	VIC	Wantirna	VIC	Wheelers Hill	VIC
Heidelberg - Rosanna	VIC	Wantirna South	VIC	Altona	VIC
Ivanhoe	VIC	Donvale - Park Orchards	VIC	Newport	VIC
Ivanhoe East - Eaglemont	VIC	Bayswater North	VIC	Williamstown	VIC
Montmorency - Briar Hill	VIC	Croydon	VIC	Frankston South	VIC
Viewbank - Yallambie	VIC	Croydon Hills - Warranwood	VIC	Langwarrin	VIC
Watsonia	VIC	Ringwood	VIC	Seaford (Vic.)	VIC
Eltham	VIC	Ringwood East	VIC	Skye - Sandhurst	VIC
Hurstbridge	VIC	Ringwood North	VIC	Dromana	VIC
Plenty - Yarrambat	VIC	Forest Hill	VIC	Hastings - Somers	VIC
Research - North Warrandyte	VIC	Mitcham (Vic.)	VIC	Mornington	VIC
Wattle Glen - Diamond Creek	VIC	Nunawading	VIC	Mount Eliza	VIC
Bundoora - North	VIC	Vermont	VIC	Point Nepean	VIC

Table 4.12 (cont.) Group 4

Somerville	VIC	Chermside West	QLD	Tarragindi	QLD
Irymple	VIC	Geebung	QLD	Algester	QLD
Colac	VIC	Kedron - Gordon Park	QLD	Pallara - Willawong	QLD
Warrnambool - North	VIC	Stafford	QLD	Kuraby	QLD
Warrnambool - South	VIC	Stafford Heights	QLD	Sunnybank Hills	QLD
Alexandra Hills	QLD	Wavell Heights	QLD	Jindalee - Mount Ommaney	QLD
Belmont - Gumdale	QLD	Boondall	QLD	Middle Park - Jamboree Heights	QLD
Birkdale	QLD	Northgate - Virginia	QLD	Riverhills	QLD
Capalaba	QLD	Nudgee - Banyo	QLD	Seventeen Mile Rocks - Sinnamon Park	QLD
Thorneside	QLD	Bracken Ridge	QLD	Westlake	QLD
Wellington Point	QLD	Brighton (Qld)	QLD	Bellbowrie - Moggill	QLD
Cleveland	QLD	Deagon	QLD	Chapel Hill	QLD
Ormiston	QLD	Sandgate - Shorncliffe	QLD	Fig Tree Pocket	QLD
Redland Bay	QLD	Taigum - Fitzgibbon	QLD	Kenmore	QLD
Sheldon - Mount Cotton	QLD	Camp Hill	QLD	Pinjarra Hills - Pullenvale	QLD
Thornlands	QLD	Cannon Hill	QLD	Chelmer - Graceville	QLD
Victoria Point	QLD	Carina	QLD	Corinda	QLD
Manly - Lota	QLD	Carina Heights	QLD	Sherwood	QLD
Manly West	QLD	Carindale	QLD	Keperra	QLD
Murarrie	QLD	Coorparoo	QLD	Mitchelton	QLD
Tingalpa	QLD	Holland Park	QLD	The Gap	QLD
Wakerley	QLD	Holland Park West	QLD	Upper Kedron - Ferny Grove	QLD
Wynnum	QLD	Yeronga	QLD	Balmoral	QLD
Wynnum West - Hemmant	QLD	Eight Mile Plains	QLD	Bulimba	QLD
Bald Hills	QLD	Mansfield (Qld)	QLD	Hawthorne	QLD
Bridgeman Downs	QLD	Mount Gravatt	QLD	Morningside - Seven Hills	QLD
Carseldine	QLD	Rochedale - Burbank	QLD	Norman Park	QLD
Everton Park	QLD	Wishart	QLD	Albion	QLD
McDowall	QLD	Moorooka	QLD	Alderley	QLD
Aspley	QLD	Salisbury - Nathan	QLD	Ascot	QLD

Table 4.12 (cont.) Group 4

Clayfield	QLD	Runaway Bay	QLD	Slade Point	QLD
Grange	QLD	Carrara	QLD	West Mackay	QLD
Hamilton (Qld)	QLD	Highland Park	QLD	Burpengary - East	QLD
Hendra	QLD	Worongary - Tallai	QLD	Elimbah	QLD
Newmarket	QLD	Helensvale	QLD	Wamuran	QLD
Wilston	QLD	Hope Island	QLD	Burpengary	QLD
Ashgrove	QLD	Jacobs Well - Alberton	QLD	Morayfield	QLD
Auchenflower	QLD	Ashmore	QLD	Narangba	QLD
Bardon	QLD	Parkwood	QLD	Clontarf	QLD
Paddington - Milton	QLD	Benowa	QLD	Scarborough - Newport	QLD
Red Hill (Qld)	QLD	Bundall	QLD	Albany Creek	QLD
Brinsmead	QLD	Main Beach	QLD	Cashmere	QLD
Clifton Beach - Kewarra Beach	QLD	Oxley (Qld)	QLD	Eatons Hill	QLD
Freshwater - Stratford	QLD	Churchill - Yamanto	QLD	Hills District	QLD
Redlynch	QLD	Ipswich - North	QLD	Murrumba Downs - Griffin	QLD
Earlville - Bayview Heights	QLD	Karalee - Barellan Point	QLD	Bray Park	QLD
Gordonvale - Trinity	QLD	Karana Downs	QLD	Lawnton	QLD
Kanimbla - Mooroobool	QLD	Ripley	QLD	Petrie	QLD
Mount Sheridan	QLD	Chambers Flat - Logan Reserve	QLD	Strathpine - Brendale	QLD
Whitfield - Edge Hill	QLD	Munruben - Park Ridge South	QLD	Buderim - North	QLD
Kin Kora - Sun Valley	QLD	Cornubia - Carbrook	QLD	Buderim - South	QLD
Broadbeach Waters	QLD	Loganholme - Tanah Merah	QLD	Mountain Creek	QLD
Burleigh Heads	QLD	Shailer Park	QLD	Aroona - Currimundi	QLD
Burleigh Waters	QLD	Daisy Hill	QLD	Buddina - Minyama	QLD
Miami	QLD	Rochedale South - Priestdale	QLD	Caloundra - West	QLD
Currumbin - Tugun	QLD	Springwood	QLD	Golden Beach - Pelican Waters	QLD
Currumbin Waters	QLD	Underwood	QLD	Moffat Beach - Battery Hill	QLD
Elanora	QLD	East Mackay	QLD	Parrearra - Warana	QLD
Palm Beach	QLD	Mount Pleasant - Glenella	QLD	Wurtulla - Birtinya	QLD
Paradise Point - Hollywell	QLD	Ooralea - Bakers Creek	QLD	Coolum Beach	QLD

Table 4.12 (cont.) Group 4

Marcoola - Mudjimba	QLD	St Peters - Marden	SA	West Lakes	SA
Mooloolaba - Alexandra Headland	QLD	Nailsworth - Broadview	SA	Fulham	SA
Bli Bli	QLD	Prospect	SA	Lockleys	SA
Diddillibah - Rosemount	QLD	Walkerville	SA	West Beach	SA
Nambour	QLD	Goodwood - Millswood	SA	Roxby Downs	SA
Noosa Heads	QLD	Unley - Parkside	SA	Bunbury	WA
Peregian	QLD	Gawler - North	SA	Halls Head - Erskine	WA
Sunshine Beach	QLD	Greenwith	SA	Bassendean - Eden Hill - Ashfield	WA
Beerwah	QLD	Highbury - Dernancourt	SA	Bayswater - Embleton - Bedford	WA
Landsborough	QLD	Modbury Heights	SA	Noranda	WA
Palmwoods	QLD	St Agnes - Ridgehaven	SA	Hazelmere - South Guildford	WA
Middle Ridge	QLD	Brighton (SA)	SA	Middle Swan - Herne Hill	WA
Rangeville	QLD	Glenelg (SA)	SA	Craigie - Beldon	WA
Toowoomba - Central	QLD	Hallett Cove	SA	Duncraig	WA
Toowoomba - East	QLD	Marino - Seaview Downs	SA	Greenwood - Warwick	WA
Toowoomba - West	QLD	Sheidow Park - Trott Park	SA	Heathridge - Connolly	WA
Annandale	QLD	Bellevue Heights	SA	Hillarys	WA
Belgian Gardens - Pallarenda	QLD	Blackwood	SA	Iluka - Burns Beach	WA
Cranbrook	QLD	Colonel Light Gardens	SA	Kingsley	WA
Kirwan - West	QLD	Mitcham (SA)	SA	Mullaloo - Kallaroo	WA
Mount Louisa	QLD	Panorama	SA	Ocean Reef	WA
Mundingburra	QLD	Aberfoyle Park	SA	Padbury	WA
Branyan - Kensington	QLD	Coromandel Valley	SA	Sorrento - Marmion	WA
Gympie - South	QLD	Flagstaff Hill	SA	Woodvale	WA
Craignish - Dundowran Beach	QLD	Hackham - Onkaparinga Hills	SA	Balcatta - Hamersley	WA
Aldgate - Stirling	SA	Happy Valley	SA	Dianella	WA
Burnside - Wattle Park	SA	Reynella	SA	Karrinyup - Gwelup - Carine	WA
Glenside - Beaumont	SA	Willunga	SA	Stirling - Osborne Park	WA
Toorak Gardens	SA	Woodcroft	SA	Trigg - North Beach - Watermans Bay	WA
Athelstone	SA	Henley Beach	SA	Wembley Downs - Churchlands - Woodlands	WA

Table 4.12 (cont.) Group 4

Madeley - Darch - Landsdale	WA	Youngtown - Relbia	TAS
Kelmscott	WA	Ulverstone	TAS
Mount Nasura - Mount Richon - Bedfordale	WA		
Parkwood - Ferndale - Lynwood	WA		
Riverton - Shelley - Rossmoyne	WA		
Willetton	WA		
Thornlie	WA		
High Wycombe	WA		
Como	WA		
South Perth - Kensington	WA		
Coogee	WA		
Jandakot	WA		
North Coogee	WA		
Applecross - Ardross	WA		
Bicton - Palmyra	WA		
Booragoon	WA		
Bull Creek	WA		
Leeming	WA		
Melville	WA		
Murdoch - Kardinya	WA		
Winthrop	WA		
Montrose - Rosetta	TAS		
Hobart	TAS		
New Town	TAS		
Sandy Bay	TAS		
Launceston	TAS		
Newstead	TAS		
Norwood (Tas.)	TAS		
Summerhill - Prospect	TAS		
West Launceston	TAS		

4.6 TYPOLOGY GROUP 5

The disaster resilience strengths associated with communities with the typology Group 5 disaster resilience profile are planning and the built environment, governance and leadership, economic capital, emergency services, information access, and social and community engagement (Table 4.13). Thus, these communities are economically prosperous, and are generally well-supported by government services that enhance disaster preparation, response and recovery, and identify and mitigate risk. Communities and organisations are also well-placed to adapt to complex change.

Constraints to disaster resilience arise from social character and community capital (Table 4.13). Thus, there are opportunities for building disaster resilience in these communities through improved attention to vulnerable groups and community cohesion.

The SA2s with this disaster resilience profile are listed in Table 4.14. Five of the eight States and Territories have SA2s with this disaster resilience profile, with the exception of SA, TAS and the NT. The majority of SA2s with this disaster resilience profile are located in metropolitan areas (Table 4.3). Maps of the typology groups are given in Appendix D.

Typology Group 5 corresponds to 0.1% of Australia's land area (Table 4.3). Approximately 27% of the population, or 6.3 million people, live in areas with this disaster resilience profile (Table 4.3). There are 368 SA2s across Australia with this disaster resilience profile (Table 4.3), or 18% of all 2,084 SA2s assessed.

Table 4.13: Overview of the disaster resilience profile of Typology Group 5.

Typology group	Group 5
Number of SA2s	368
Mean ANDRI value	0.5731
Approximate population and proportion of total	6.3 million 27%
Land area and proportion of total	6,328 km^2 0.1%
Location	The majority of SA2s in Typology Group 5 are located in metropolitan areas (Table 4.3). Table 4.14 lists the SA2s within Typology Group 5.
Disaster resilience strengths 	**Planning and the built environment (High)** Planning systems and the character of the built environment should enhance the capacity of these communities to prepare for natural hazard events using strategies of mitigation, planning or risk management. While the combination of planning and built environment characteristics may vary across SA2s within the group, most of these communities are likely to have newer residential and commercial or industrial buildings, and high standards of emergency and other planning systems. Many of these communities will also be in well-resourced local government areas.
	Governance and leadership (High) These communities are associated with a governance environment that should enhance the capacity of organisations to adaptively learn, transform and adjust to complex change, including that related to natural hazards. Enhanced capacity may be contributed by the presence of research organisations and innovative commercial firms, and an emergency services sector with a capacity for agility, flexibility and adaptation.
	Economic capital (Moderate) These communities have some economic characteristics that support the capacity to prepare for, respond to and recover from natural hazard events, but may also have some economic characteristics that constrain this capacity. The combination of supporting and constraining economic characteristics will vary across SA2s within the group, but it is likely that communities will have mid-range proportions of renters and mid-range income levels. Their economies are likely to be only moderately diversified.
	Emergency services (Moderate) Some characteristics of emergency services supports the capacity of these communities to respond to natural hazard events, while other emergency services characteristics may constrain this capacity. The combination of supporting and constraining emergency services characteristics will vary across SA2s within this group, but most communities are likely have high levels of emergency services volunteers and well-resourced ambulance organisations. Capacity to respond to natural hazard events may be constrained by poorer access to medical services.
	Information access (Moderate) These communities have some capacity to engage with natural hazard information and to access knowledge associated with natural hazard preparation, self-reliance and response. There may be some constraints on capacity arising from less than universal telecommunications access.

Table 4.13 (cont.)

Disaster resilience strengths (cont.)	**Social and community engagement (Moderate)** These communities have some capacity to adaptively learn and transform in response to complex change, including that associated with natural hazards, but may also face some constraints on this capacity. While the characteristics supporting and constraining capacity will vary across SA2s in the group, but these communities can be expected to have mid-range levels of in and out migration, suggesting a slightly less stable population.
Barriers to disaster resilience 	**Social character (Low)** These communities have social and demographic characteristics that may constrain their capacity to prepare for, respond to and recover from natural hazard events. The circumstances limiting this capacity will vary, but it is likely that many of these communities will have lower levels of education, employment and English language proficiency. Further constraints on capacity may come from a higher need for assistance and a relatively higher proportion of the working population in occupations other than management and professional occupations.
	Community capital (Low) The cohesion and connectedness of these communities may constrain the capacity to coordinate and cooperate for mutual benefit, including preparing for, responding to and recovering from natural hazard events. The circumstances constraining this capacity will vary across SA2s in the group but are likely to arise from a high incidence of crime, low community safety and other factors that limit social support and community participation. The level of volunteering activity is also likely to be low.

Table 4.14: List of SA2s in Typology Group 5. SA2s are arranged by State/Territory and then regions. SA2 names are based on ASGS (2011).

Coffs Harbour - North	NSW	Randwick	NSW	Dulwich Hill - Lewisham	NSW
Coffs Harbour - South	NSW	Bankstown	NSW	Haberfield - Summer Hill	NSW
Kurri Kurri - Abermain	NSW	Condell Park	NSW	Homebush	NSW
Lemon Tree Passage - Tanilba Bay	NSW	Greenacre - Mount Lewis	NSW	Strathfield	NSW
Callala Bay - Currarong	NSW	Padstow	NSW	Chatswood (East) - Artarmon	NSW
Glenwood	NSW	Revesby	NSW	Chatswood (West) - Lane Cove North	NSW
Parklea - Kellyville Ridge	NSW	Yagoona - Birrong	NSW	St Leonards - Naremburn	NSW
Quakers Hill - Acacia Gardens	NSW	Belmore - Belfield	NSW	Hornsby - Waitara	NSW
Glendenning Dean Park	NSW	Canterbury (South) - Campsie	NSW	Crows Nest - Waverton	NSW
Hassall Grove - Plumpton	NSW	Kingsgrove (North) - Earlwood	NSW	Neutral Bay - Kirribilli	NSW
Rooty Hill - Minchinbury	NSW	Lakemba - Wiley Park	NSW	North Sydney - Lavender Bay	NSW
Marrickville	NSW	Punchbowl	NSW	Auburn	NSW
Petersham - Stanmore	NSW	Roselands	NSW	Homebush Bay - Silverwater	NSW
Sydenham - Tempe - St Peters	NSW	Hurstville	NSW	Lidcombe - Regents Park	NSW
Darlinghurst	NSW	Mortdale - Penshurst	NSW	Ermington - Rydalmere	NSW
Erskineville - Alexandria	NSW	Narwee - Beverly Hills	NSW	Oatlands - Dundas Valley	NSW
Glebe - Forest Lodge	NSW	Riverwood	NSW	Chester Hill - Sefton	NSW
Newtown - Camperdown - Darlington	NSW	South Hurstville - Blakehurst	NSW	Fairfield - East	NSW
Potts Point - Woolloomooloo	NSW	Arncliffe - Bardwell Valley	NSW	Granville - Clyde	NSW
Pyrmont - Ultimo	NSW	Bexley	NSW	Guildford - South Granville	NSW
Redfern - Chippendale	NSW	Kingsgrove (South) - Bardwell Park	NSW	Guildford West - Merrylands West	NSW
Surry Hills	NSW	Kogarah	NSW	Merrylands - Holroyd	NSW
Sydney - Haymarket - The Rocks	NSW	Kogarah Bay - Carlton - Allawah	NSW	Girraween - Westmead	NSW
Waterloo - Beaconsfield	NSW	Monterey - Brighton-le-Sands - Kyeemagh	NSW	North Parramatta	NSW
Bondi - Tamarama - Bronte	NSW	Sans Souci - Ramsgate	NSW	Northmead	NSW
Bondi Beach - North Bondi	NSW	Concord West - North Strathfield	NSW	Parramatta - Rosehill	NSW
Bondi Junction - Waverly	NSW	Ashfield	NSW	Toongabbie - Constitution Hill	NSW
Kensington - Kingsford	NSW	Burwood - Croydon	NSW	Eastwood - Denistone	NSW
Malabar - La Perouse - Chifley	NSW	Canterbury (North) - Ashbury	NSW	Macquarie Park - Marsfield	NSW
Maroubra	NSW	Croydon Park - Enfield	NSW	Ryde - Putney	NSW

Table 4.14 (cont.) Group 5

West Ryde - Meadowbank	NSW	Melbourne	VIC	Berwick - South	VIC
Ashcroft - Busby - Miller	NSW	North Melbourne	VIC	Doveton	VIC
Badgerys Creek - Greendale	NSW	Parkville	VIC	Endeavour Hills	VIC
Green Valley - Cecil Hills	NSW	South Yarra - West	VIC	Hallam	VIC
Hoxton Park - Horningsea Park	NSW	Southbank	VIC	Narre Warren	VIC
Bonnyrigg Heights - Bonnyrigg	NSW	Port Melbourne	VIC	Narre Warren North	VIC
Bossley Park - Abbotsbury	NSW	South Melbourne	VIC	Cranbourne	VIC
Cabramatta - Lansvale	NSW	St Kilda	VIC	Cranbourne East	VIC
Cabramatta West - Mount Pritchard	NSW	St Kilda East	VIC	Cranbourne North	VIC
Canley Vale - Canley Heights	NSW	Abbotsford	VIC	Cranbourne South	VIC
Edensor Park	NSW	Collingwood	VIC	Cranbourne West	VIC
Fairfield	NSW	Fitzroy	VIC	Hampton Park - Lynbrook	VIC
Fairfield - West	NSW	Richmond (Vic.)	VIC	Lynbrook - Lyndhurst	VIC
Greenfield Park - Prairiewood	NSW	Box Hill	VIC	Narre Warren South	VIC
Horsley Park - Kemps Creek	NSW	Burwood	VIC	Clarinda - Oakleigh South	VIC
Smithfield - Wetherill Park	NSW	Heidelberg West	VIC	Clayton South	VIC
St Johns Park - Wakeley	NSW	Kingsbury	VIC	Dandenong	VIC
Casula	NSW	Preston	VIC	Dandenong North	VIC
Holsworthy - Wattle Grove	NSW	Reservoir - East	VIC	Keysborough	VIC
Liverpool - Warwick Farm	NSW	Reservoir - West	VIC	Noble Park	VIC
Prestons - Lurnea	NSW	Epping	VIC	Noble Park North	VIC
Wendouree - Miners Rest	VIC	Mill Park - South	VIC	Springvale	VIC
Corio - Norlane	VIC	South Morang	VIC	Springvale South	VIC
Newcomb - Moolap	VIC	Craigieburn - Mickleham	VIC	Ashwood - Chadstone	VIC
Northcote	VIC	Greenvale - Bulla	VIC	Clayton	VIC
Thornbury	VIC	Meadow Heights	VIC	Ardeer - Albion	VIC
Flemington	VIC	Roxburgh Park - Somerton	VIC	Cairnlea	VIC
Carlton	VIC	Tullamarine	VIC	Deer Park - Derrimut	VIC
Docklands	VIC	Pakenham - North	VIC	Delahey	VIC
Kensington	VIC	Pakenham - South	VIC	Keilor Downs	VIC

Table 4.14 (cont.) Group 5

Kings Park (Vic.)	VIC	Zillmere	QLD	Toowong	QLD
St Albans - North	VIC	Annerley	QLD	Trinity Beach - Smithfield	QLD
St Albans - South	VIC	Fairfield - Dutton Park	QLD	Bentley Park	QLD
Sunshine	VIC	Greenslopes	QLD	Edmonton	QLD
Sunshine North	VIC	Woolloongabba	QLD	Mermaid Beach - Broadbeach	QLD
Sunshine West	VIC	Macgregor (Qld)	QLD	Mermaid Waters	QLD
Sydenham	VIC	Upper Mount Gravatt	QLD	Arundel	QLD
Taylors Lakes	VIC	Coopers Plains	QLD	Biggera Waters	QLD
Altona Meadows	VIC	Robertson	QLD	Coombabah	QLD
Altona North	VIC	Calamvale - Stretton	QLD	Labrador	QLD
Seabrook	VIC	Parkinson - Drewvale	QLD	Mudgeeraba - Bonogin	QLD
Braybrook	VIC	Rocklea - Acacia Ridge	QLD	Reedy Creek - Andrews	QLD
Caroline Springs	VIC	Runcorn	QLD	Nerang - Mount Nathan	QLD
Hillside	VIC	Sunnybank	QLD	Pacific Pines - Gaven	QLD
Melton	VIC	Indooroopilly	QLD	Coomera	QLD
Melton South	VIC	St Lucia	QLD	Ormeau - Yatala	QLD
Melton West	VIC	Taringa	QLD	Oxenford - Maudsland	QLD
Taylors Hill	VIC	Enoggera	QLD	Pimpama	QLD
Hoppers Crossing - North	VIC	Fortitude Valley	QLD	Upper Coomera - Willow Vale	QLD
Hoppers Crossing - South	VIC	Highgate Hill	QLD	Clear Island Waters	QLD
Laverton	VIC	Kangaroo Point	QLD	Merrimac	QLD
Point Cook	VIC	New Farm	QLD	Robina	QLD
Tarneit	VIC	South Brisbane	QLD	Varsity Lakes	QLD
Truganina	VIC	Spring Hill	QLD	Molendinar	QLD
Werribee	VIC	West End	QLD	Southport	QLD
Werribee - South	VIC	East Brisbane	QLD	Surfers Paradise	QLD
Wyndham Vale	VIC	Kelvin Grove - Herston	QLD	Darra - Sumner	QLD
Carrum Downs	VIC	Newstead - Bowen Hills	QLD	Forest Lake - Doolandella	QLD
Chermside	QLD	Windsor	QLD	Raceview	QLD
Nundah	QLD	Wooloowin - Lutwyche	QLD	Bellbird Park - Brookwater	QLD

Table 4.14 (cont.) Group 5

Camira - Gailes	QLD	North Lakes - Mango Hill	QLD	Clarkson	WA
Collingwood Park - Redbank	QLD	Sippy Downs	QLD	Girrawheen	WA
Goodna	QLD	Wilsonton	QLD	Marangaroo	WA
Redbank Plains	QLD	College Grove - Carey Park	WA	Mindarie - Quinns Rocks - Jindalee	WA
Springfield	QLD	Koombana	WA	Tapping - Ashby - Sinagra	WA
Springfield Lakes	QLD	Greenfields	WA	Armadale - Wungong - Brookdale	WA
Beenleigh	QLD	Mandurah - North	WA	Camillo - Champion Lakes	WA
Eagleby	QLD	Mount Lawley - Inglewood	WA	Forrestdale - Harrisdale - Piara Waters	WA
Edens Landing - Holmview	QLD	Perth City	WA	Seville Grove	WA
Mount Warren Park	QLD	Subiaco - Shenton Park	WA	Belmont - Ascot - Redcliffe	WA
Wolffdene - Bahrs Scrub	QLD	Maylands	WA	East Victoria Park - Carlisle	WA
Boronia Heights - Park Ridge	QLD	Morley	WA	Rivervale - Kewdale - Cloverdale	WA
Browns Plains	QLD	Ballajura	WA	Victoria Park - Lathlain - Burswood	WA
Crestmead	QLD	Beechboro	WA	Bentley - Wilson - St James	WA
Hillcrest	QLD	Bullsbrook	WA	Canning Vale - West	WA
Marsden	QLD	Ellenbrook	WA	Cannington - Queens Park	WA
Regents Park - Heritage Park	QLD	Lockridge - Kiara	WA	Beckenham - Kenwick - Langford	WA
Greenbank	QLD	Midland - Guildford	WA	Canning Vale - East	WA
Jimboomba	QLD	Stratton - Jane Brook	WA	Huntingdale - Southern River	WA
Logan Village	QLD	Currambine - Kinross	WA	Manning - Waterford	WA
Bethania - Waterford	QLD	Joondalup - Edgewater	WA	Banjup	WA
Loganlea	QLD	Balga - Mirrabooka	WA	Beeliar	WA
Waterford West	QLD	Innaloo - Doubleview	WA	Coolbellup	WA
Kingston	QLD	Nollamara - Westminster	WA	Hamilton Hill	WA
Slacks Creek	QLD	Scarborough	WA	South Lake - Cockburn Central	WA
Woodridge	QLD	Tuart Hill - Joondanna	WA	Spearwood	WA
Caboolture - South	QLD	Yokine - Coolbinia - Menora	WA	Success - Hammond Park	WA
Deception Bay	QLD	Alexander Heights - Koondoola	WA	Wattleup	WA
Rothwell - Kippa-Ring	QLD	Butler - Merriwa - Ridgewood	WA	Yangebup	WA
Dakabin - Kallangur	QLD	Carramar	WA	Bertram - Wellard (West)	WA

Table 4.14 (cont.) Group 5

Parmelia - Orelia	WA
Willagee	WA
Cooloongup	WA
Port Kennedy	WA
Singleton - Golden Bay - Secret Harbour	WA
Waikiki	WA
Warnbro	WA
Belconnen	ACT

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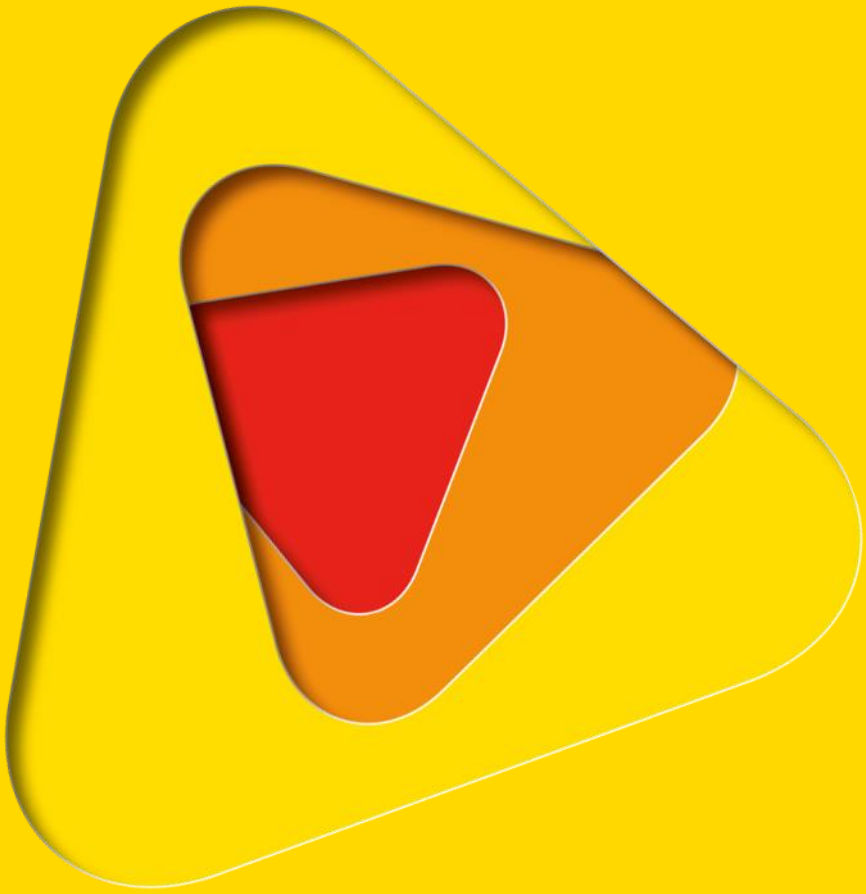
CHAPTER 5 – UNCERTAINTY AND SENSITIVITY ANALYSIS



5.1 INTRODUCTION

The Australian Natural Disaster Resilience Index represents the best estimate of the spatial distribution of the capacity for disaster resilience in Australia, given the present understanding of the concept, the availability of suitable secondary data, the current methods of index construction and the resources available to the project. Nevertheless, there is likely to be potential for incremental refinement of the index in the future. This will come from several sources.

First, new studies of communities in their coping and adaptation phases after natural disasters may identify new factors that shape resilience to natural disasters, or may rule out factors currently hypothesised to influence resilience. In addition, there may be improved understanding of how factors interact, and this will be able to be incorporated in aggregation procedures.

Second, new or updated data sets are likely to become available and these will need to be incorporated in the index, or more current data substituted for older data. In particular, there is a general paucity of data about adaptive capacity factors that can be applied at a national level. Any future initiatives to support the derivation of adaptive capacity data across all States and Territories would improve the evaluation of this part of disaster resilience.

Third, the mathematics of composite indices is an area of on-going study, and it is likely that refined techniques will become available in the future, suitable for application to the construction of the Australian Natural Disaster Resilience Index.

Fourth, the level of detail and sophistication of the current version of the Australian Natural Disaster Resilience Index had to be tailored to the resources available to the project. At a number of points in the construction of the index, more economic, but possibly less ideal, methods had to be chosen. Future iterations may have the resources and learned experiences available to substitute improved methods where relevant.

This chapter reports the findings from uncertainty and sensitivity analyses that will inform future iterations of the Australian Natural Disaster Resilience Index. These identify priorities among the set of indicators and index computation methods for future refinement of the index. The methods and results of uncertainty and sensitivity analysis used for the Australian Natural Disaster Resilience Index are described in further detail in Volume II.

5.2 UNCERTAINTY ANALYSIS

Uncertainty analysis (and the sensitivity analysis described in Section 5.3) is a form of mathematical modelling, where mathematical calculation connects a

set of inputs (in this case, indicators) with one or more outputs (in this case, the Australian Natural Disaster Resilience Index). The modelling can also be set up so that methodological choices, such as which form of aggregation to use, are also treated as inputs to the model. Uncertainty analysis assesses the impact of some indicator and methodological choices on the Australian Natural Disaster Resilience Index values. Uncertainty analysis assigns probability distributions to the model inputs, representing the uncertainty associated with these inputs. By repeated sampling from these distributions and recalculating the model, the impact of input uncertainty on the model output can be quantified.

Given the large number of indicators used, and the relatively detailed transformation and aggregation procedures, a complete uncertainty analysis that includes all indicators and the many choices made in transforming and aggregating indicators is prohibitively demanding of computing power. The approach taken for the Australian Natural Disaster Resilience Index was firstly to reduce the number of potential uncertainty model inputs by *a-priori* reasoning about methodological choices. Choices that were well justified on methodological grounds were not included as model inputs. These included: normalising indicators, the use of min-max rescaling and aggregation by the discrete Choquet integral or ordered weighted averaging. The detailed justifications for these choices are described in Volume II.

The second approach used in the uncertainty analysis was to break the analysis down into manageable components. For example, the confidentialising adjustments used by the Australian Bureau of Statistics (ABS) mean that some Census cell counts used for calculating indicators are uncertain. If these adjustments can be shown to have negligible effect on the Australian Natural Disaster Resilience Index, then this potential source of uncertainty can be omitted from subsequent analysis.

Two sources of uncertainty in indicator values were analysed: the confidentialising adjustments by the ABS, and evaluative uncertainties in indicators that were developed by evaluation of policy and planning documents. In the former case, the social character theme sub-index was chosen for analysis, as this sub-index is based wholly on Census data.

5.2.1 Indicator uncertainty – ABS confidentialising adjustments

For the data released from the 2011 Census, the ABS protected confidentiality in tables with small cell counts by random rounding to base 3 in cells with counts less than 20 (ABS 2005; ABS 2017). Using the ABS's description of the random rounding method, probabilities were assigned to the original cell counts, giving a discrete probability density function for any count less than 20. The calculation of indicators from cell counts, and the aggregation of indicators to form a theme sub-index was repeated 1,000 times, each time sampling from the possible original cell counts, with a probability given by the discrete probability density function. This gave 1,000 possible values of the

social character theme sub-index for each SA2. From the distributions of the 1,000 possible values, a 5-95 interpercentile range was calculated as a measure of the impact of the uncertainty due to the ABS confidentialising procedures on the theme sub-index. The 5-95 interpercentile range for a SA2 will contain 90 per cent of the possible sub-index values for that SA2. A narrow 5-95 interpercentile range shows that the uncertainty due to ABS confidentialising procedures has little impact on the theme sub-index. A full description of the above method is given in Volume II.

Of the 2,084 SA2s, 2,073 SA2s had a 5-95 interpercentile range less than 0.015, meaning that for these SA2s there was a 90 percent chance that the value of the social character theme sub-index prior to confidentialising was within 0.0075 of the value after confidentialising. For example, the SA2 of Bombala has a median social character theme sub-index value of 0.4048 and a 5-95 interpercentile range of 0.015. This means that there is a 90 per cent chance that the pre-confidentialising value of the sub-index lies between 0.4123 and 0.3973.

There are ten SA2s for which the 5-95 interpercentile range lies between 0.015 and 0.1, and one SA2 – Western – for which the 5-95 percentile is 0.19. These eleven SA2s are characterised by low populations and/or substantial numbers of indicators with very low values. This combination makes the incidence of cells with population counts less than 20 more likely. The 5-95 interpercentile range is mapped in Figure 5.1. Maps at the State and Territory resolution are provided in Volume II.

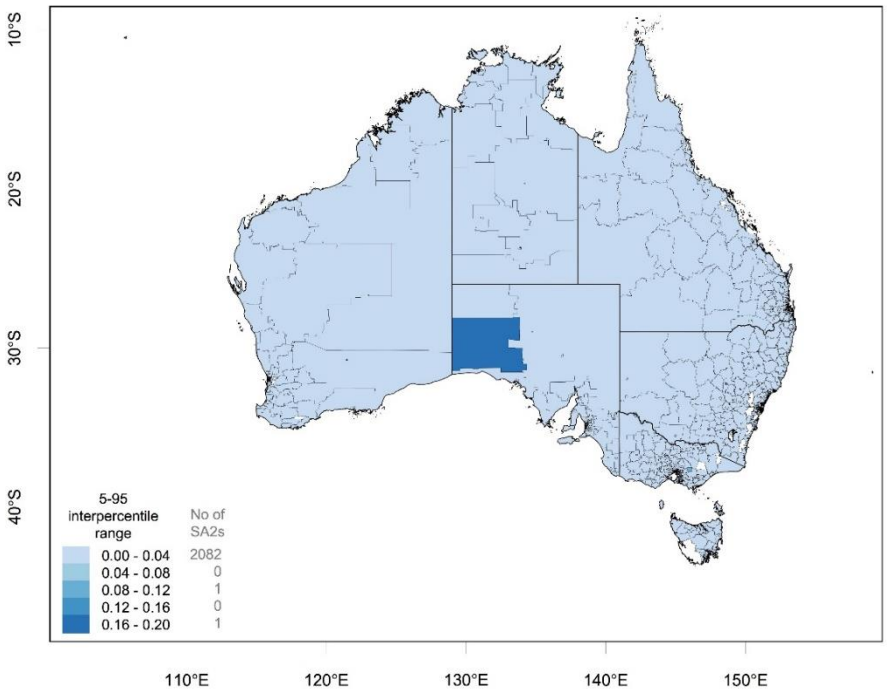


Figure 5.1: Interpercentile range for the effect of ABS confidentialising procedures on the social character theme sub-index.

The social character theme is the only theme where all indicators are derived from Census data, and is therefore likely to represent the worst case for the impact of confidentialising procedures. Several other theme sub-indices use some Census-derived indicators, and it is likely that the impact of ABS confidentialising procedures on these themes will be negligible. For these reasons, the uncertainties associated with confidentialising procedures are not included in the subsequent uncertainty and sensitivity analysis.

5.2.2 Indicator uncertainty – derived indicators

Four indicators used in the Australian Natural Disaster Resilience Index are derived from content analysis of relevant legislation, policy and reporting documents. These indicators were used because quantitative proxies were not available. Indicators were derived by evaluation of criteria representing whether key aspects relating to disaster resilience are in place (see Volume II). The criteria were coded numerically: 0 = not met, 1 = partly met, 2 = fully met. The indicators and number of items used to compute the indicator were:

Emergency management planning score – 12 items;

Planning assessment score – 7 items;

Community engagement score – 7 items; and,

Governance, policy and leadership score – 9 items.

The following assumptions were made about the probability of mis-evaluation for each item:

0 – probability of 1 or 2 is zero, i.e. there is complete certainty if the criterion for an item is not met;

1 – probability of 1 is 75%, probability of 2 is 25%; and,

2 – probability of 2 is 75%, probability of 1 is 25%.

From these mis-evaluation probabilities, a probability density function appropriate to the normalised and rescaled indicators was derived. The Australian Natural Disaster Resilience Index value was calculated 1,000 times for each of the 2,084 SA2s, in each instance drawing at random an indicator value using the relevant probability density function for each of the four derived indicators. The uncertainty analysis provided distributions of possible Australian Natural Disaster Resilience Index values for each of the 2,084 SA2s. The distributions are summarised in Figure 5.2.

Evaluative uncertainty associated with the derived indicators has a non-negligible effect on the Australian Natural Disaster Resilience Index value, up to approximately ±0.15 for some SA2s. The 5-95 interpercentile range is mapped in Figure 5.3. Maps at the State and Territory resolution are provided in Volume II. The difference between Queensland and other States is a reflection of some of

the evaluative indicators having been constructed from State legislation and policy documents. Where an evaluative indicator has mid-range values, it will tend to have a higher 5-95 interpercentile range for the simulated uncertainty, since the variation in mid-range values is not constrained by the minimum and maximum possible values of the indicator.

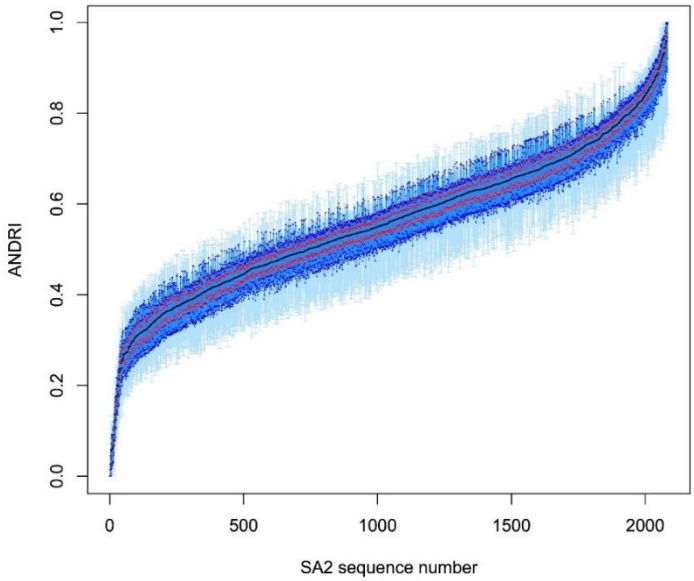


Figure 5.2: Sequence plot for simulated Australian Natural Disaster Resilience Index values associated with derived indicator uncertainty. SA2s are in increasing order of index value. Central black line = median, red dots = first and third quartiles, blue dots = 5th and 95th percentiles, light blue "whiskers" show the minimum and maximum values. 50% of values lie between the red dots, 90% of values lie between the blue dots.

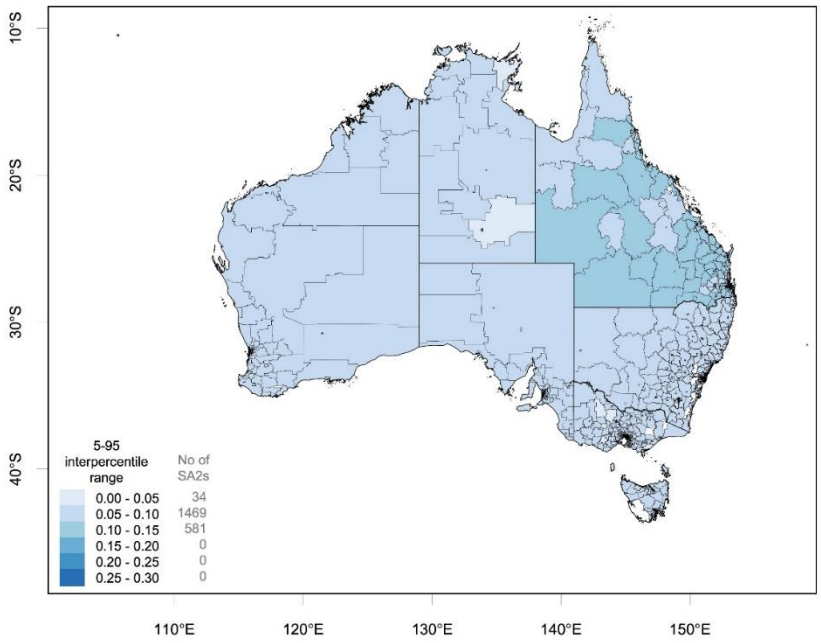


Figure 5.3: Interpercentile range for uncertainty in the Australian Natural Disaster Resilience Index caused by indicators derived from content analysis of legislation, policy and other documents.

5.2.3 Methodological uncertainty – disaggregation methods

Data that are only available at a spatial resolution other than SA2, such as local government area (LGA) or State, have to be disaggregated to SA2 level so that they can be included in the construction of the Australian Natural Disaster Resilience Index. When disaggregation involves a characteristic that is spatially heterogeneous, this inevitably introduces uncertainty into the SA2 indicator values. For example, if the proportion of single parent families was only available at LGA level, but estimates at SA2 level were required, it is possible that an SA2 comprised of several parts of surrounding LGAs might have no single parent families, or it might have all single parent families, depending on how this type of family is distributed across the LGAs. However, this spatial distribution of single parent families is not known and the best estimate that can be achieved for the SA2 is some sort of average of the proportions of single parent families in the surrounding LGAs. Depending on the spatial heterogeneity of single parent families, the true value could be anywhere between 0% and 100%.

On the other hand, some indicators have no spatial heterogeneity. For example, an indicator of local government financial sustainability is only meaningful for a local government as a whole, so an SA2 wholly within an LGA can only have the indicator value of the LGA. For SA2s comprised of several LGAs, the indicator value (to the extent it is meaningful) could be obtained by an average of the values in the surrounding LGAs. It would not be meaningful for the SA2 estimate to be greater that the largest LGA value, or less than the smallest LGA value. The spread of possible SA2 values is less than in the single parent family example above.

With this reasoning, probability density functions were developed for all indicators where disaggregation from broader geographies had been used. The probability density functions were in the form of truncated normal distributions with the variance set by the degree of spatial heterogeneity considered appropriate to the indicator. Three levels of spatial heterogeneity were used, low, moderate and high. Full details of the indicators for which disaggregation was used, the assumptions as to spatial heterogeneity and the corresponding probability density functions are provided in Volume II.

The Australian Natural Disaster Resilience Index was calculated 1,000 times for each of the 2,084 SA2s, in each instance drawing at random possible indicator values using the relevant probability density function for each of the indicators that had been obtained by disaggregation from a larger scale geography. The resultant index value distributions for each SA2 are shown in Figure 5.4.

The uncertainty created by disaggregation from broader scale geographies to SA2 in obtaining indicator values has considerable impact on the index values. Depending on the vagaries of spatial heterogeneity, the true index value could be as much as 0.2 either side of the estimated value. The 5-95 interpercentile

range is mapped in Figure 5.5. Maps at the State and Territory resolution are provided in Volume II.

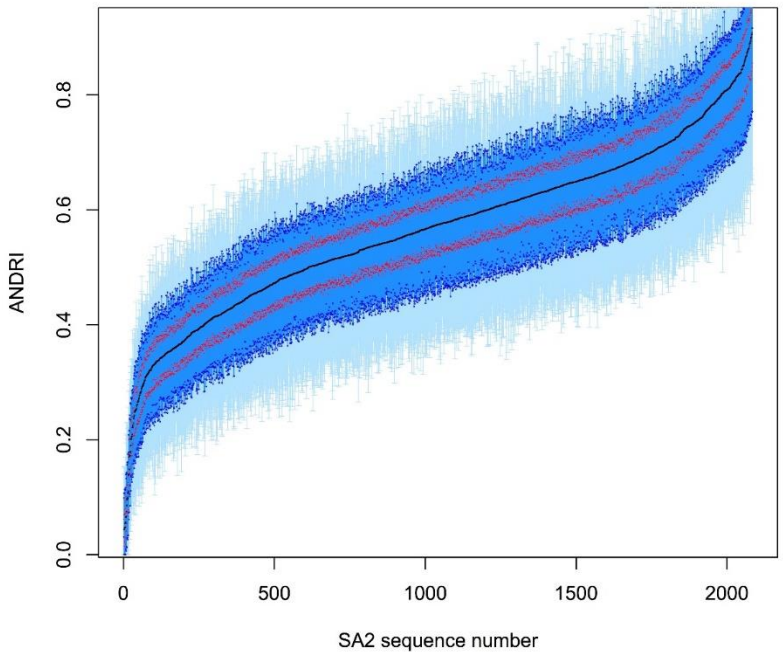


Figure 5.4: Sequence plot for simulated Australian Natural Disaster Resilience Index values associated with disaggregation uncertainty. SA2s are in increasing order of index value. Central black line = median, red dots = first and third quartiles, blue dots = 5th and 95th percentiles, light blue "whiskers" show the minimum and maximum values. 50% of values lie between the red dots, 90% of values lie between the blue dots.

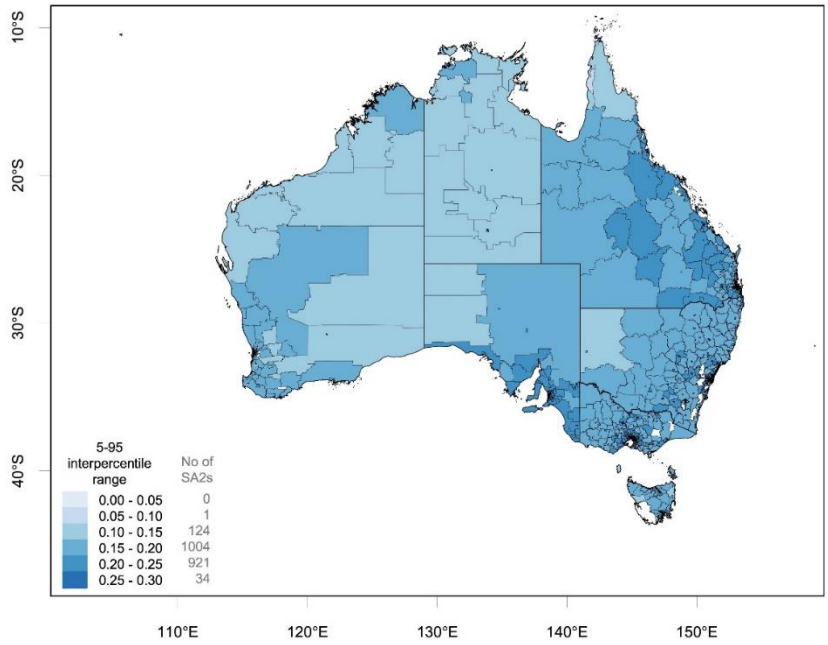


Figure 5.5: Interpercentile range for the uncertainty in the Australian Natural Disaster Resilience Index caused by uncertainty in disaggregated indicator values.

5.2.4 Methodological uncertainty – orness values in aggregation

Ordered weighted averaging (OWA) and the discrete Choquet integral have been used in the construction of the Australian Natural Disaster Resilience Index and these aggregation procedures allow the extent of compensatory effects to be adjusted to reflect the current understanding of how the factors represented by the indicators might substitute for each other. Central to this is the specification of the orness parameter, which determines the degree of restraint on compensability in the aggregation process. The degree of restraint can range from no restraint (orness = 0.5, equivalent to the arithmetic mean) to no compensability (orness = 0.0, equivalent to the minimum function). For example, aggregating two indicators with values 0.4 and 0.8, the value of the composite index will be the mean, 0.6 if the orness of the aggregation is 0.5, and the minimum, 0.4 if the orness of the aggregation is 0.0.

The current level of understanding as to how various characteristics of communities might combine to determine resilience to natural hazards falls far short of what is required to specify the orness values that might reflect the degree of compensatory effects among these characteristics. Accordingly, the Australian Natural Disaster Resilience Index aggregation procedures use just two orness values: 0.125 for situations where it can be reasoned that a fair degree of restraint should be placed on compensatory effects, and 0.375 for situations where it can be reasoned that some, but not completely unrestrained, compensatory effects can be allowed.

The assumption of just two orness values introduces uncertainty into the Australian Natural Disaster Resilience Index, since the actual orness values needed to simulate the actual compensatory effects between community characteristics could well be different to that implied by the chosen orness values. So it is possible, where limited compensatory effects is a reasonable assumption, that the required orness value lies anywhere between 0.0 and 0.25. Likewise, where it is reasoned that some compensatory effects are acceptable, the required orness value could lie anywhere between 0.25 and 0.5. These limits, then, will apply to the probability density function used to simulate the uncertainty in setting the orness value, viz. the truncated normal distribution. The orness values used in all the aggregation procedures in the ANDRI are provided in Volume II.

The Australian Natural Disaster Resilience Index value was calculated 1,000 times for each of the 2,084 SA2s, in each instance drawing at random possible orness values using the relevant probability density function for each of the aggregation steps. The resultant index distributions for each SA2 are shown in Figure 5.6.

The uncertainty in the choice of orness values in the aggregation phase has some impact on the index value. The range of orness values tested was quite wide: from 0.0 – 0.25 for the low orness value and from 0.25 to 0.50 for the high

orness value. However, the range in resultant ANDRI values is within 0.1 of the central value. The 5-95 interpercentile range is mapped in Figure 5.7. Maps at the State and Territory resolution are provided in Volume II.

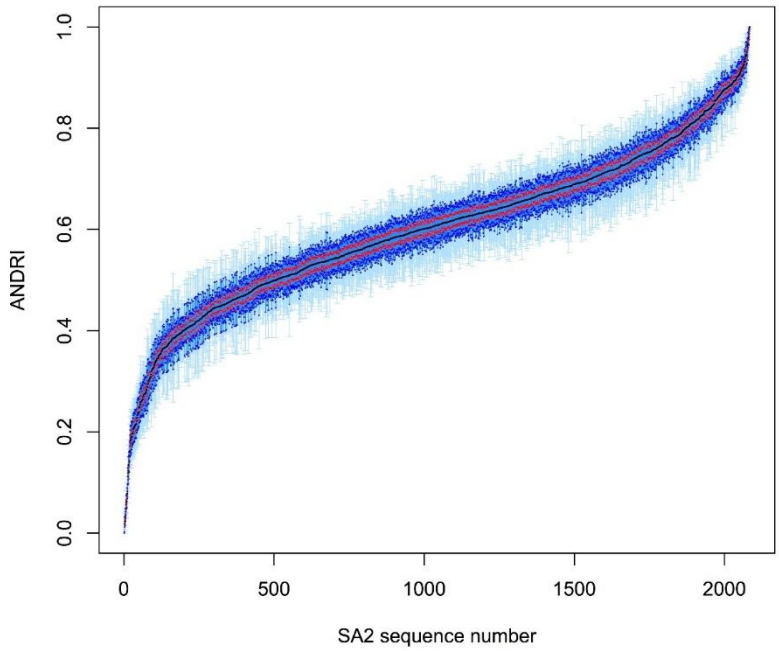


Figure 5.6: Sequence plot for simulated Australian Natural Disaster Resilience Index values associated with aggregation uncertainty. SA2s are in increasing order of index value. . Central black line = median, red dots = first and third quartiles, blue dots = 5th and 95th percentiles, light blue "whiskers" show the minimum and maximum values. 50% of values lie between the red dots, 90% of values lie between the blue dots.

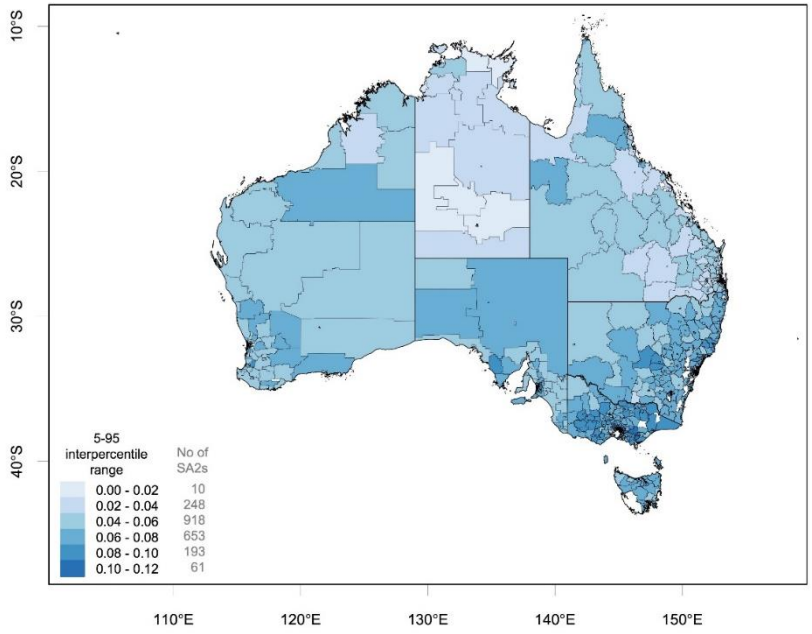


Figure 5.7: Interpercentile range for the uncertainty in the Australian Natural Disaster Resilience Index caused by uncertainty in the orness values used in the aggregation procedure.

5.3 SENSITIVITY ANALYSIS

Sensitivity analysis provides a means of apportioning the variation in the Australian Natural Disaster Resilience Index to the indicators and aggregation parameters used in its construction. Sensitivity analysis apportions the variation in the model output to the model inputs identifying, for example, the inputs in which variation has the greatest effect on the output. This enables the identification of indicators and/or parameters where variation will flow through to the index values, versus indicators and/or parameters for which variation has negligible impact on the index values.

The simplest methods of sensitivity analysis are the so called local methods which calculate the change in model output (such as the index value) relative to a change in an input factor (such as an indicator), while holding all other factors constant at their central values. While they have been widely used, these methods have the disadvantage that they leave large parts of the space of possible input factor values untested, are unable to discover interactions between factors and are limited to use with linear and/or additive models (Saltelli et al. 2010; Ferretti et al. 2016).

Global sensitivity analysis, on the other hand, and particularly the variance-based techniques that have been developed in the last few decades, requires no assumptions about model linearity and additivity, tests the space of input factor values much more comprehensively and deals specifically with interaction effects (Saltelli et al. 2008). However, these techniques have a prohibitively large demand on computing time and resources. Preliminary tests with Sobol global sensitivity methods (Sobol 1993) and the Australian Natural Disaster Resilience Index (which involves 114 input factors) revealed that, with the available computer resources, a single sensitivity analysis would take at least 11 days to run.

The Elementary Effects method of Morris (1991) is a compromise between the inadequacy of local methods and the computational demands of the variance based methods, while still being suited to large models. It provides results that are not inconsistent with the results from variance-based methods (Campolongo and Saltelli 1997; DeJonge et al. 2012; Herman et al. 2013), while still exploring much of the input factor space at low computational cost. The method calculates the mean and standard deviation of the effects of each input factor on the model output, varied one at a time while holding other factors at a range of values defined by various trajectories through the input factor space. A high standard deviation for an input factor signals that its effects vary substantially, depending on the values of other input factors. This is an indication of interaction effects in the model.

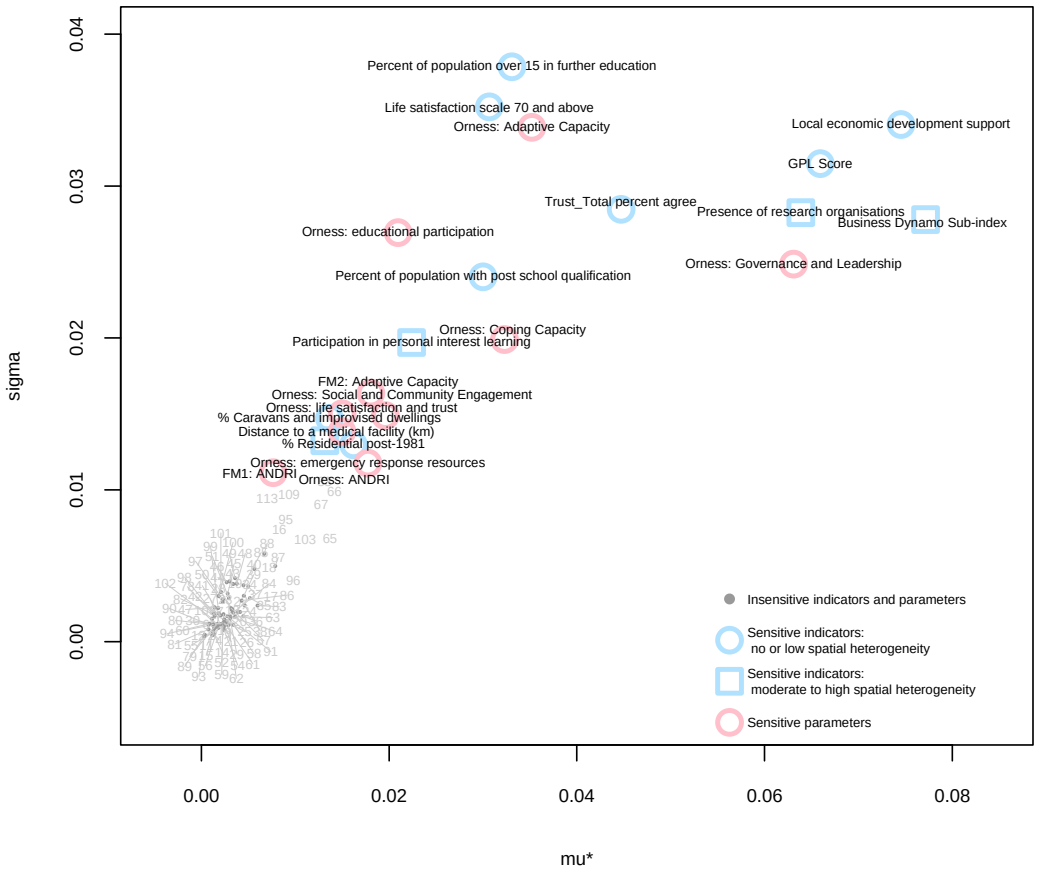


Figure 5.8: Scatter plot of the mean absolute effect and standard deviation of effects. The plotting symbols distinguish between indicators and methodological parameters, and show the degree of spatial heterogeneity associated with indicators obtained by disaggregation. The numbers beside the dots correspond to an indicator or parameter (see Volume II).

The results from the application of the Morris Elementary Effects method to the Australian Natural Disaster Resilience Index are shown in Figure 5.8. The small grey dots represent indicators and aggregation parameters that have negligible effect on the Australian Natural Disaster Resilience Index (Figure 5.8). The indicators that have a negligible effect on the Australian Natural Disaster Resilience Index might be considered for removal in future iterations of the index, although this purely mathematical criterion will have to be set against substantive reasons for retention.

Above and to the right of the grey dots are a group of indicators and parameters that have some effect on the Australian Natural Disaster Resilience Index (Figure 5.8). Of these, distance to a medical facility is associated with moderate to high disaggregation uncertainty and this will flow through to cause some uncertainty in the index.

The Australian Natural Disaster Resilience Index is most sensitive to variation in the indicators and parameters that plot in the top right area of the scatter plot (Figure 5.8). Two indicators: the business dynamo sub-index and the presence of research organisations, are also associated with relatively higher uncertainties, due to their likely higher levels of spatial heterogeneity and disaggregation from LGA to SA2. This means that these two indicators are likely to be important sources of any uncertainty in the index. The relatively high values of sigma indicate that the relationship between variation in the indicators and variation in the index is likely to be non-linear and involve interactions between indicators and/or parameters.

The Australian Natural Disaster Resilience Index values are also sensitive to variation in local economic development support and governance, policy and leadership score. However, while these indicators are disaggregated to SA2 level, spatial heterogeneity is low or non-existent, so that disaggregation uncertainty is minimal. These two indicators, therefore, are unlikely to introduce any uncertainty into the Australian Natural Disaster Resilience Index.

An additional sensitivity analysis was undertaken, relating to the temporal sensitivity of the Australian Natural Disaster Resilience Index. Since all the indicators used in the construction of the index are likely to change over time, the question arises as to how frequently the Australian Natural Disaster Resilience Index should be updated. Of the indicators comprising the Australian Natural Disaster Resilience Index, it is only the Census based indicators that are currently available for more than one point in time. The social character theme is solely comprised of Census based indicators and the changes from the 2011 to the 2016 Census for the theme sub-index were analysed to inform the question of the frequency of updating of the ANDRI. This analysis is described in detail in Volume II.

It was concluded that the effects on the Australian Natural Disaster Resilience Index of changes each five years in the Census based indicators would not be large enough to warrant routine updating of these indicators with each new Census. However, if other indicators were being updated due to large changes that had taken place, then the Census based indicators should be updated at the same time.

5.4 CONCLUSIONS

Four sources of uncertainty were analysed: that due to ABS confidentialising procedures, that due to derived indicators, that due to disaggregation from broader scale geographies and that due to the choice of orness values used in aggregation calculations. It was found that ABS confidentialising procedures were a negligible source of uncertainty in the Australian Natural Disaster Resilience Index values. On the other hand, disaggregation uncertainty was shown to have considerable impact on the final index values. For this reason,

the refinement of disaggregation techniques used in the ANDRI, and/or the location of data at SA2 level should be considered in future iterations of the Australian Natural Disaster Resilience Index. Dasymetric mapping and pycnophylactic interpolation are two techniques that would reduce the uncertainty introduced in disaggregation.

Evaluative uncertainty was found to have a modest impact on final Australian Natural Disaster Resilience Index values, however the sensitivity analysis did not identify any particular evaluative indicator as having undue influence on the index. Evaluative uncertainty could be reduced by having multiple assessors and checking measures of inter-rater agreement.

The sensitivity analysis identified several choices of orness values used in aggregation by OWA that had greater influence on the final Australian Natural Disaster Resilience Index values. The uncertainty analysis showed that, while there were differences among the orness choices, overall the impact of orness choices on the index was fairly modest. Future iterations of the Australian Natural Disaster Resilience Index could consider improving the setting of orness values, particularly for the aggregations for coping capacity and governance and leadership. This could follow either, or both, of two approaches. The first is to review the natural disaster resilience literature for evidence of the extent of compensatory effects among factors affecting natural disaster resilience, and use this evidence to refine the orness values for OWA and the fuzzy measures used with the discrete Choquet integral. The second approach is to obtain orness values or fuzzy measures from a structured elicitation with an expert panel. Methods of doing this have been pioneered in the construction of the FEEM Sustainability Index (FEEM 2011; Cruciani et al. 2012).

Future iterations of the Australian Natural Disaster Resilience Index might also investigate whether some of the indicators identified in the sensitivity analysis as having little effect on the index could be omitted, although this purely mathematical criterion should be set against substantive reasons for retention.

With regard to the frequency at which the Australian Natural Disaster Resilience Index should be updated with new indicator data, it was concluded that there was little justification for routine updating of Census based indicators on a five year cycle. However, updating of Census indicators could be done when changes in other indicators were large enough to justify another iteration of the index.

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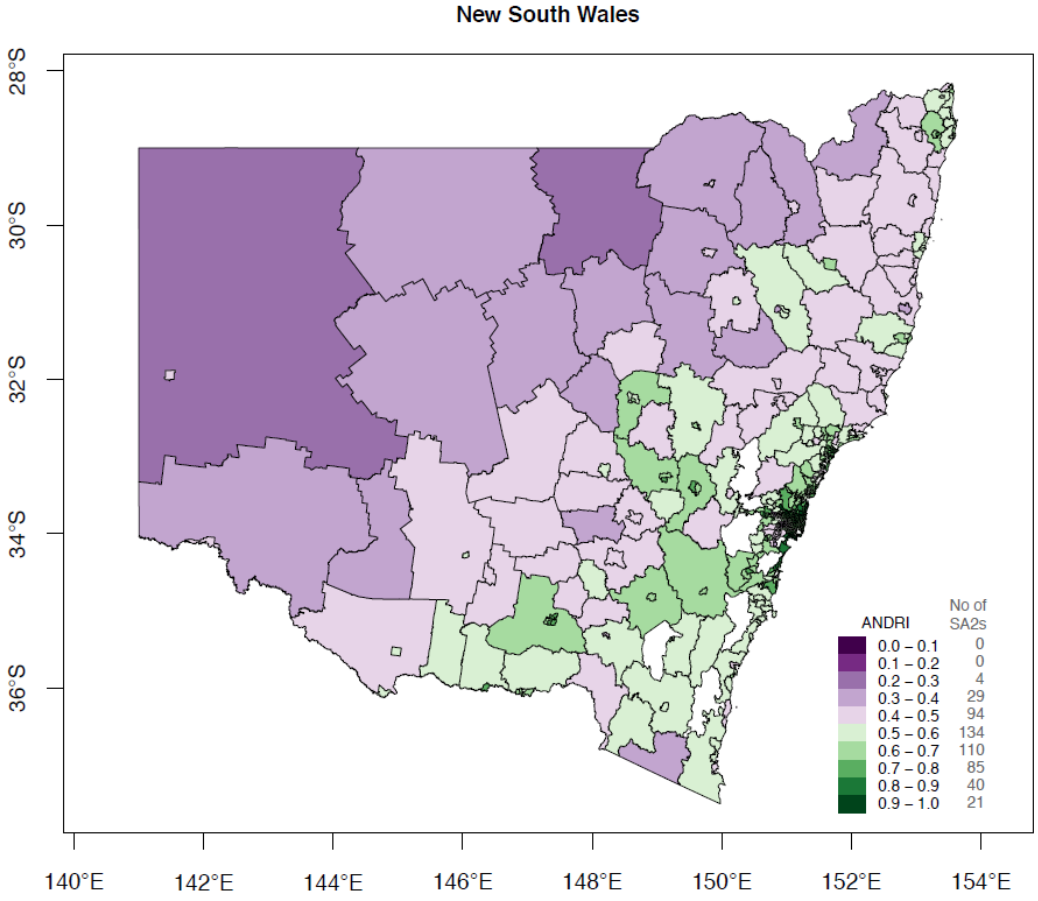
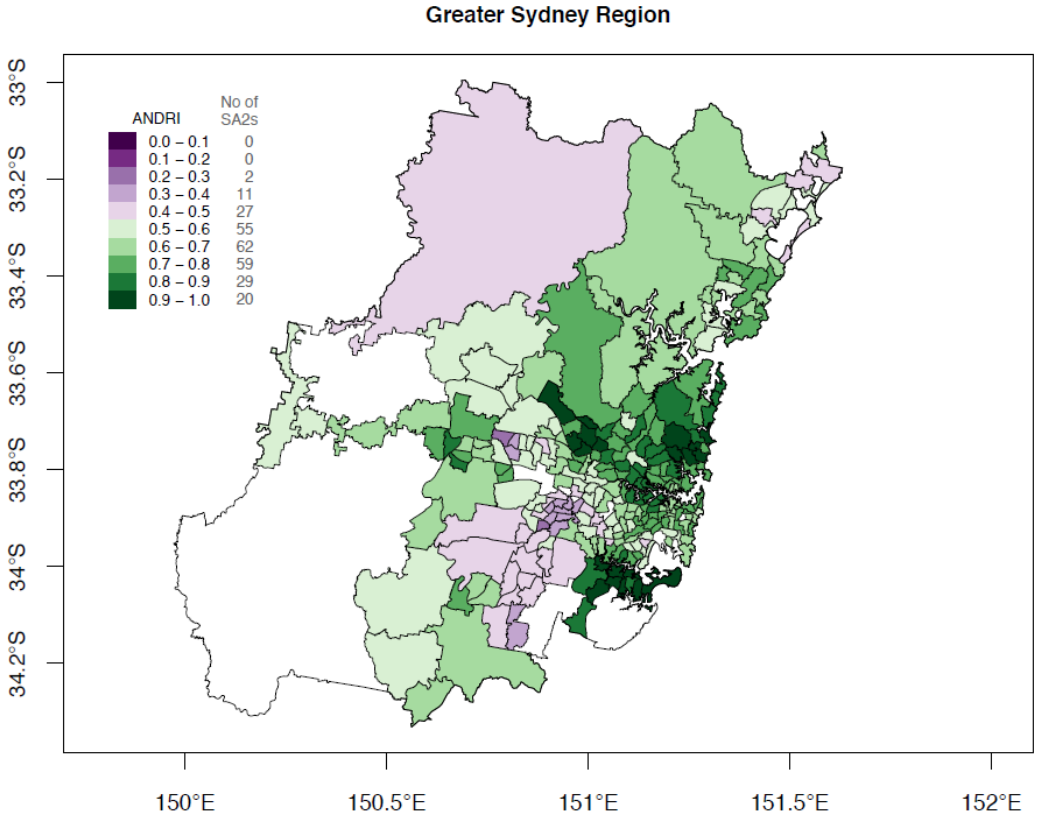
APPENDIX A – MAPS: DISASTER RESILIENCE IN AUSTRALIA

Appendix A maps the Australian Natural Disaster Resilience Index at the resolution of individual States and Territories, and major metropolitan areas.

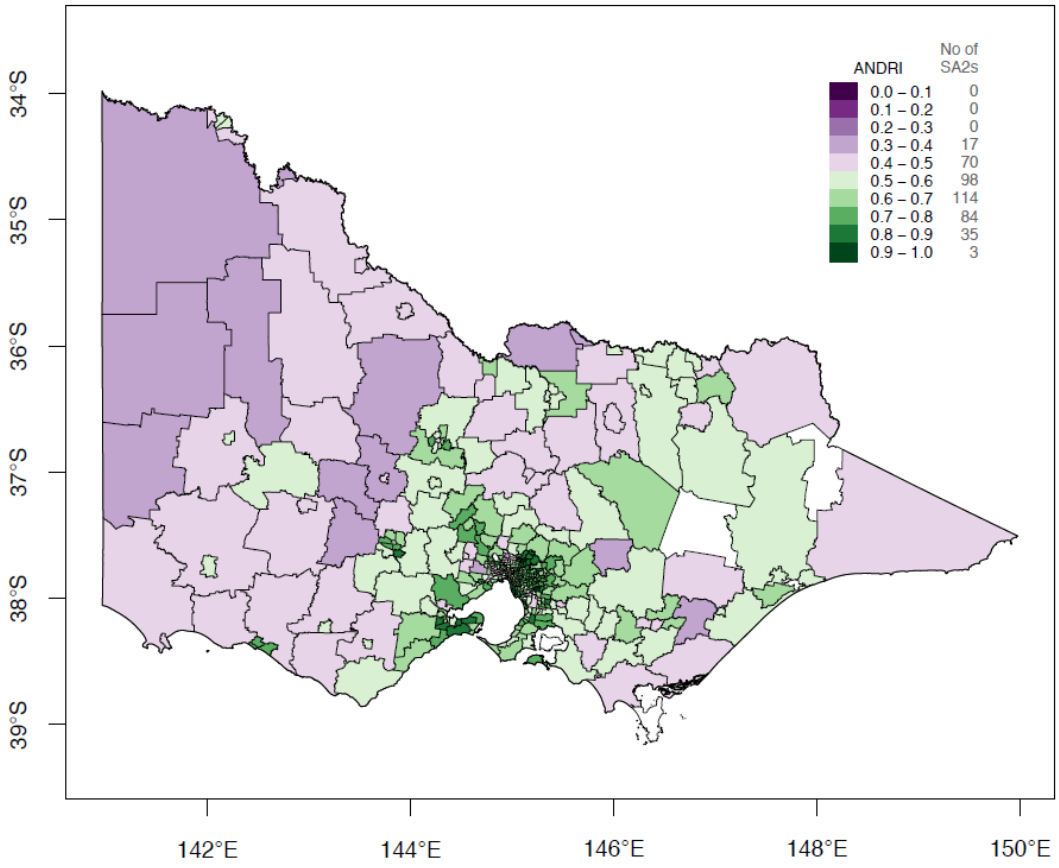
Appendix A. Australian Natural Disaster Resilience Index, NSW.



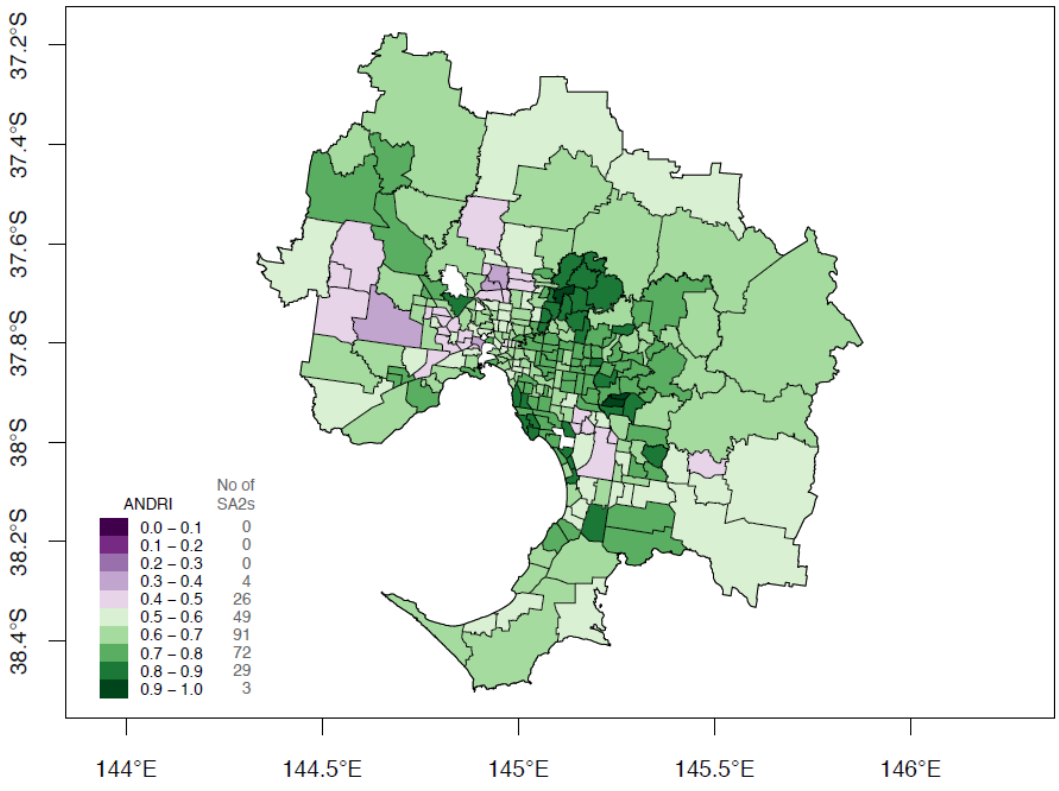


Appendix A. Australian Natural Disaster Resilience Index, VIC.

Victoria

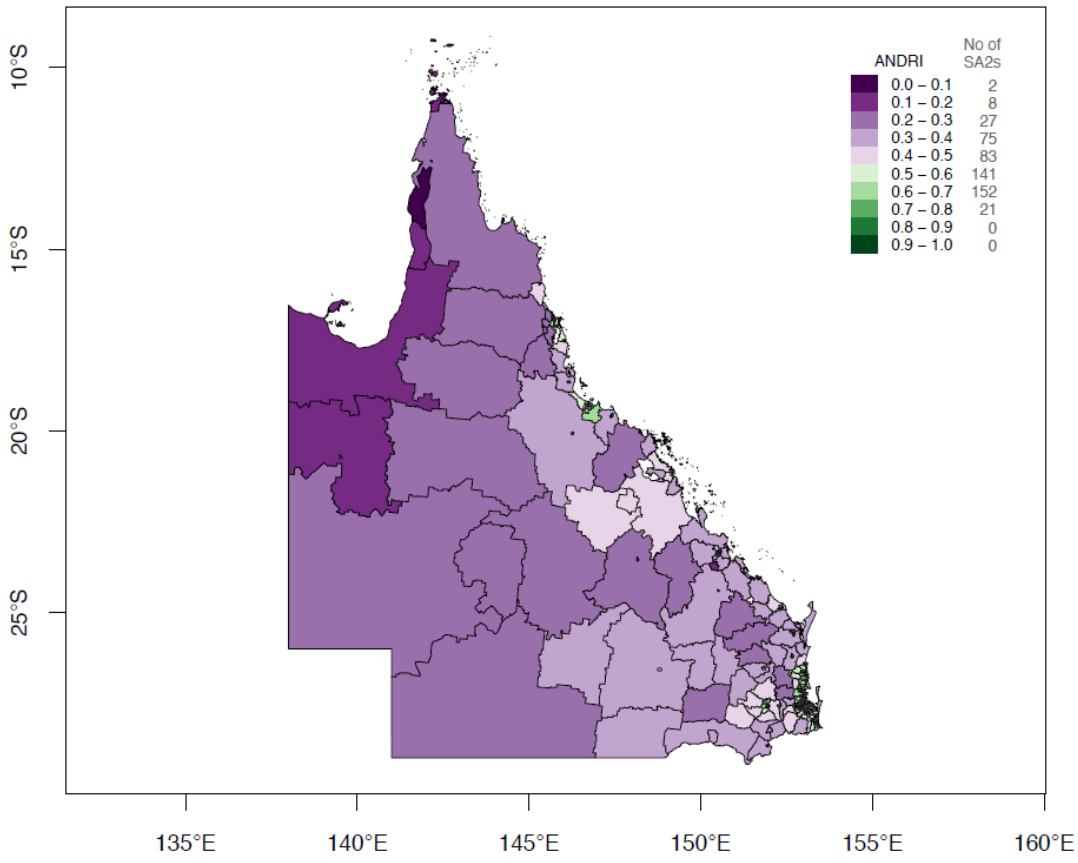


Greater Melbourne Region

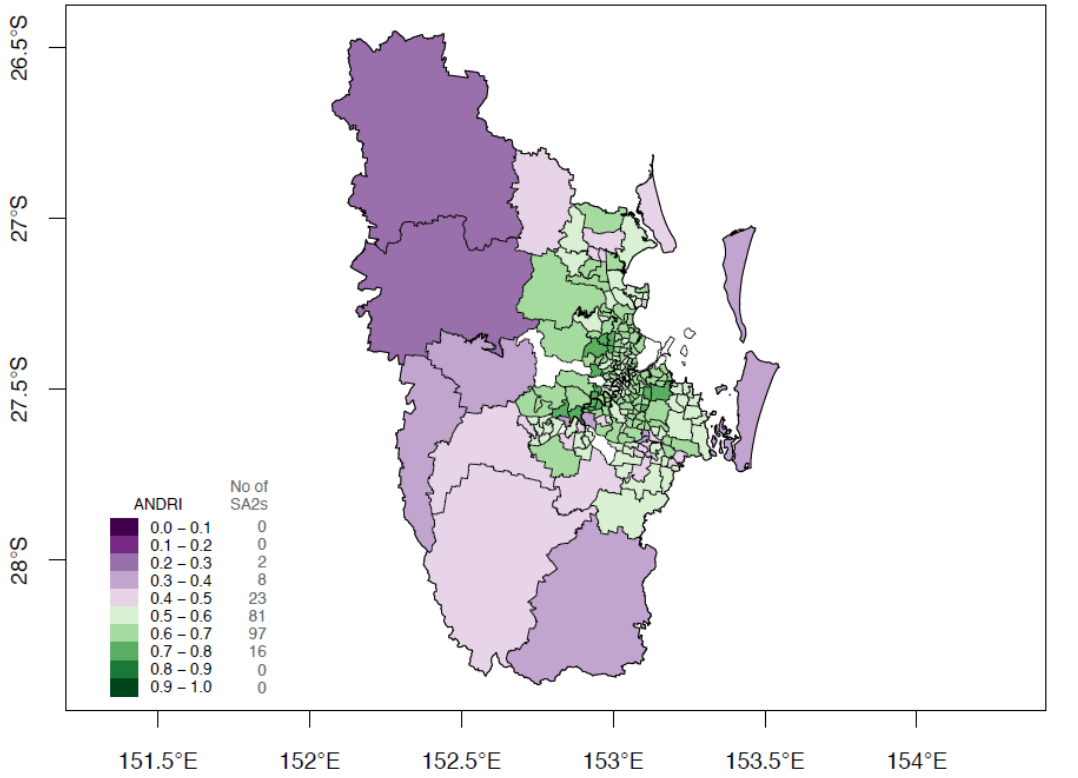


Appendix A. Australian Natural Disaster Resilience Index, QLD.

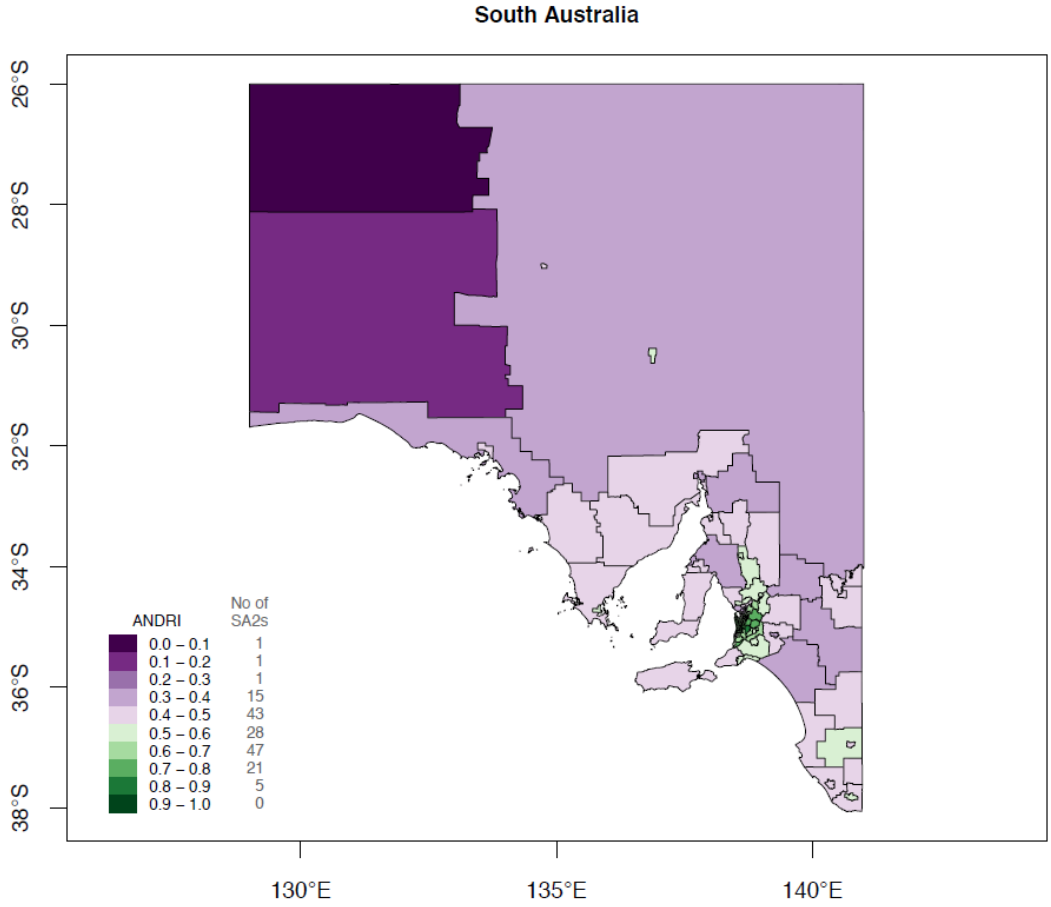
Queensland

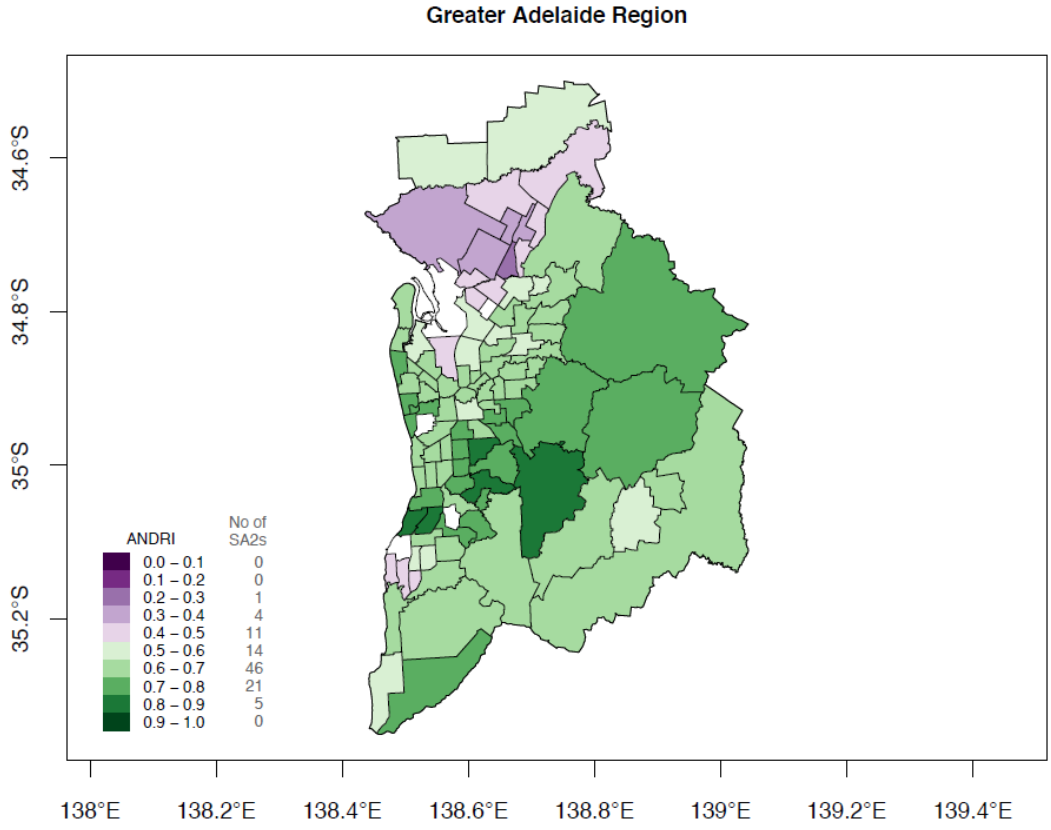


Greater Brisbane Region

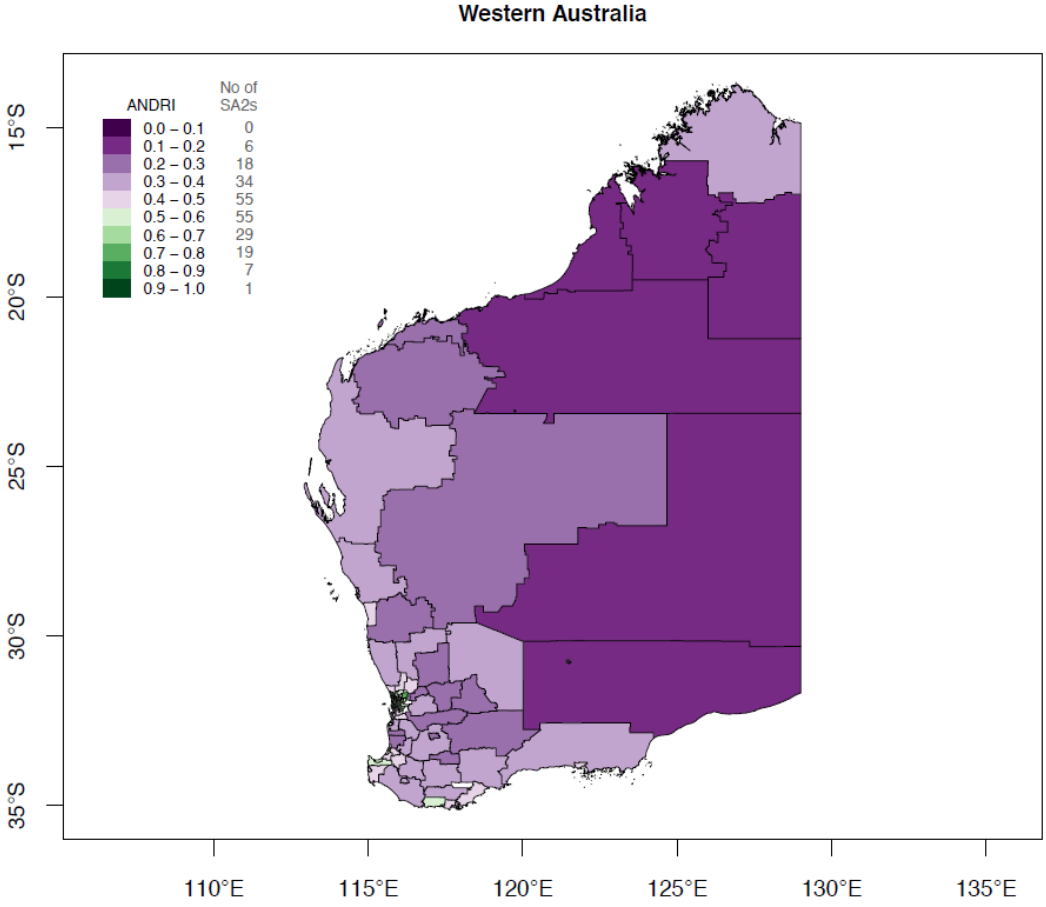


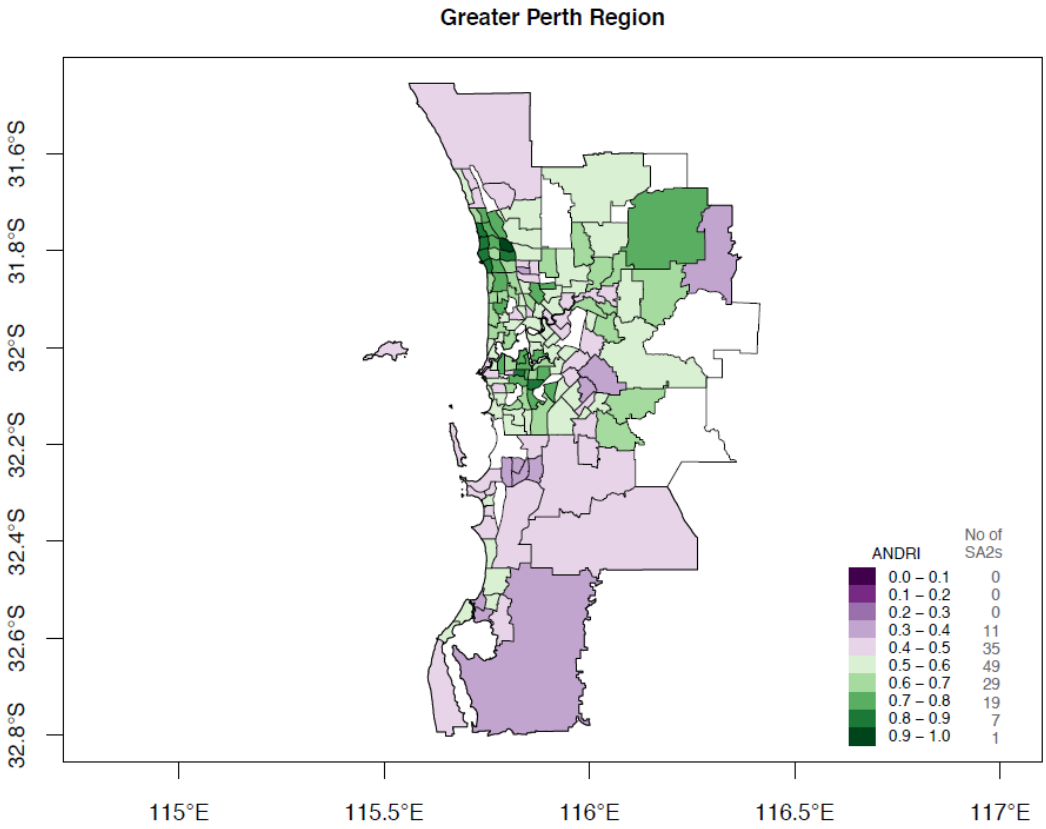
Appendix A. Australian Natural Disaster Resilience Index, SA.



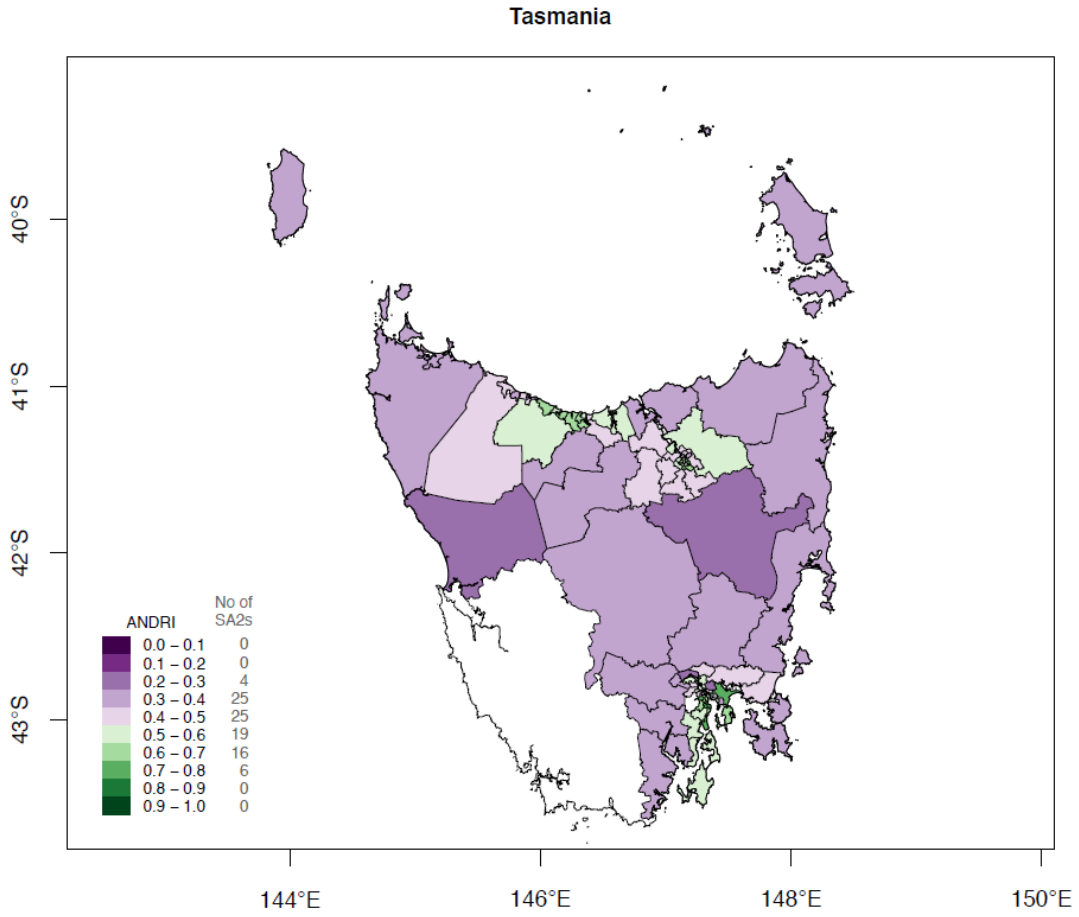


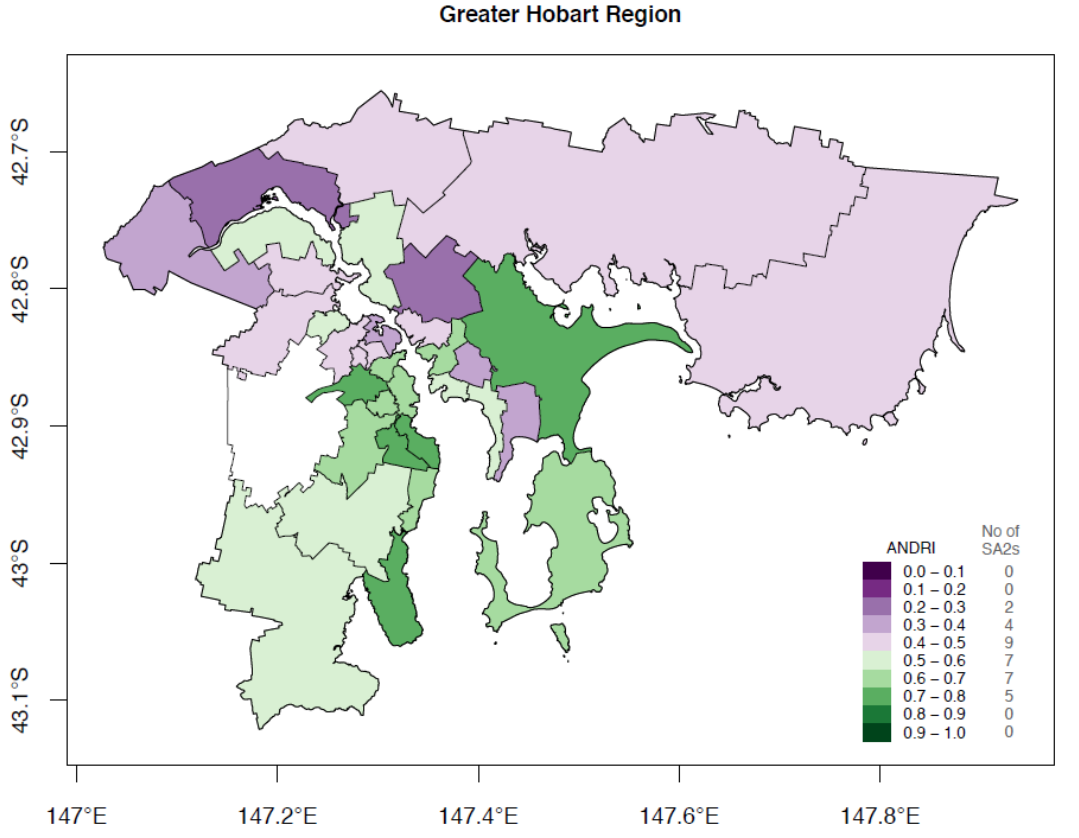
Appendix A. Australian Natural Disaster Resilience Index, WA.



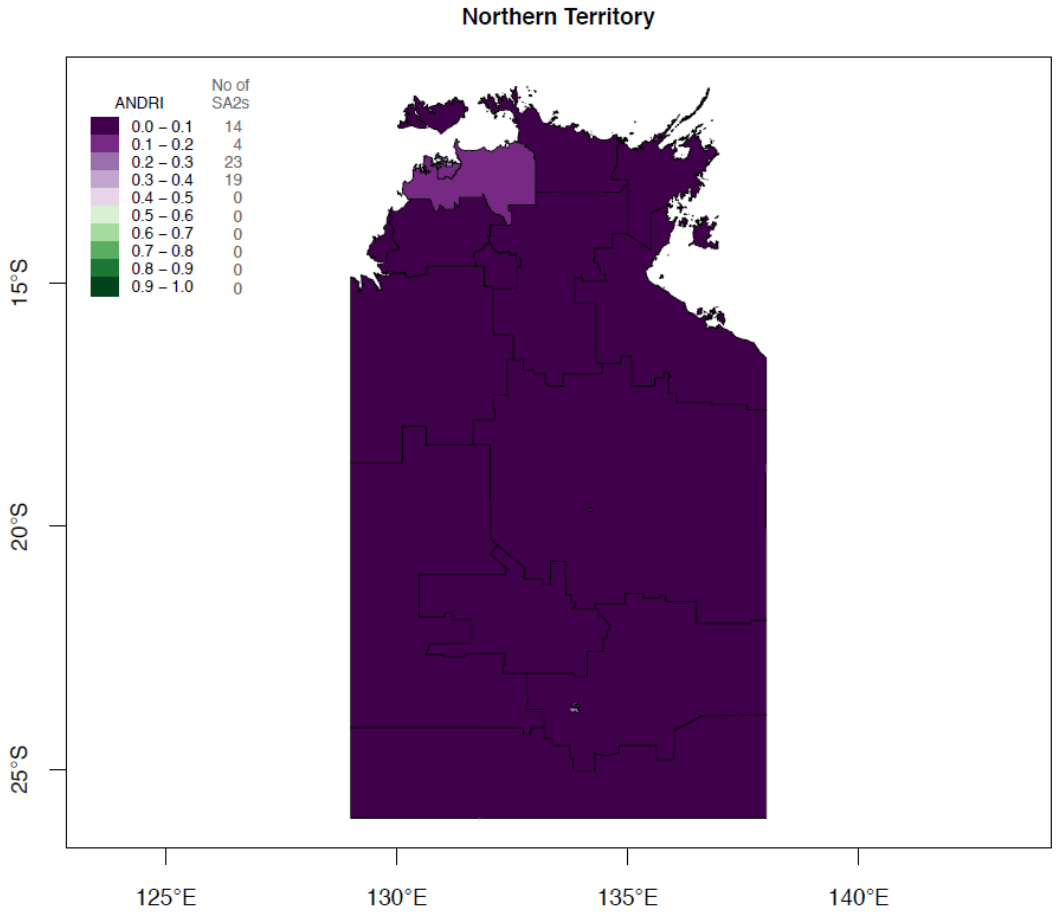


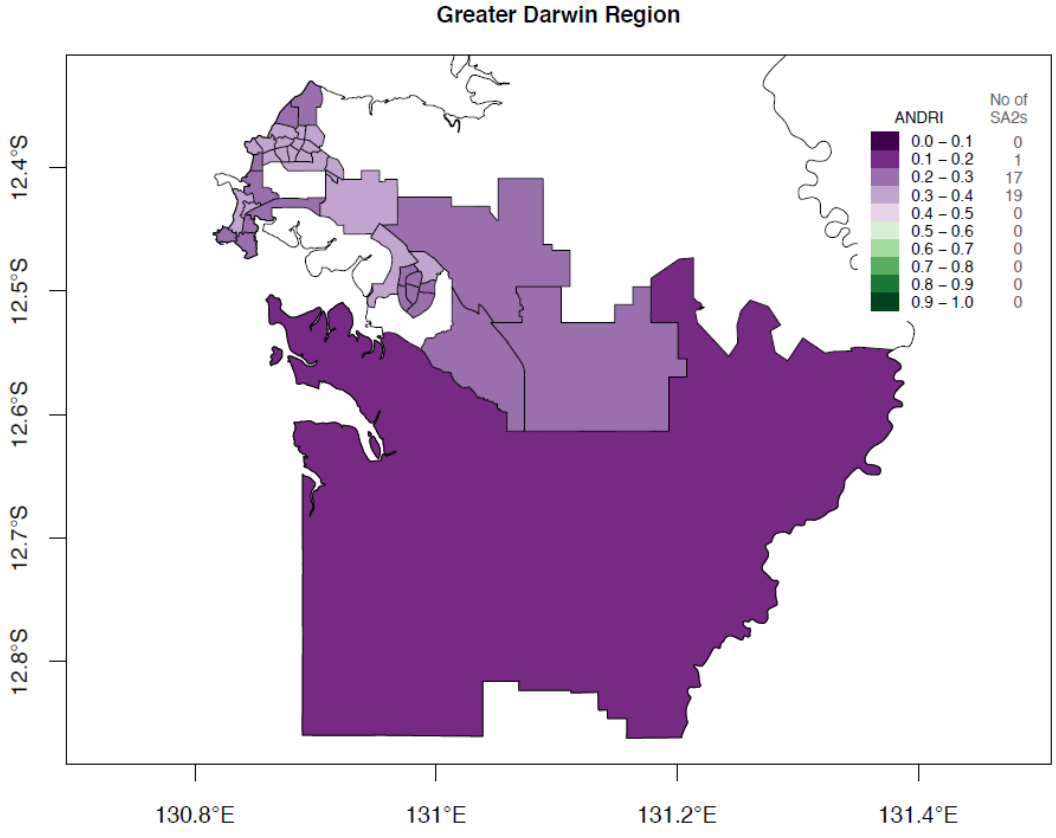
Appendix A. Australian Natural Disaster Resilience Index, TAS.



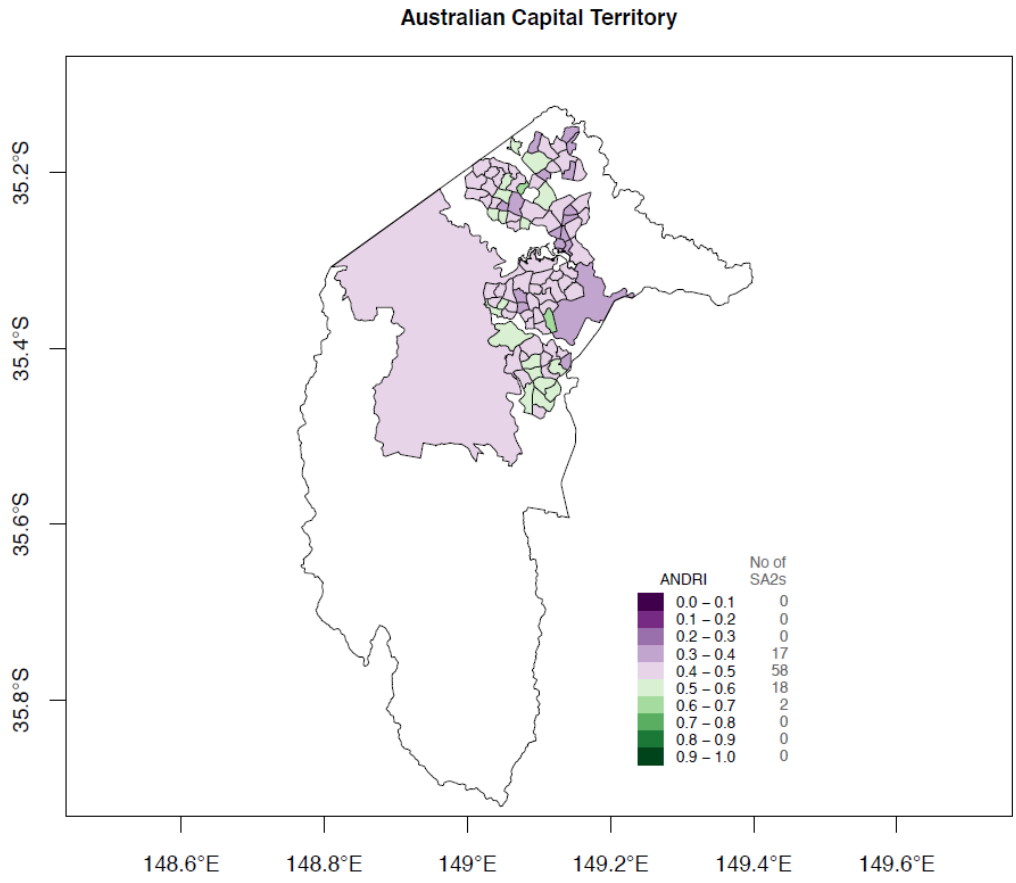


Appendix A. Australian Natural Disaster Resilience Index, NT.





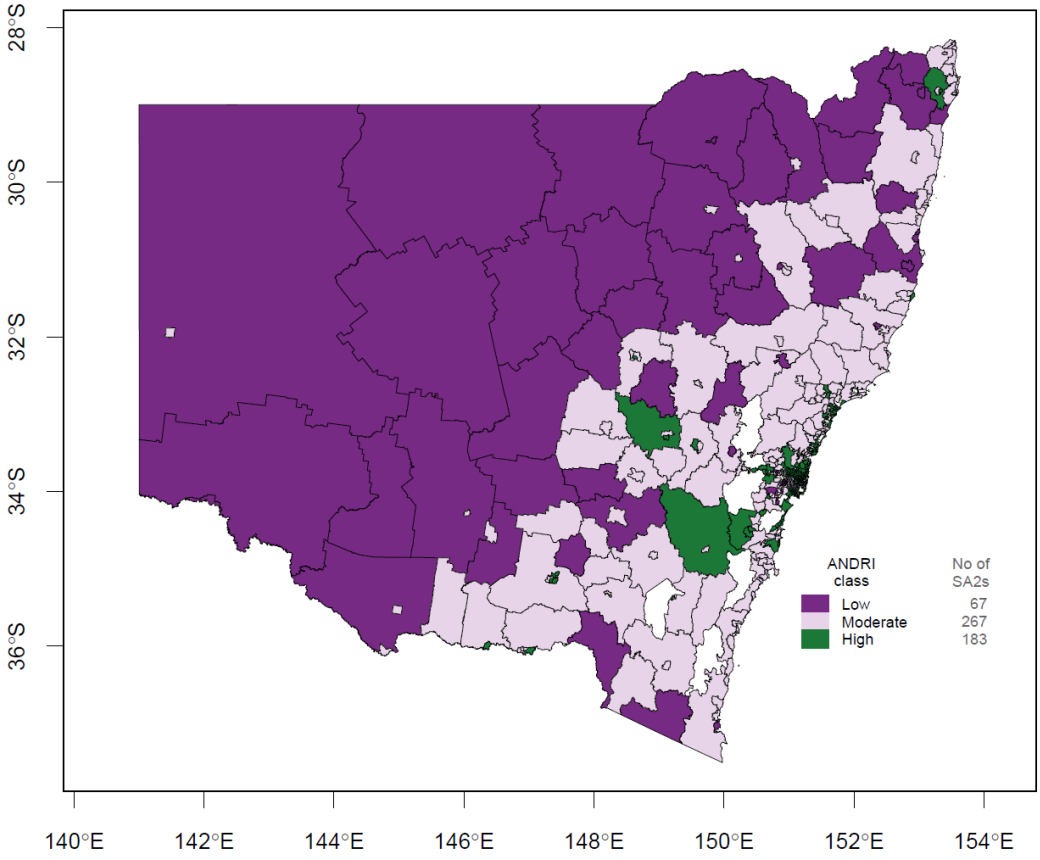
Appendix A. Australian Natural Disaster Resilience Index, ACT.



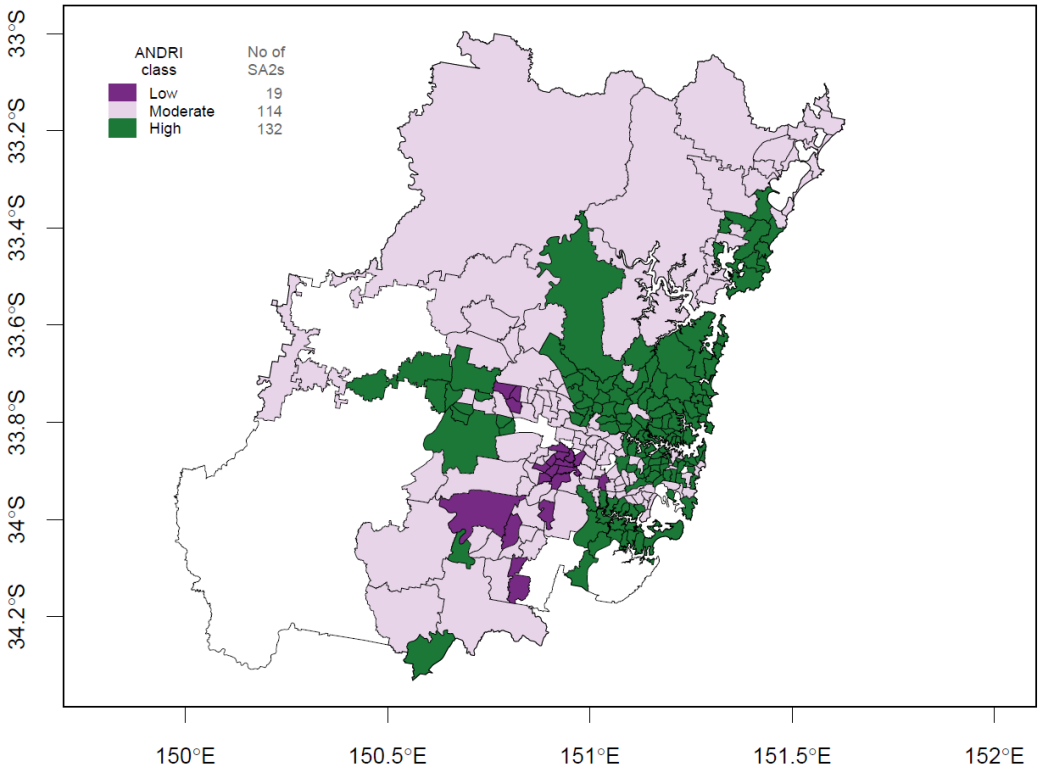
APPENDIX B – MAPS: DISTRIBUTION OF LOW, MODERATE AND HIGH CAPACITY FOR DISASTER RESILIENCE IN AUSTRALIA

Appendix B maps the distribution of low, moderate and high capacity for disaster resilience at the resolution of individual States and Territories, and major metropolitan areas. Low, moderate and high disaster resilience classes are explained in Table 2.1.

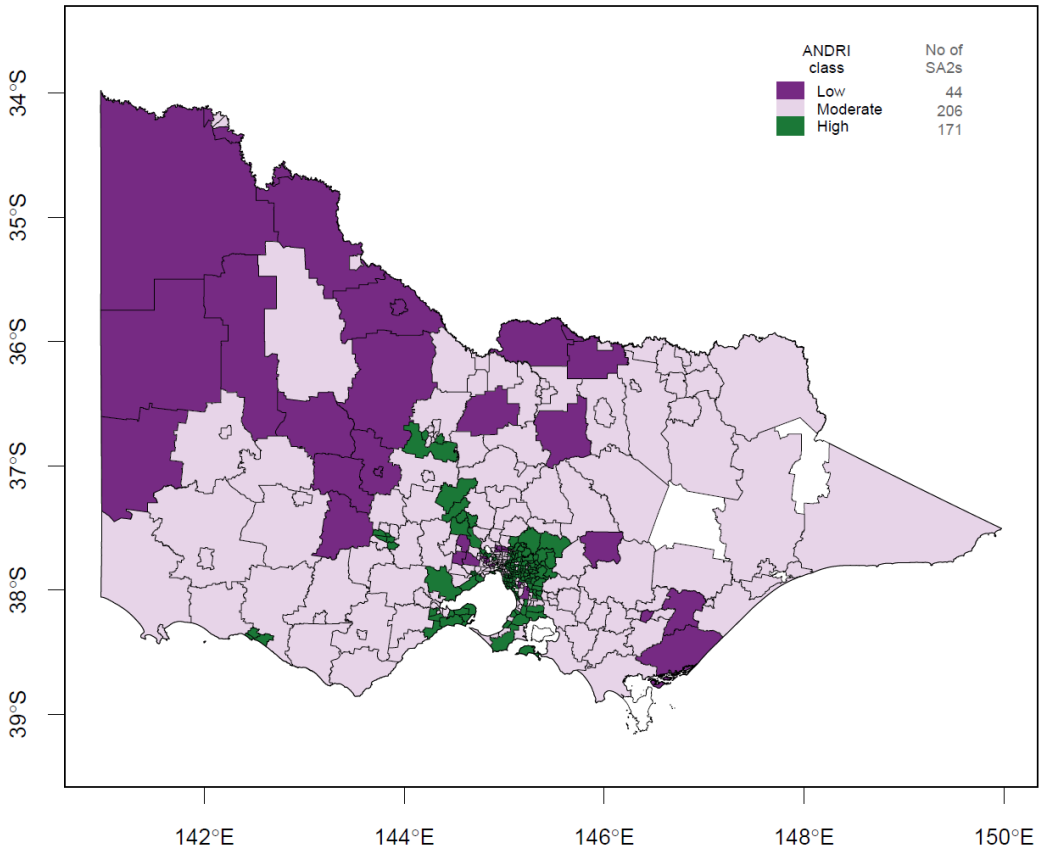
Appendix B. Low, moderate and high capacity for disaster resilience, NSW.



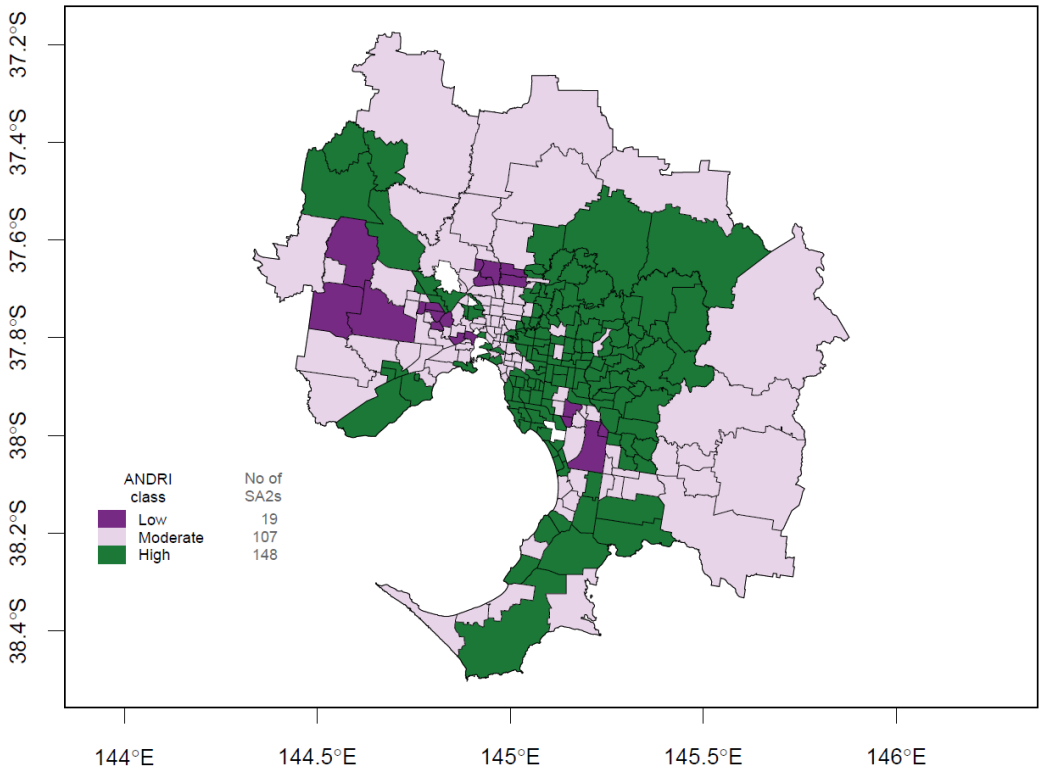
Greater Sydney Region



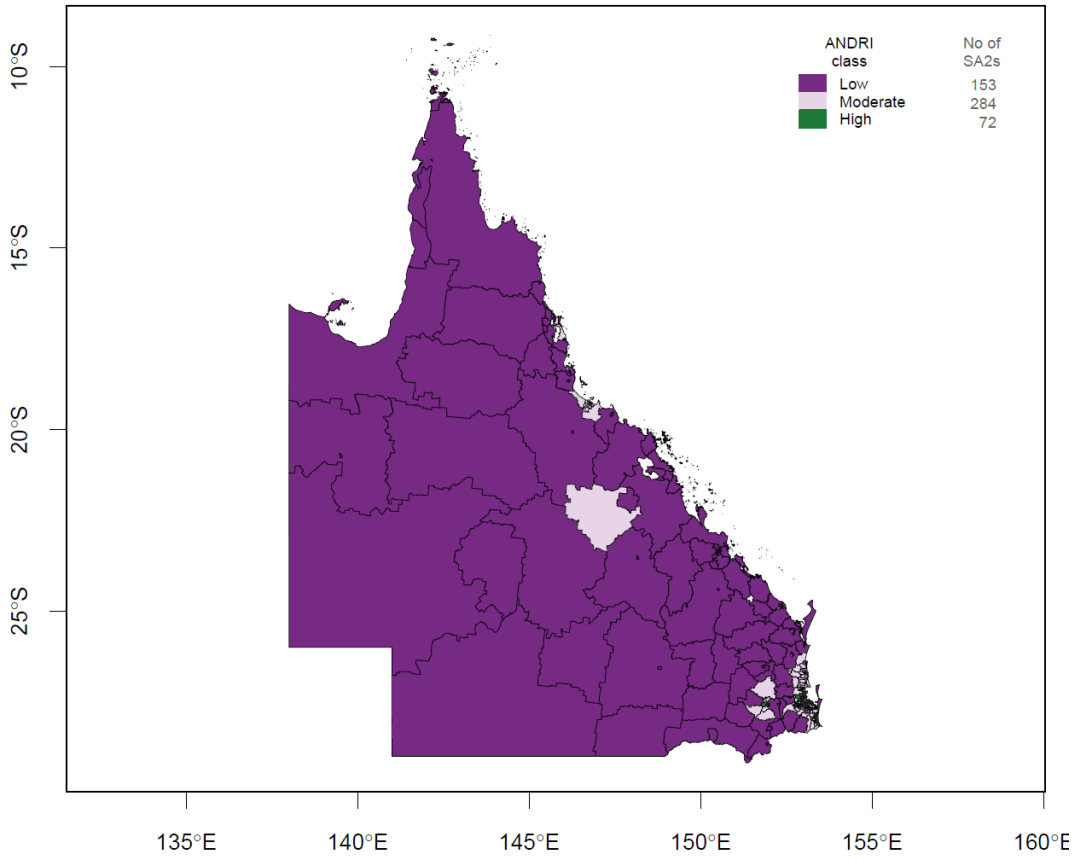
Appendix B. Low, moderate and high capacity for disaster resilience, VIC.



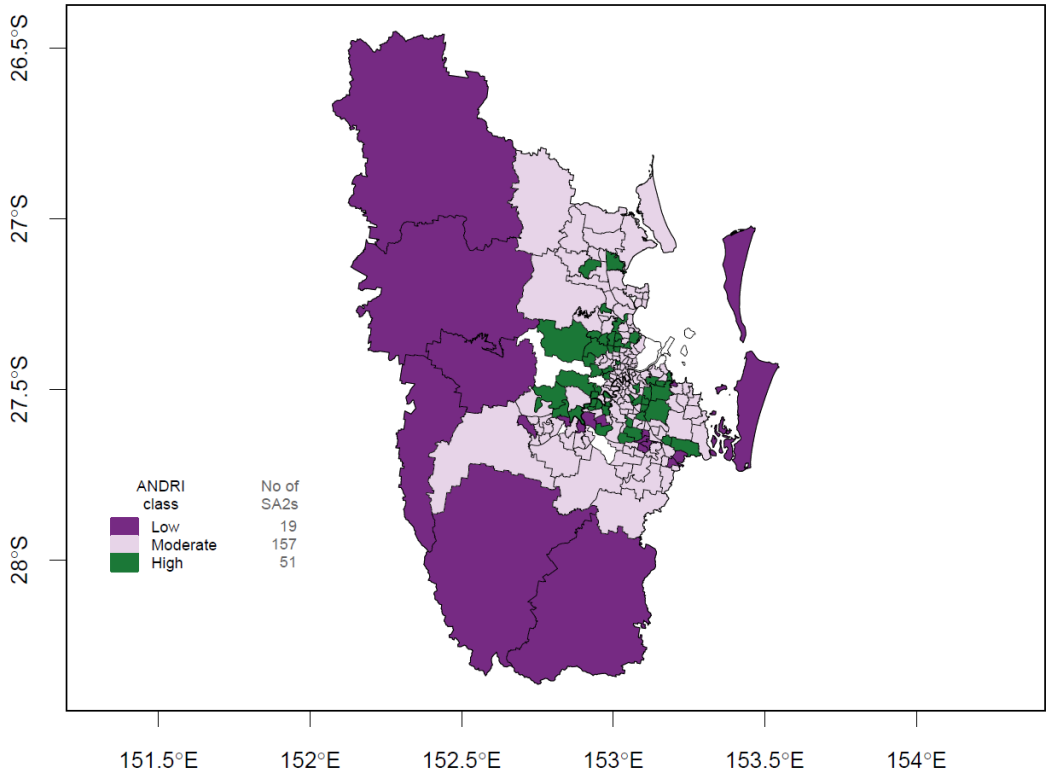
Greater Melbourne Region



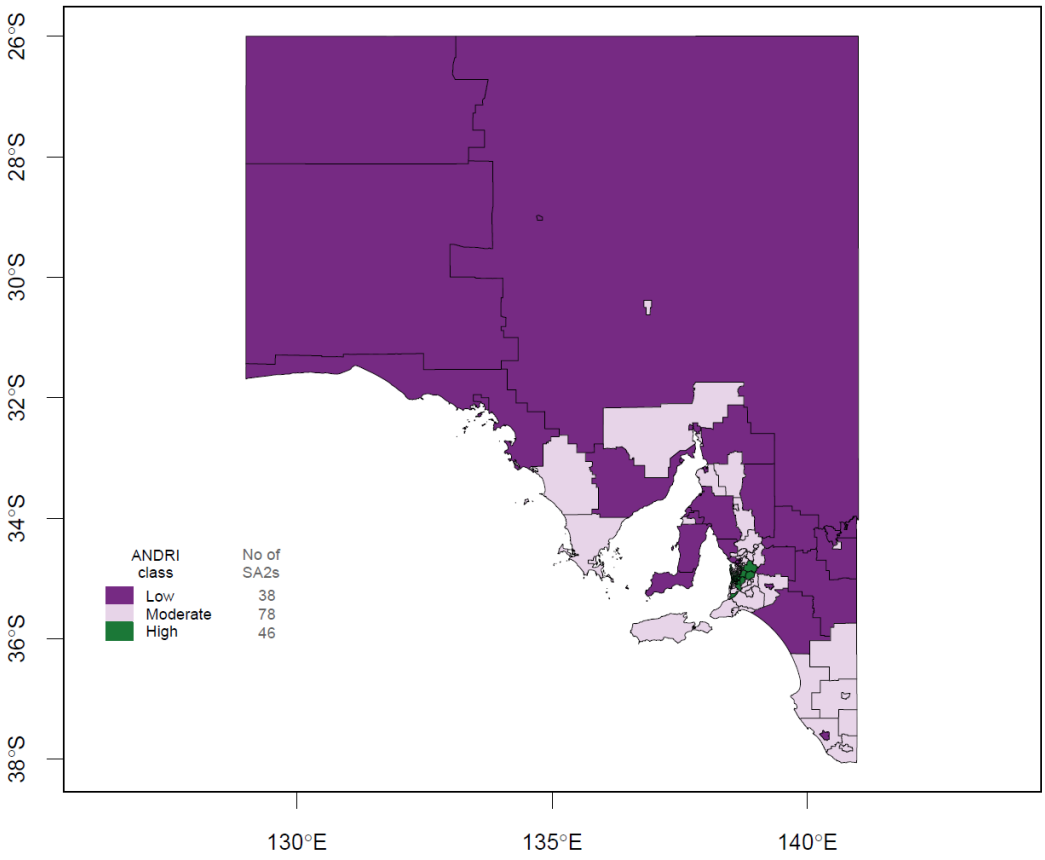
Appendix B. Low, moderate and high capacity for disaster resilience, QLD.



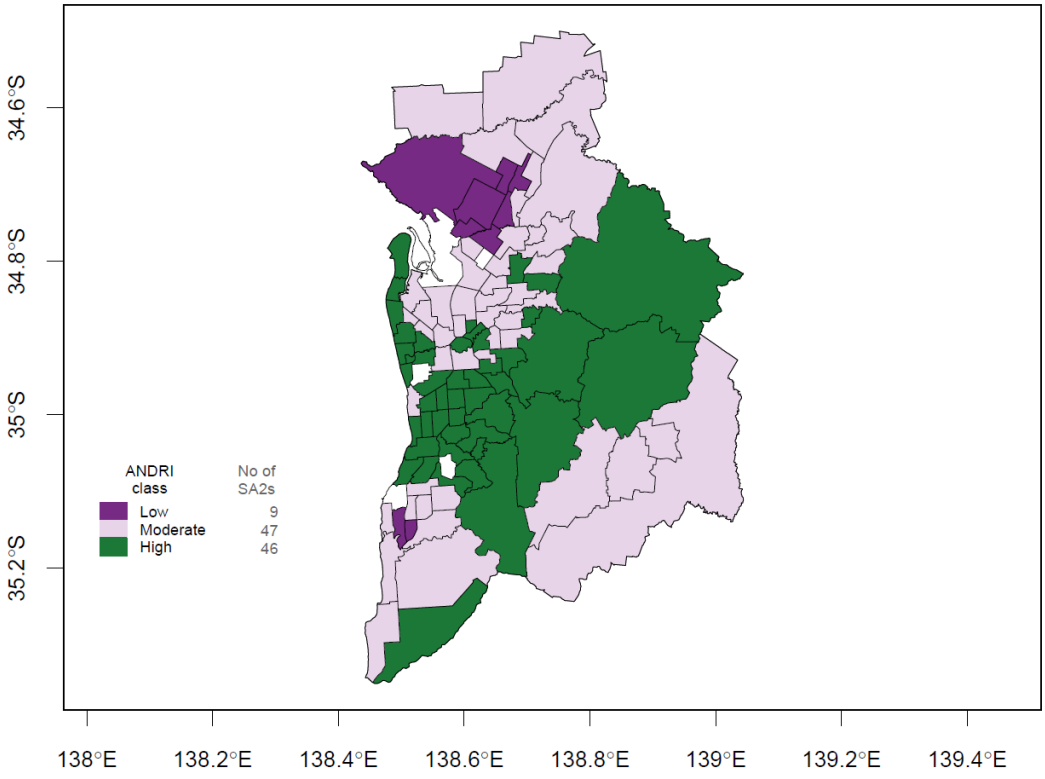
Greater Brisbane Region



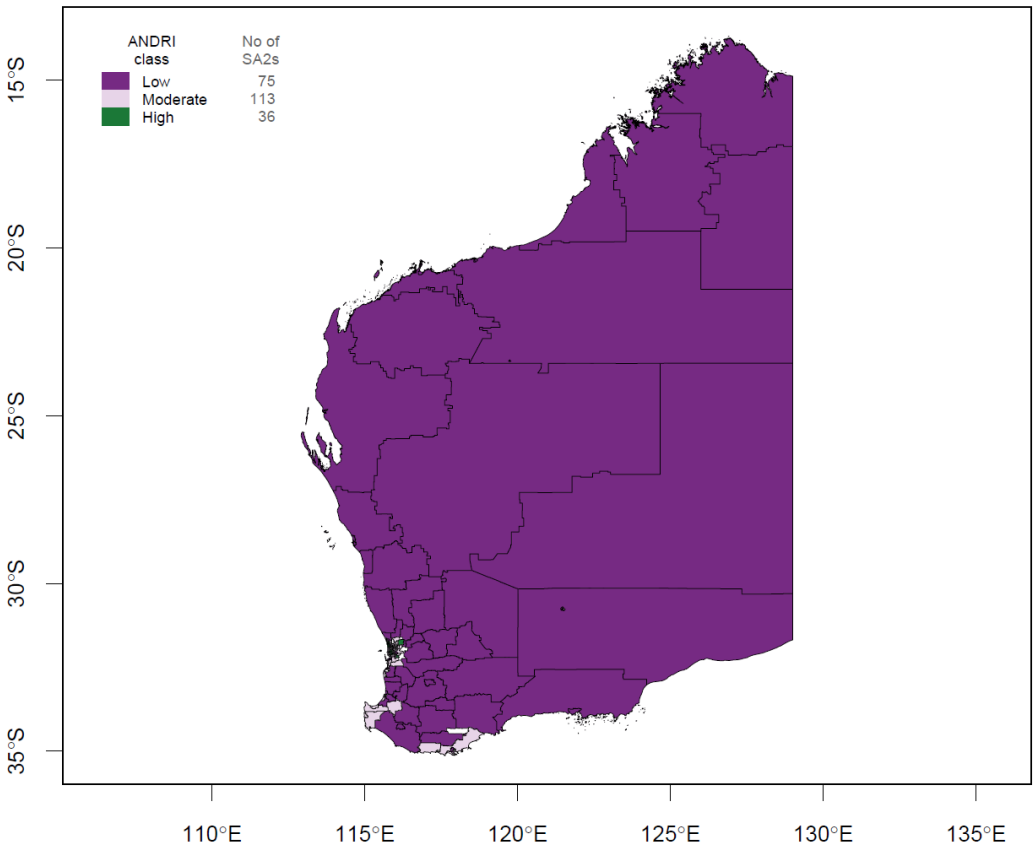
Appendix B. Low, moderate and high capacity for disaster resilience, SA.



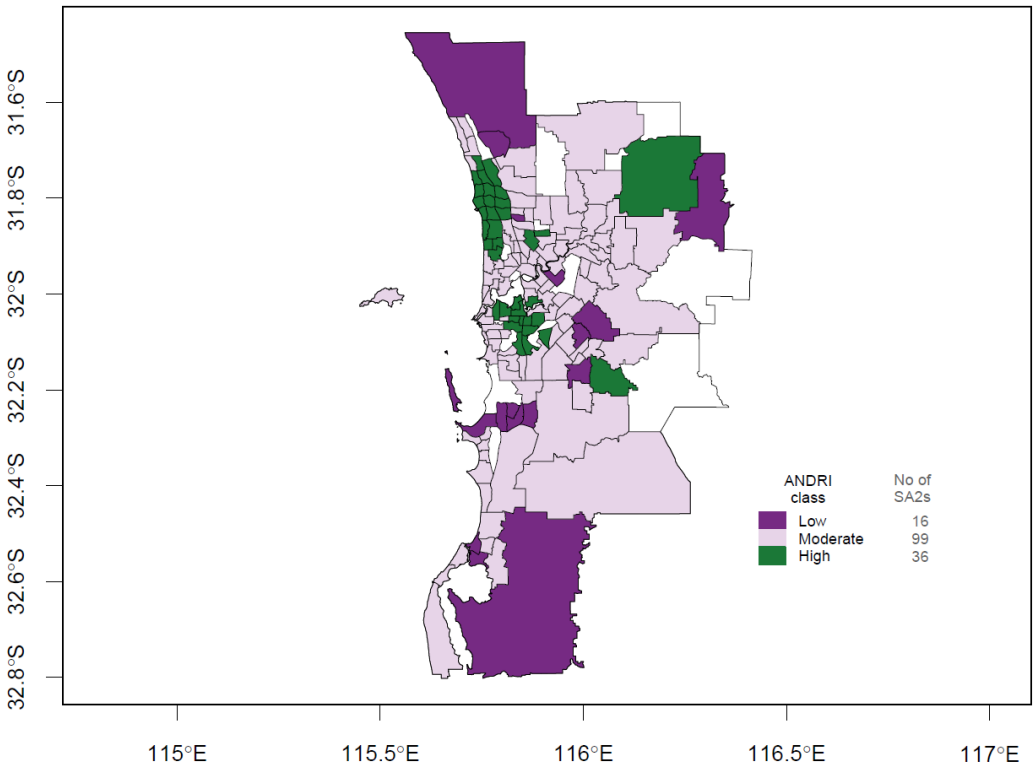
Greater Adelaide Region



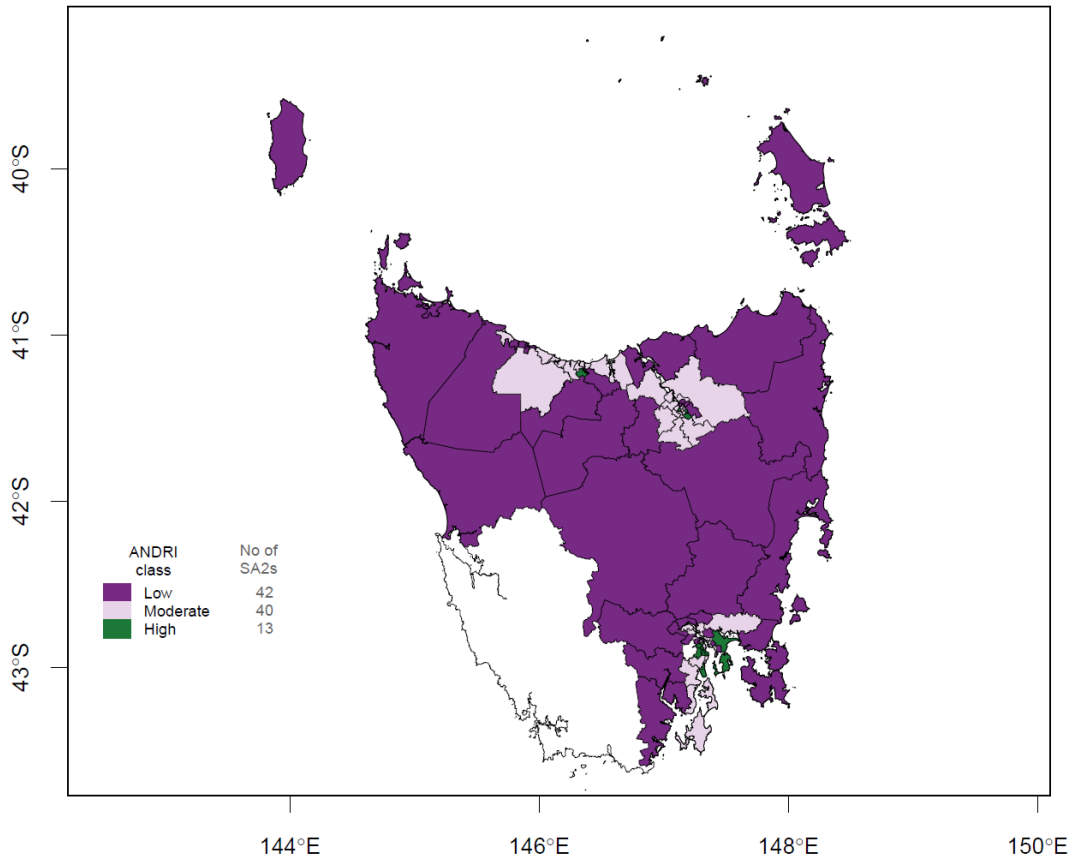
Appendix B. Low, moderate and high capacity for disaster resilience, WA.



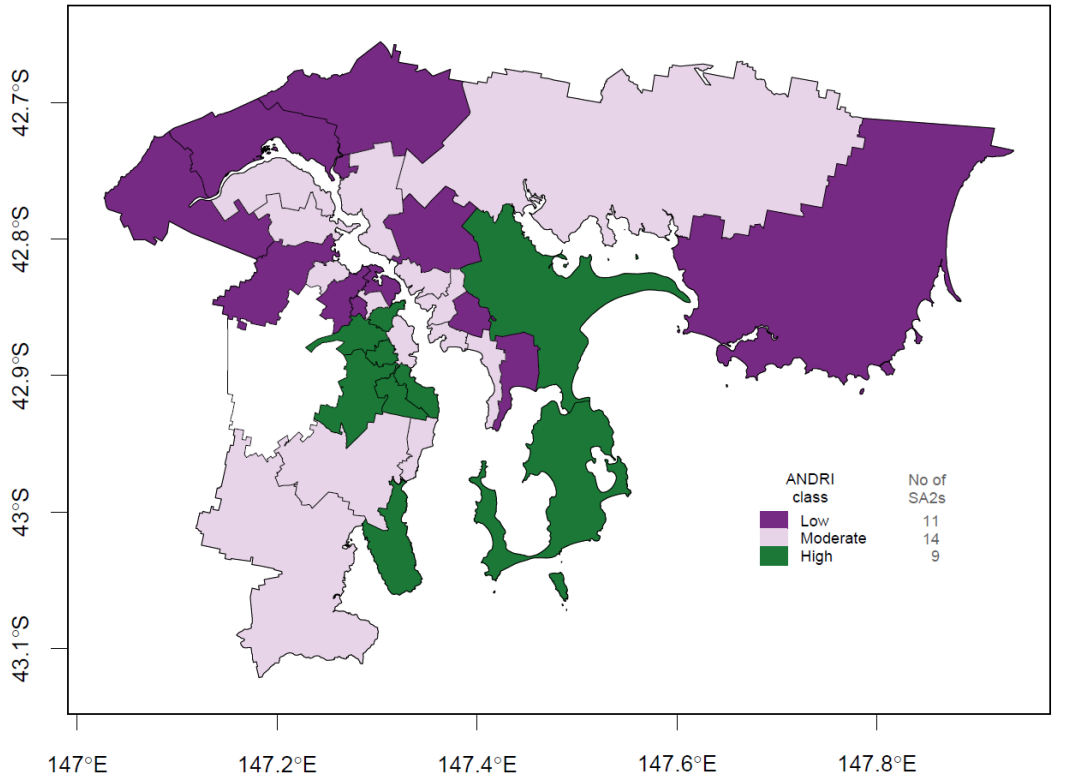
Greater Perth Region



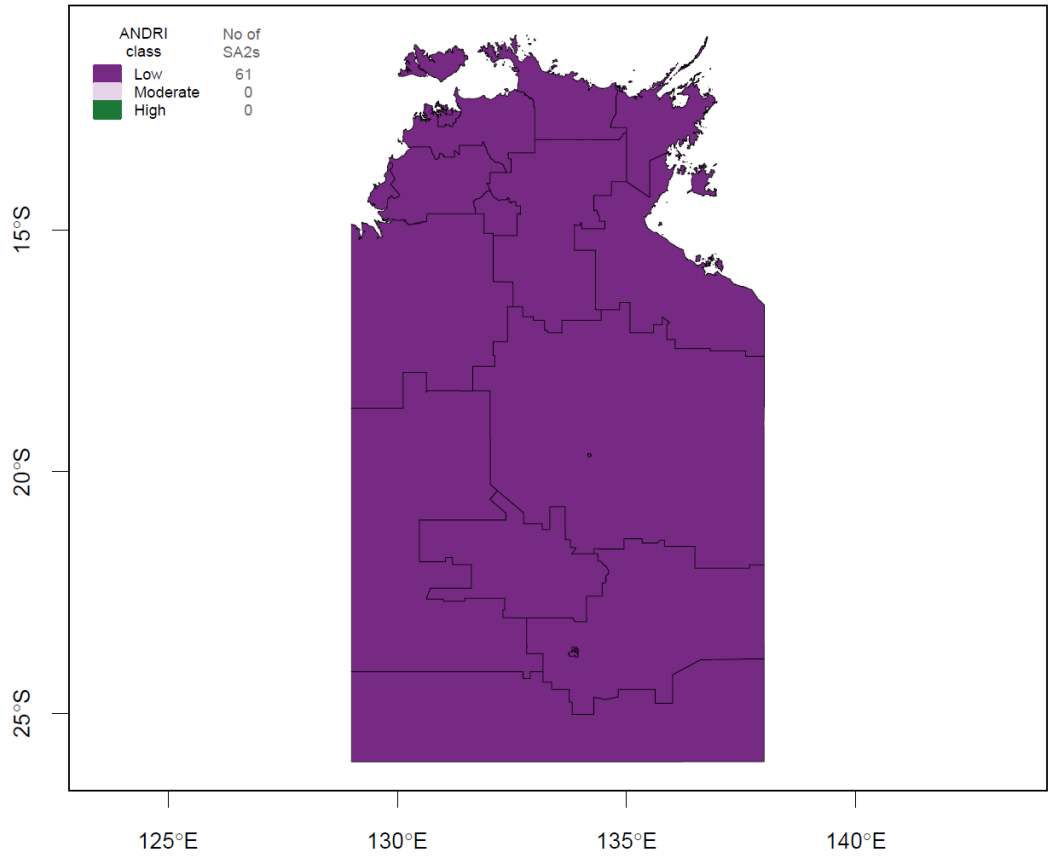
Appendix B. Low, moderate and high capacity for disaster resilience, TAS.



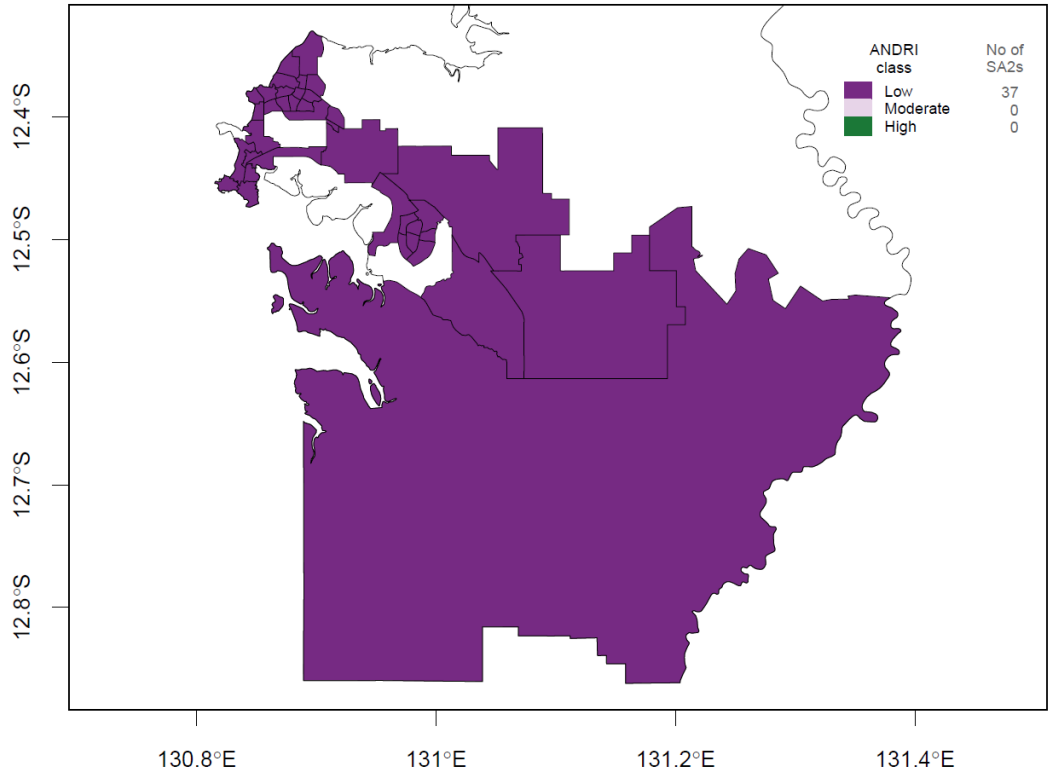
Greater Hobart Region



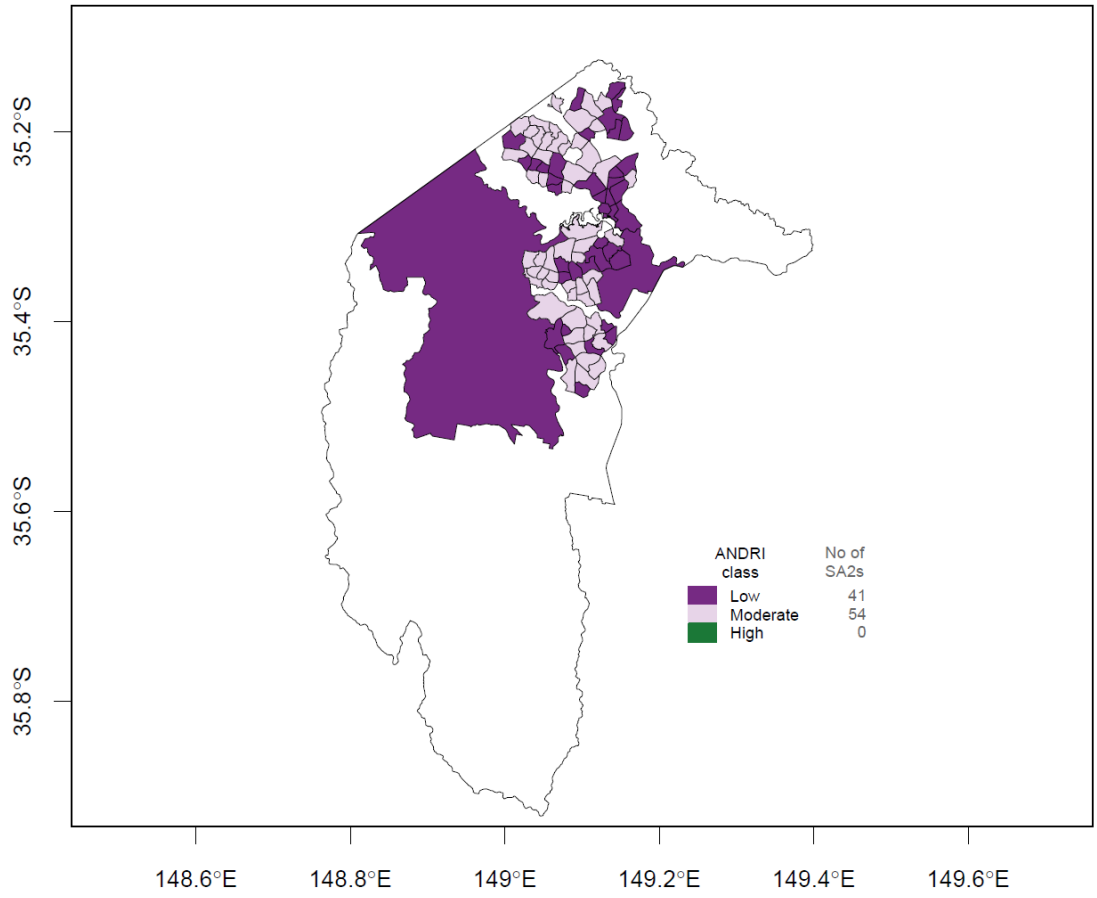
Appendix B. Low, moderate and high capacity for disaster resilience, NT.



Greater Darwin Region



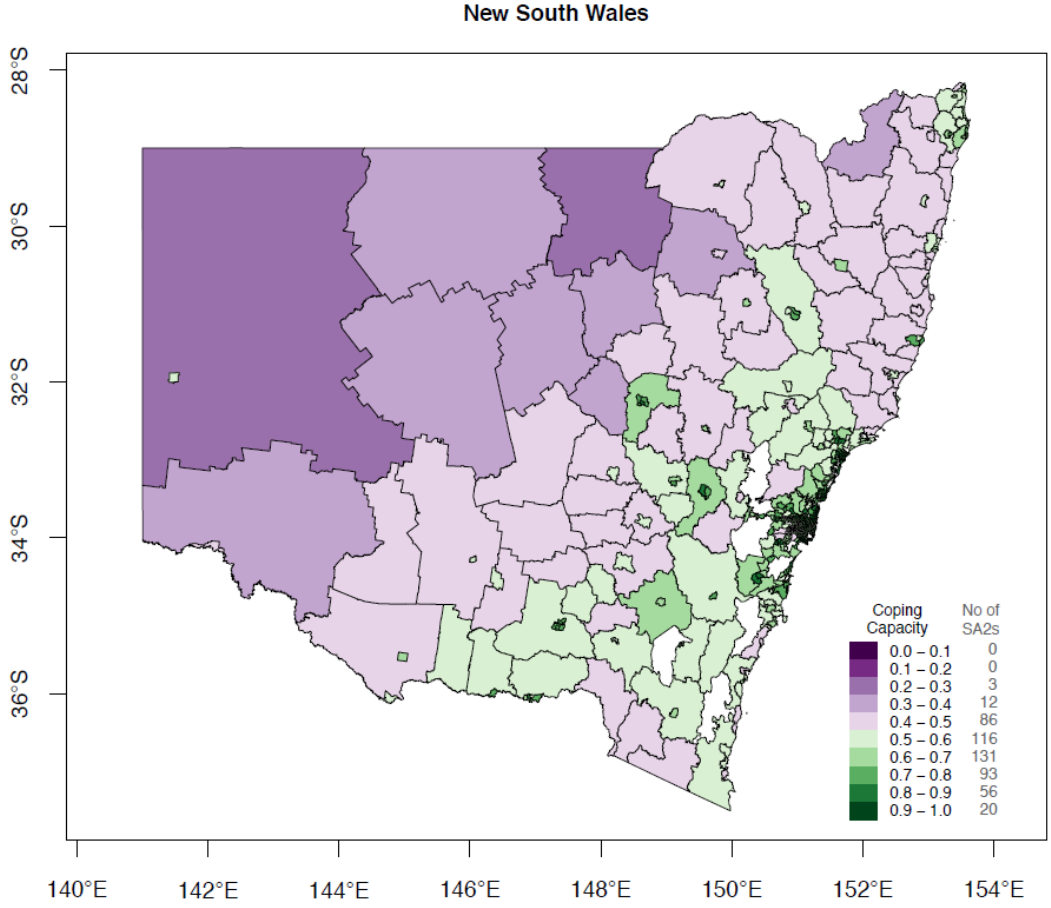
Appendix B. Low, moderate and high capacity for disaster resilience, ACT.

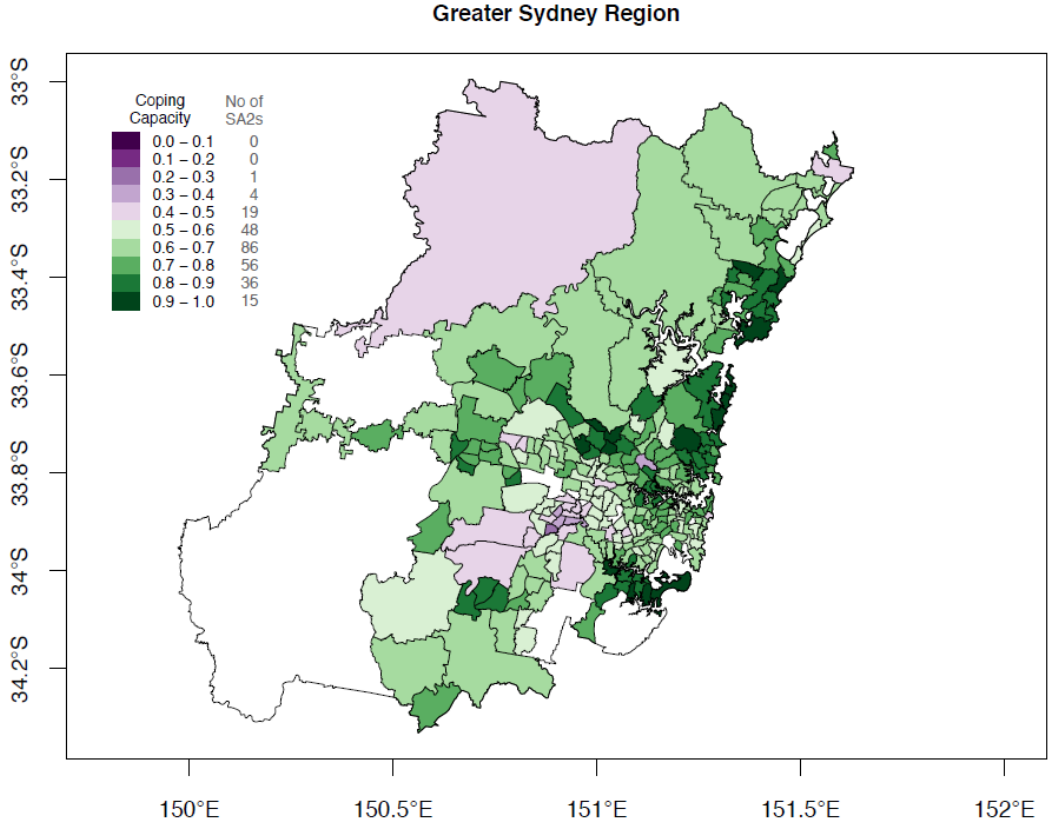


APPENDIX C – MAPS: COPING AND ADAPTIVE CAPACITY IN AUSTRALIA

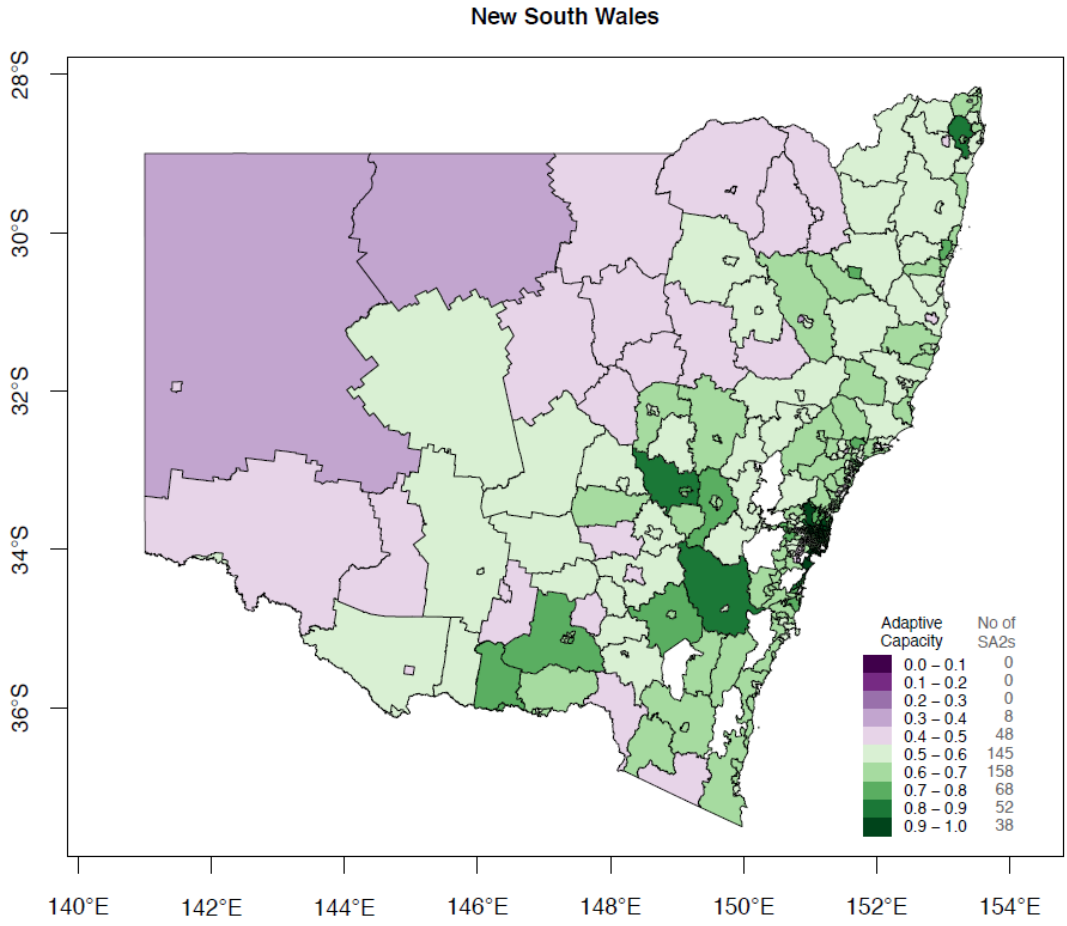
Appendix C maps coping and adaptive capacity at the resolution of individual States and Territories, and major metropolitan areas.

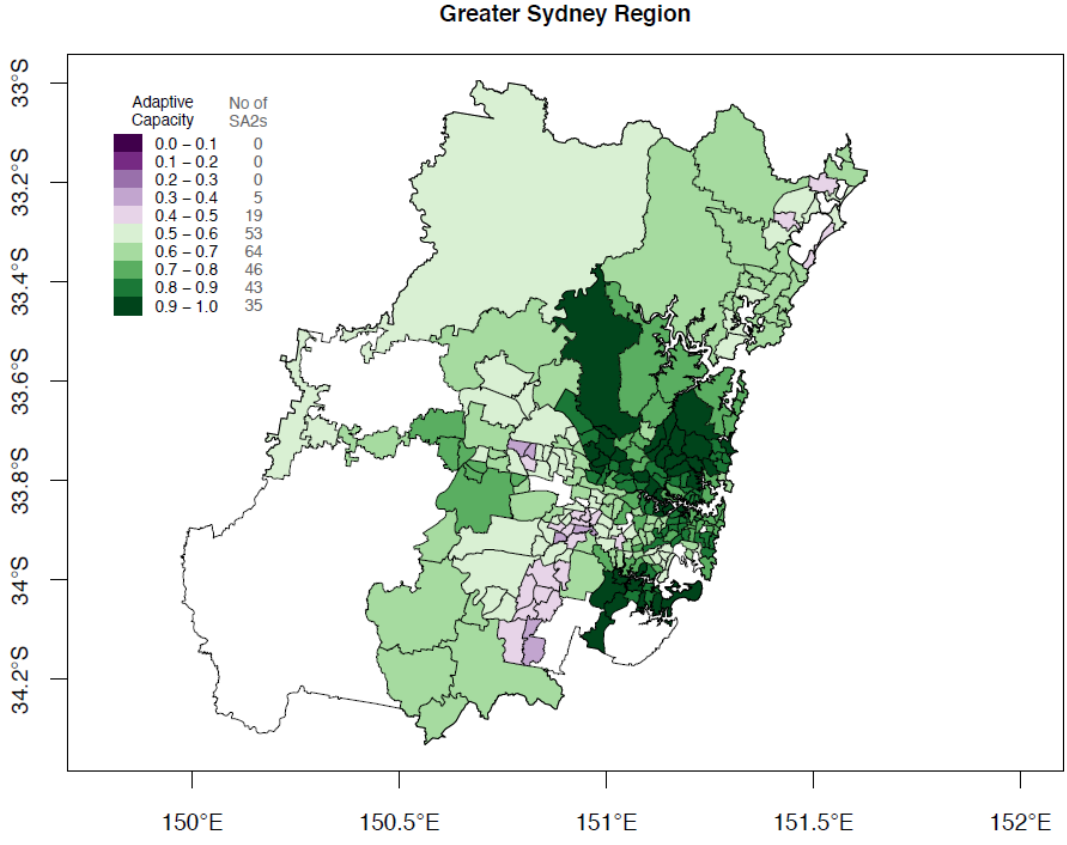
Appendix C. Coping capacity, NSW.





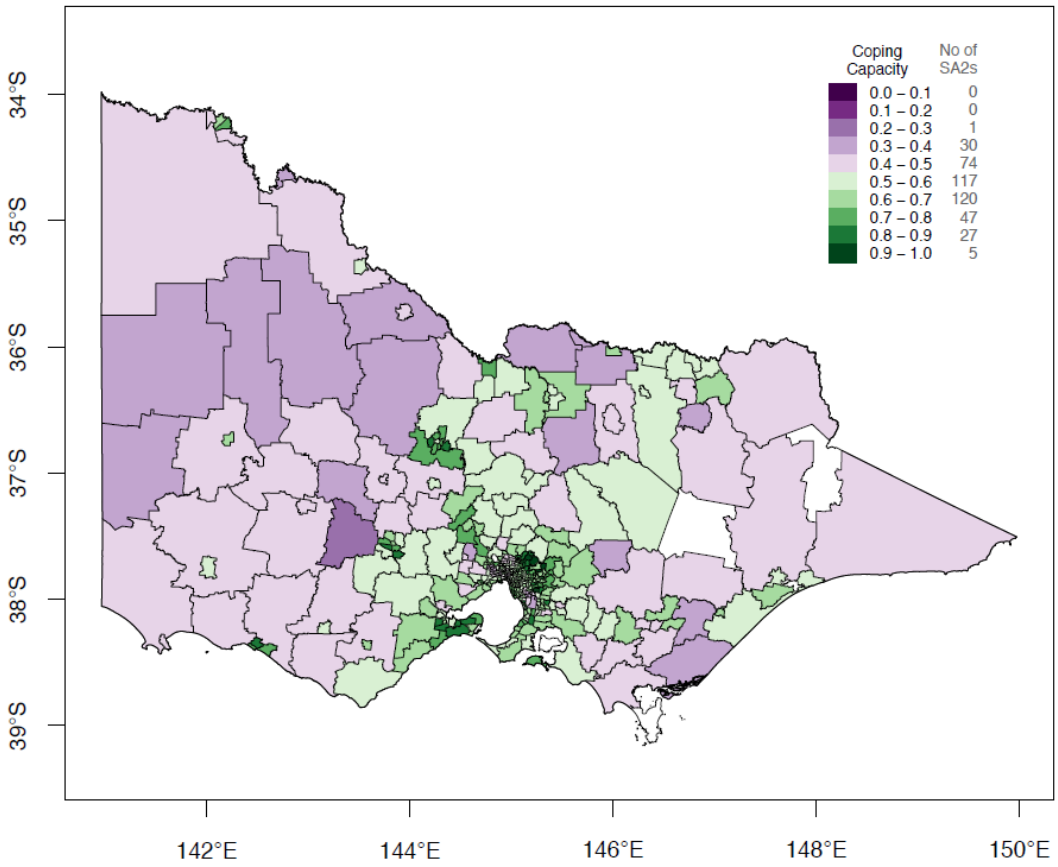
Appendix C. Adaptive capacity, NSW.



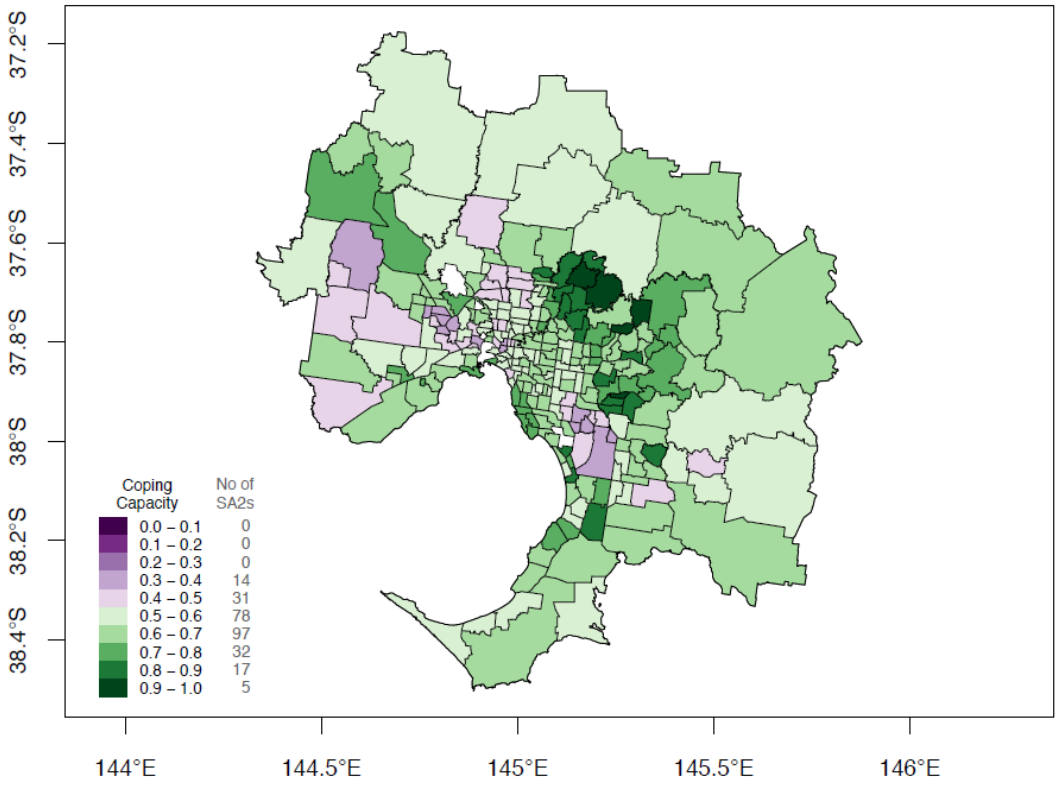


Appendix C. Coping capacity, VIC.

Victoria

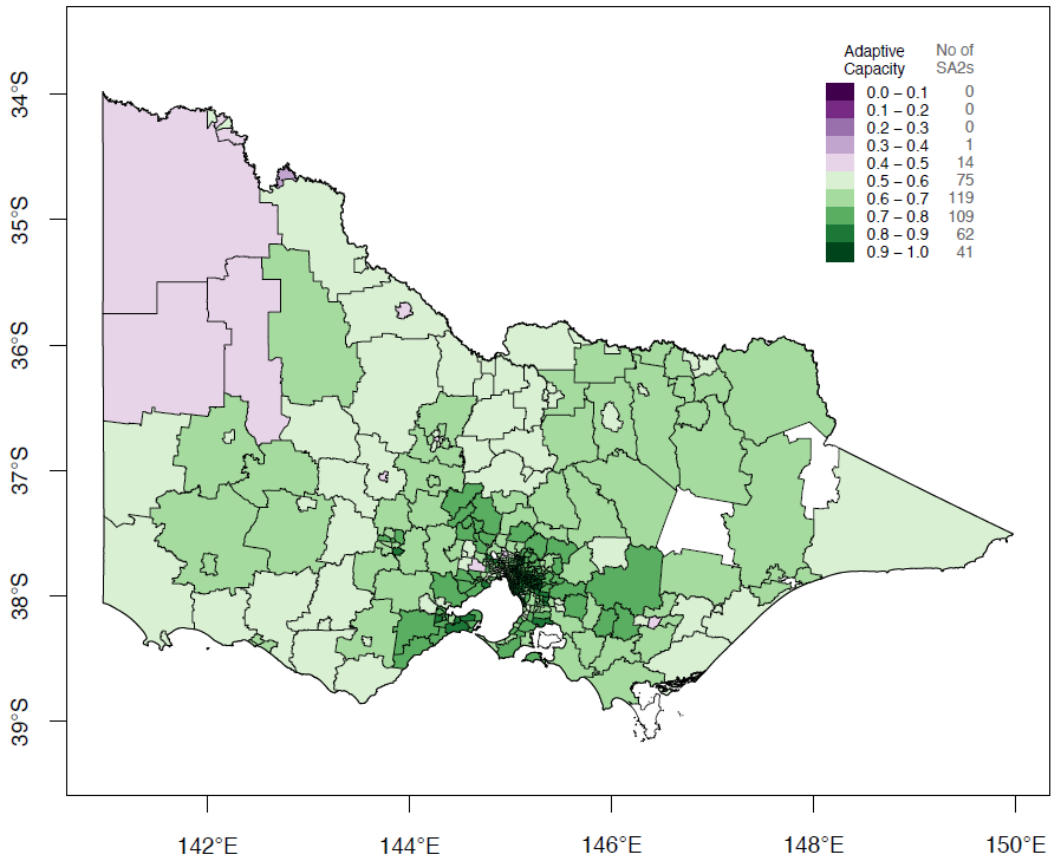


Greater Melbourne Region

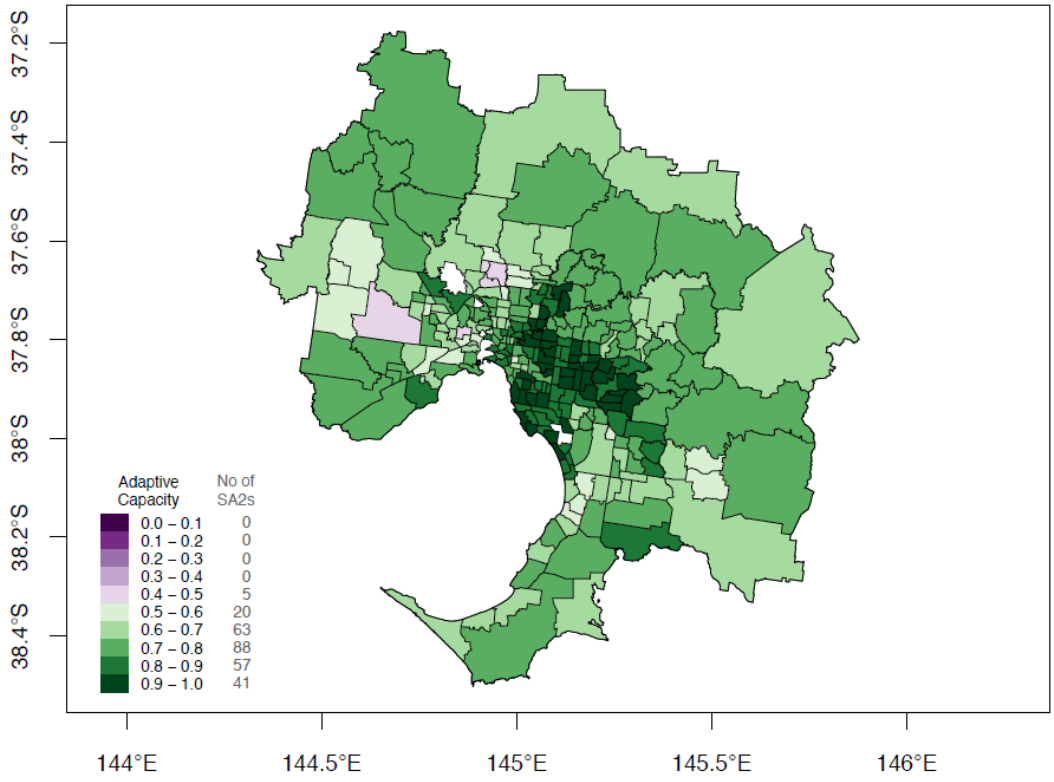


Appendix C. Adaptive capacity, VIC.

Victoria

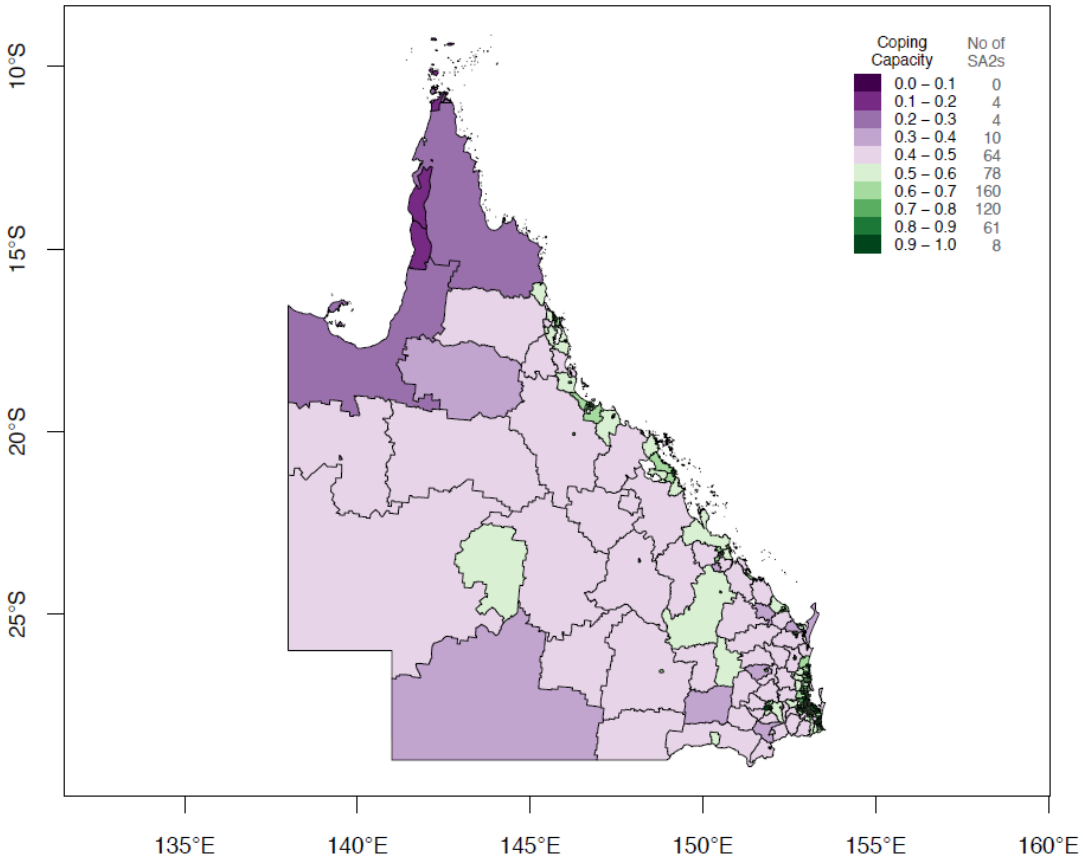


Greater Melbourne Region

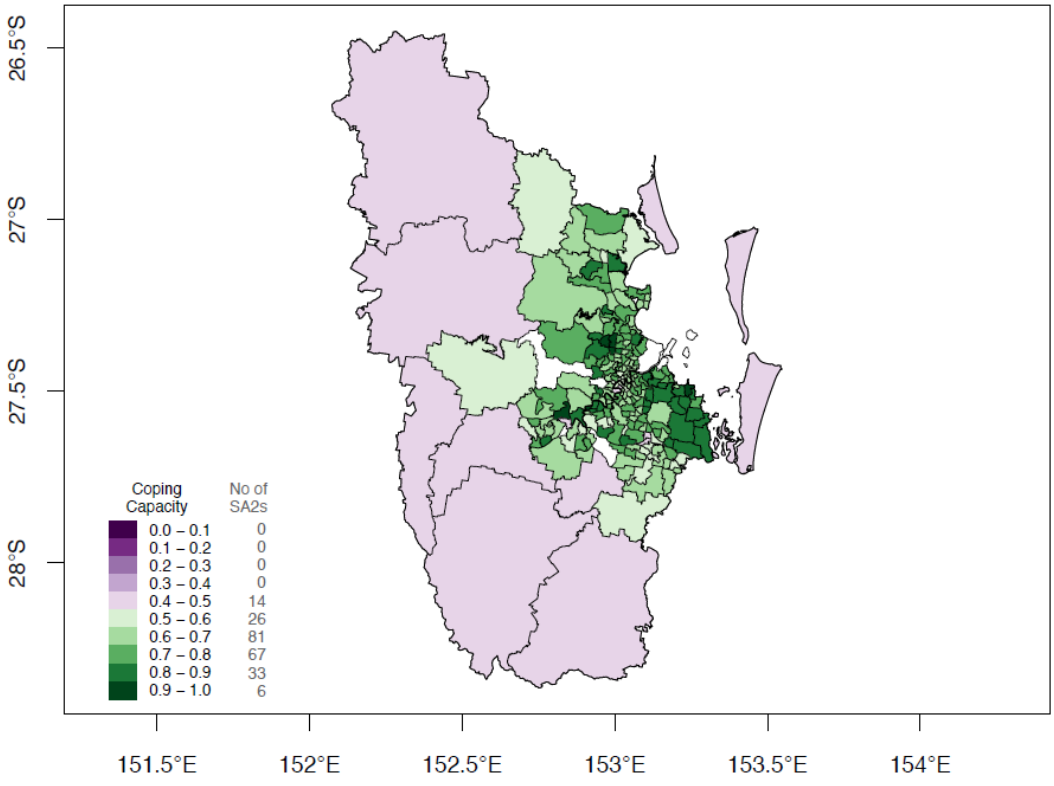


Appendix C. Coping capacity, QLD.

Queensland

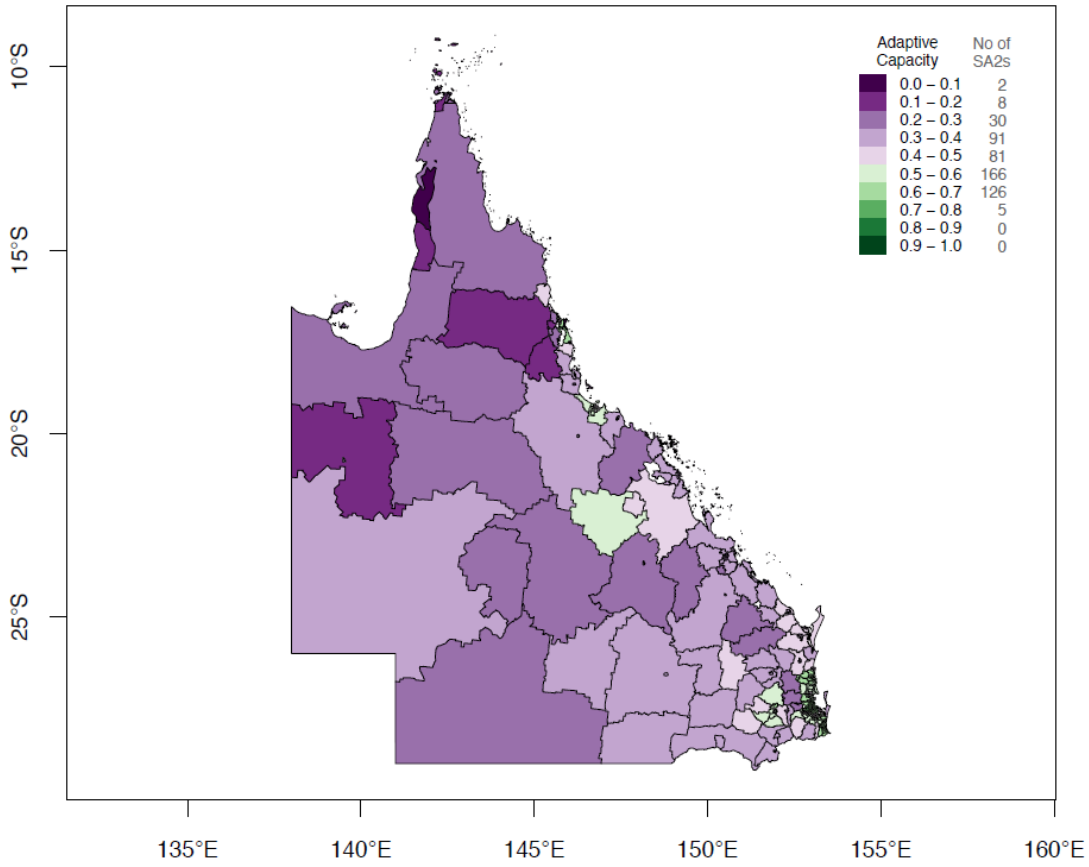


Greater Brisbane Region

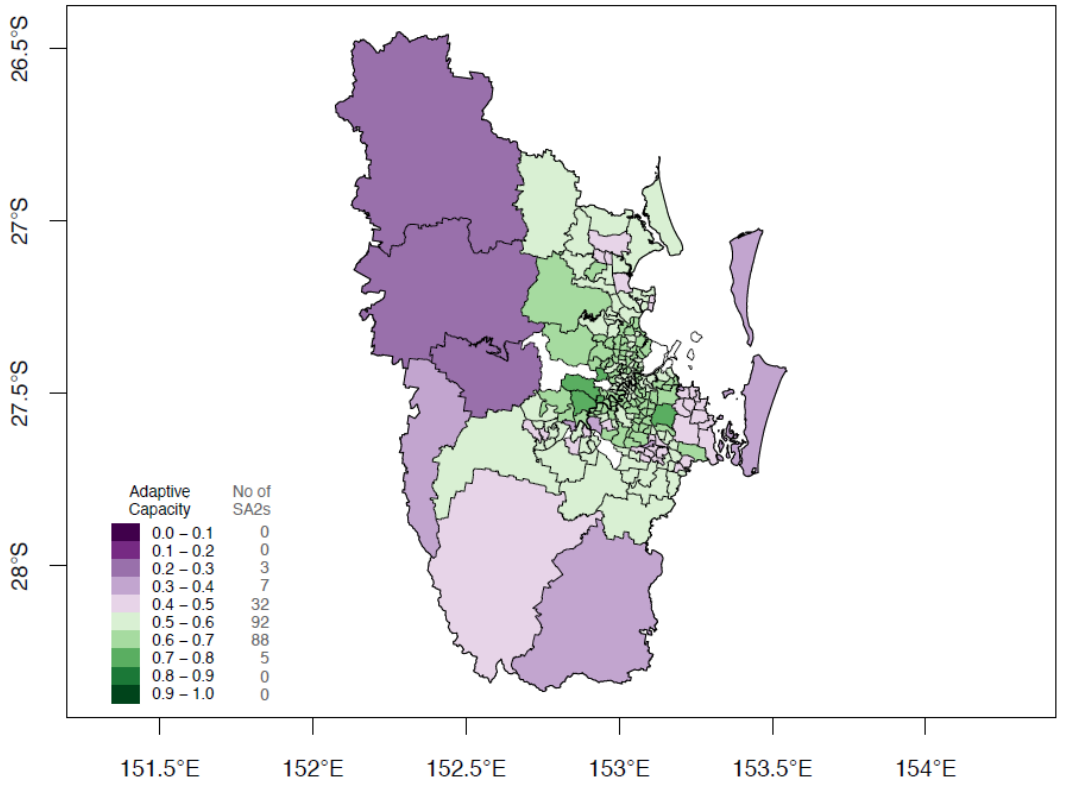


Appendix C. Adaptive capacity, QLD.

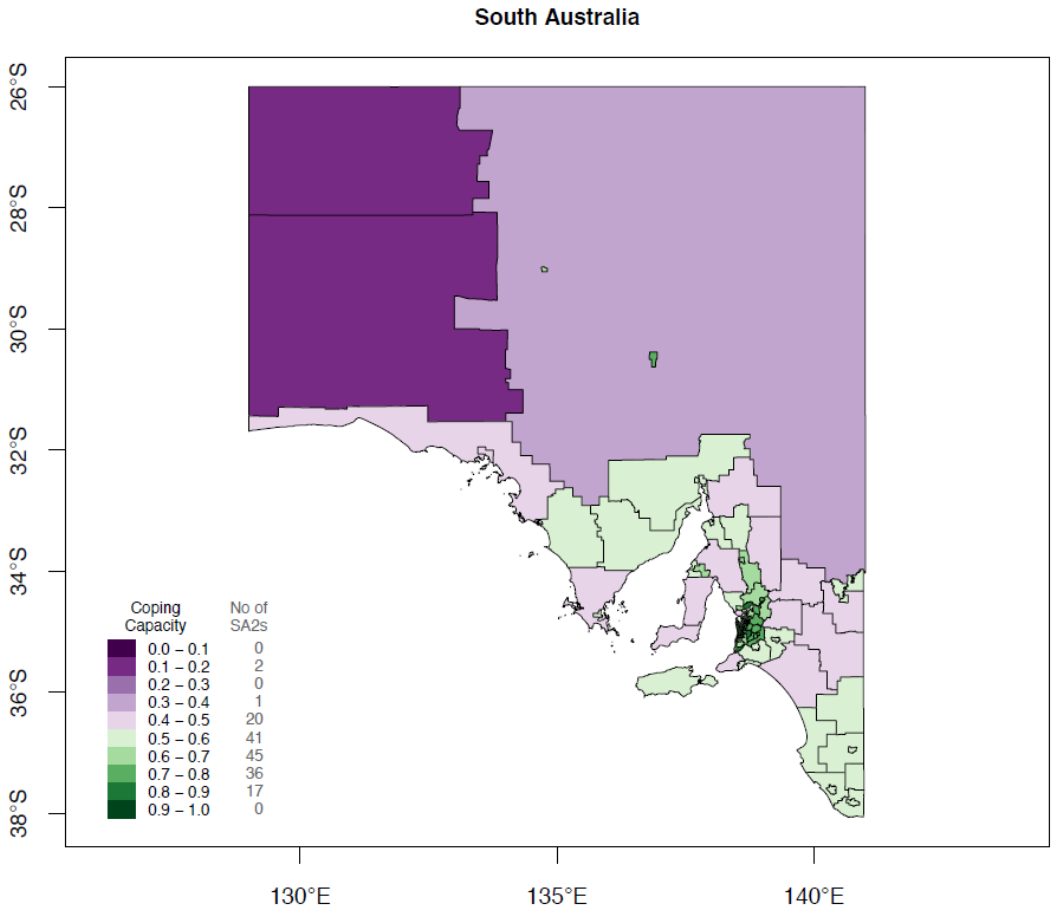
Queensland

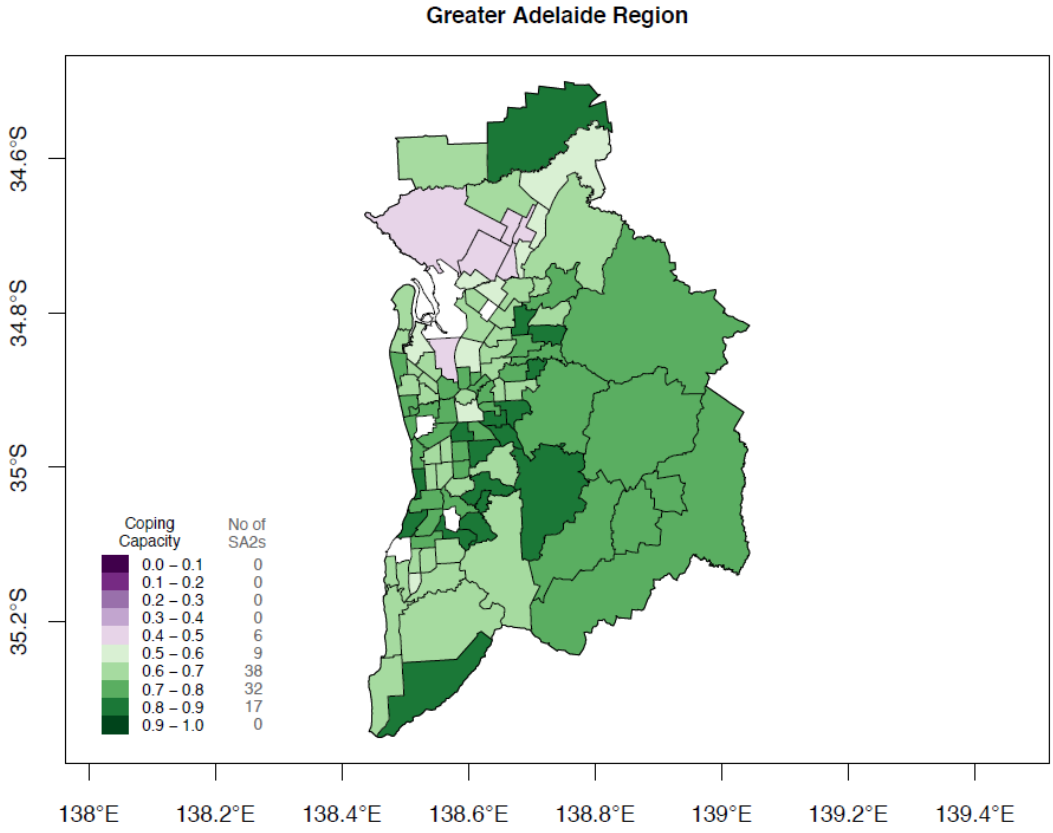


Greater Brisbane Region

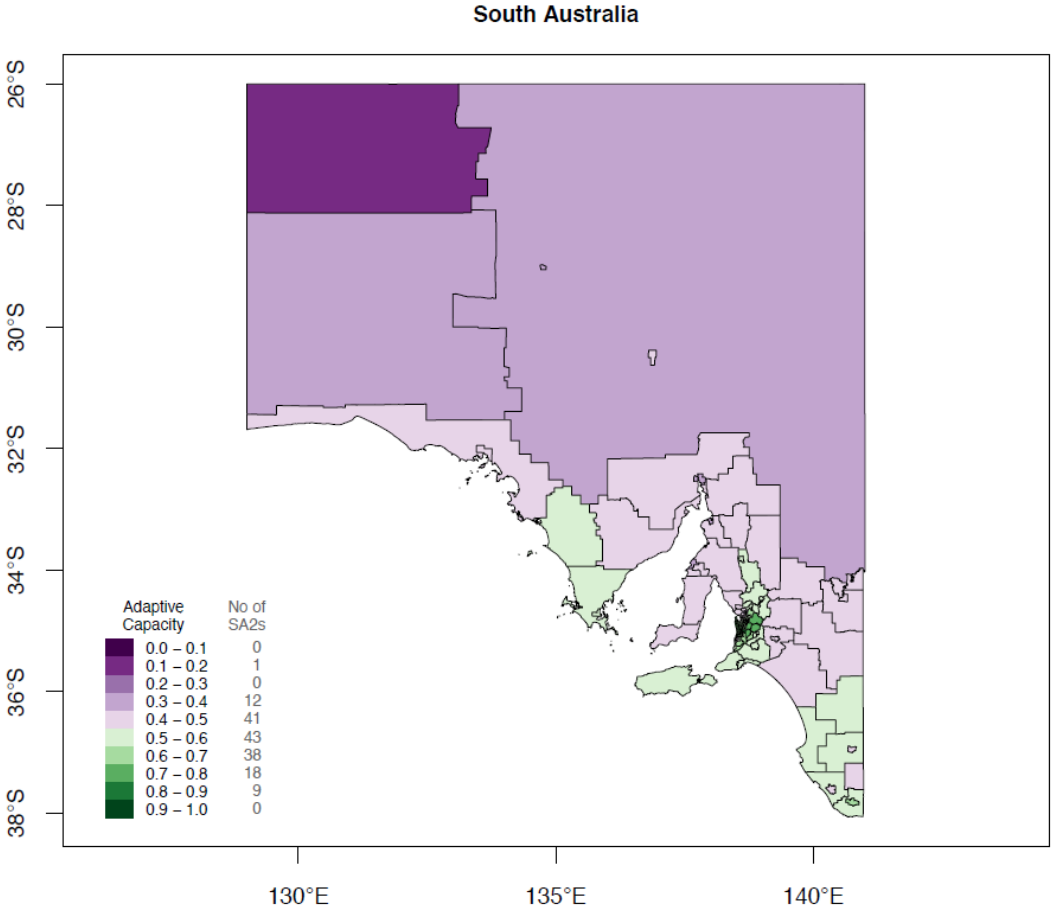


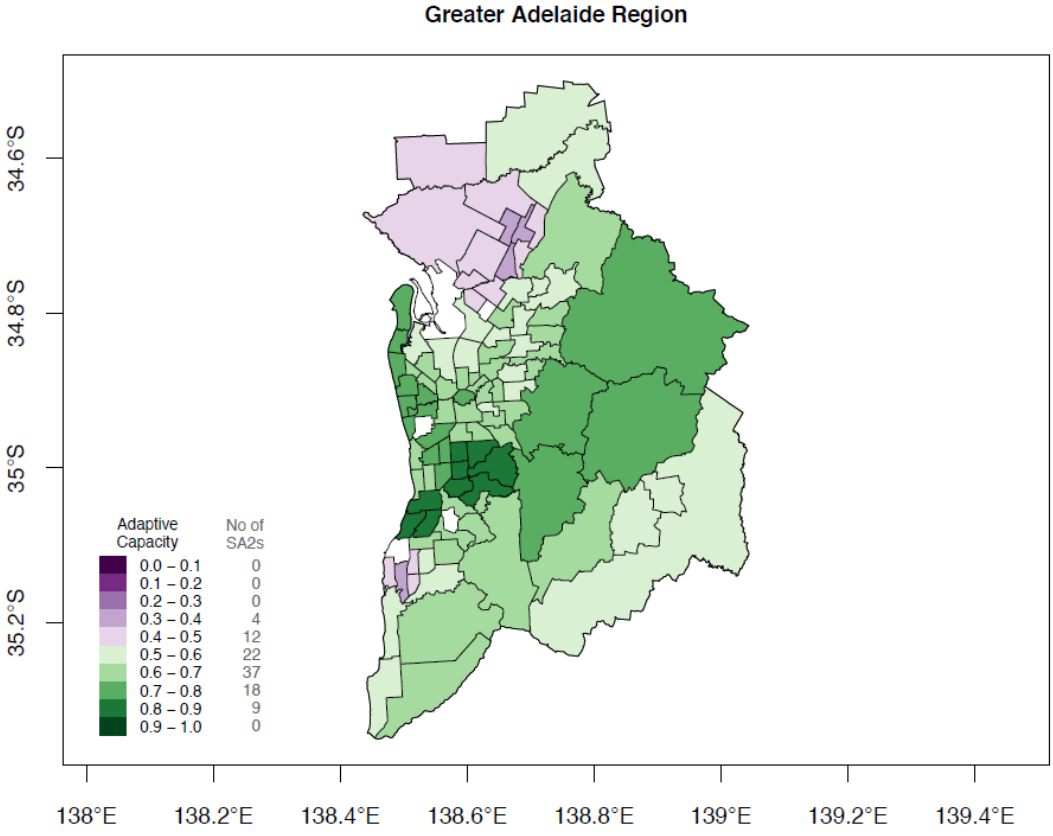
Appendix C. Coping capacity, SA.





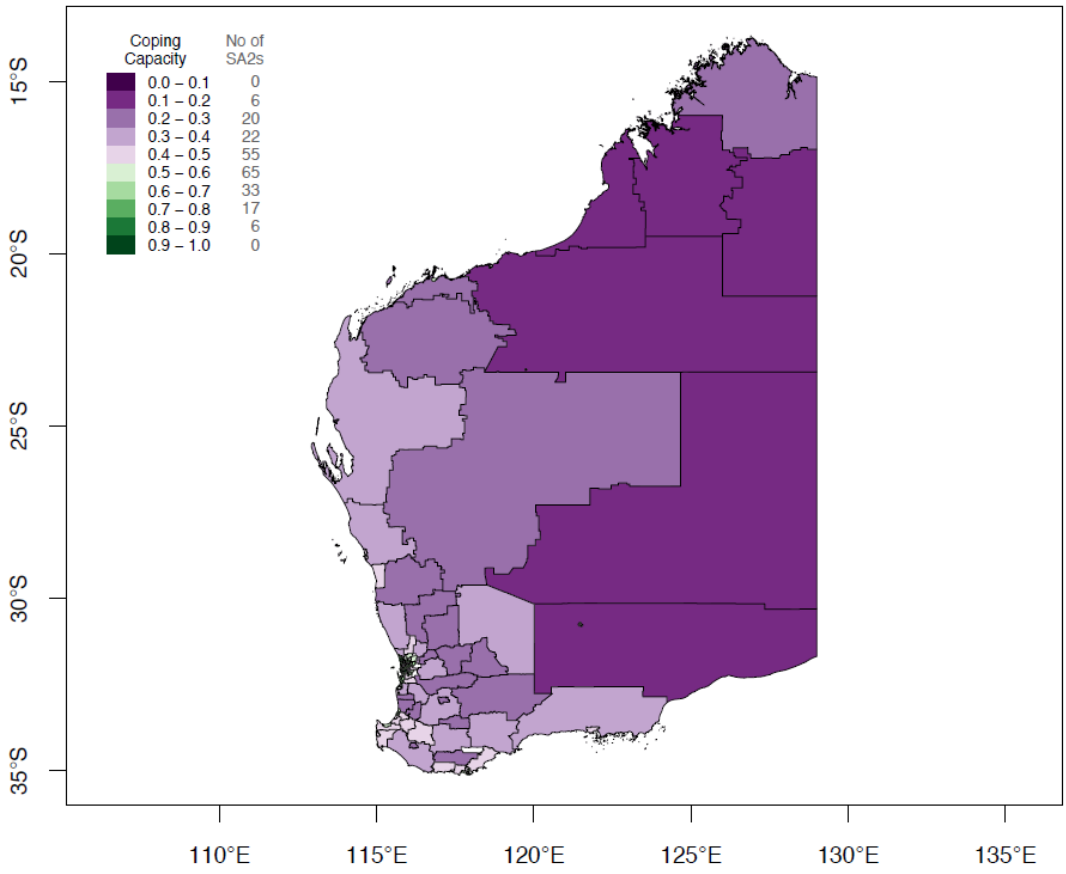
Appendix C. Adaptive capacity, SA.



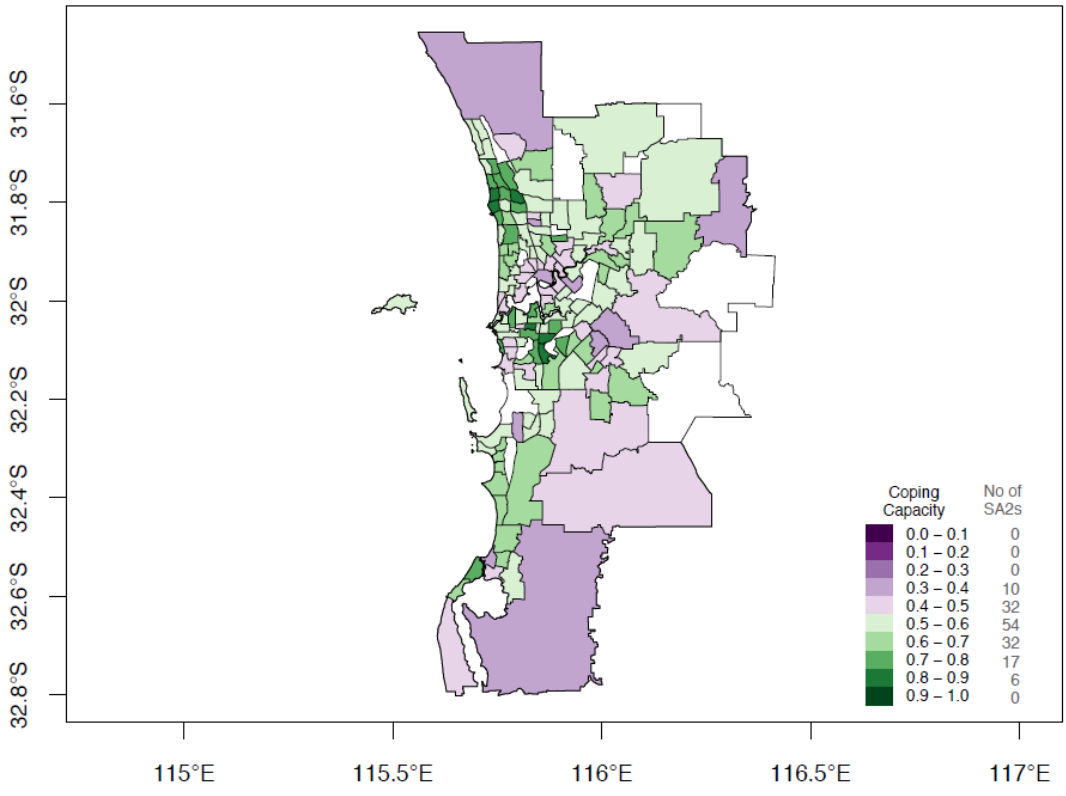


Appendix C. Coping capacity, WA.

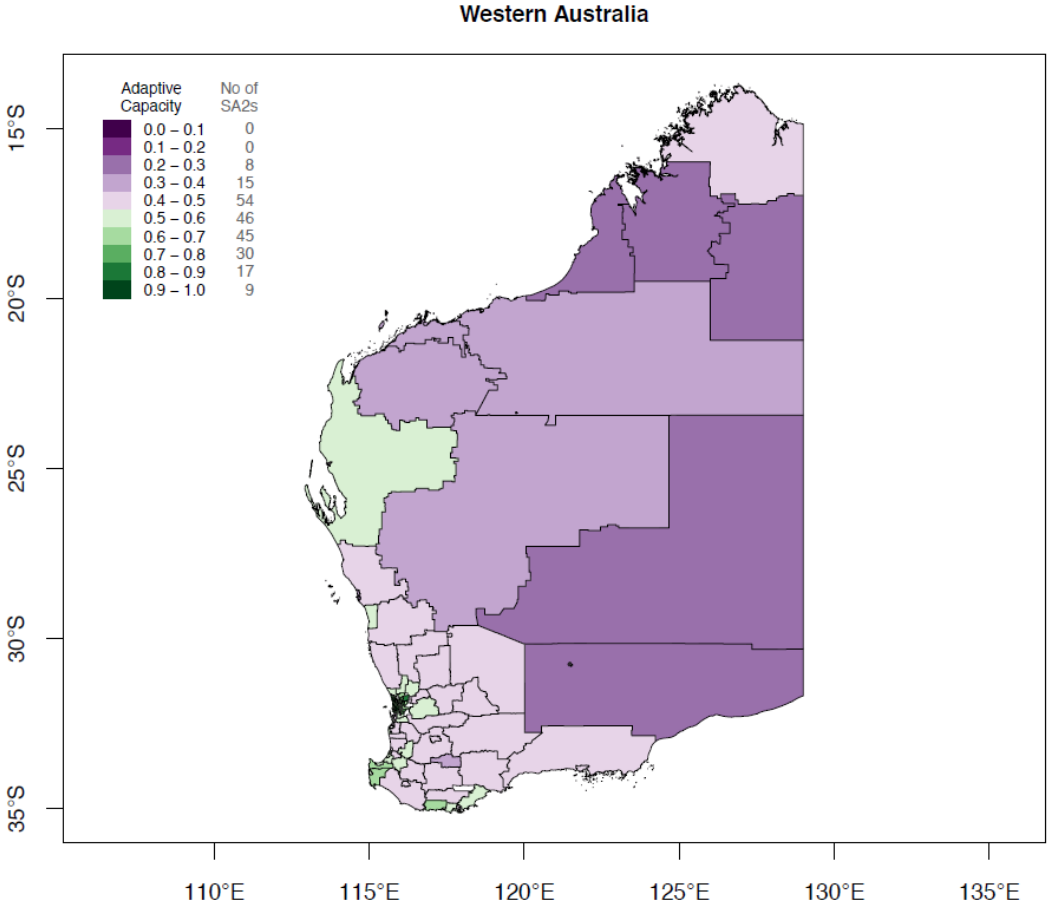
Western Australia

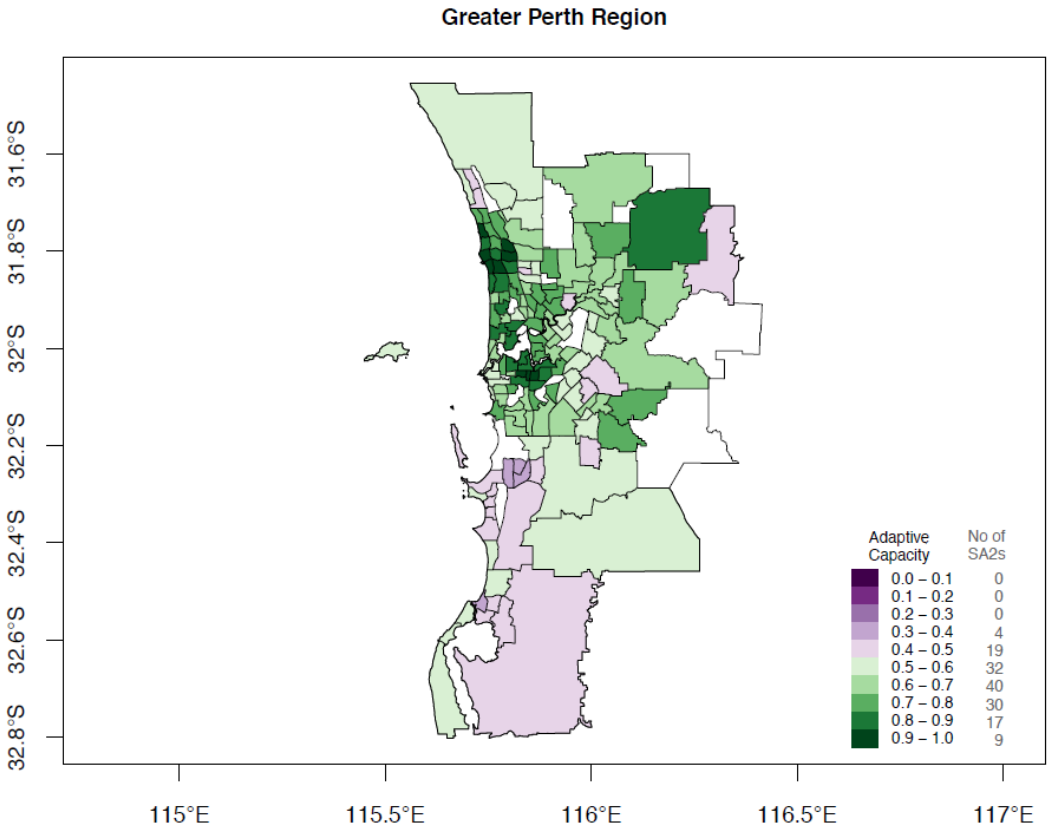


Greater Perth Region

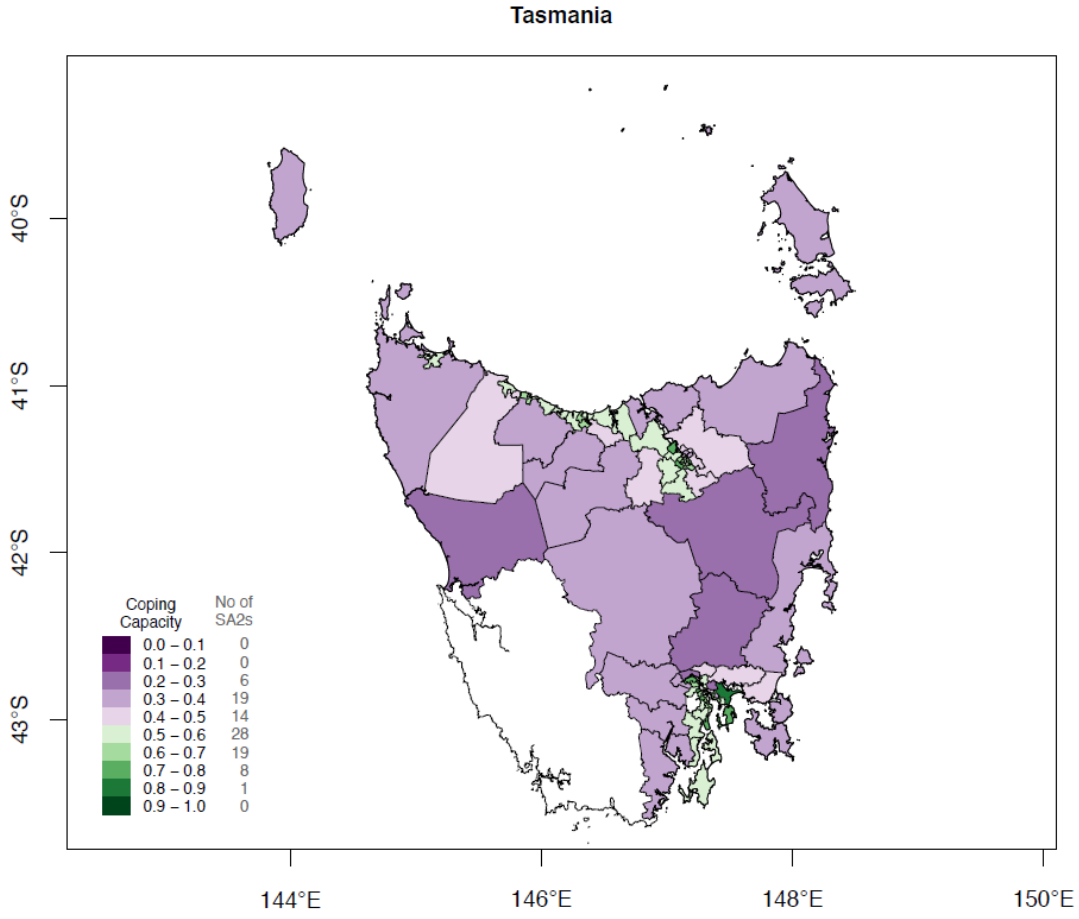


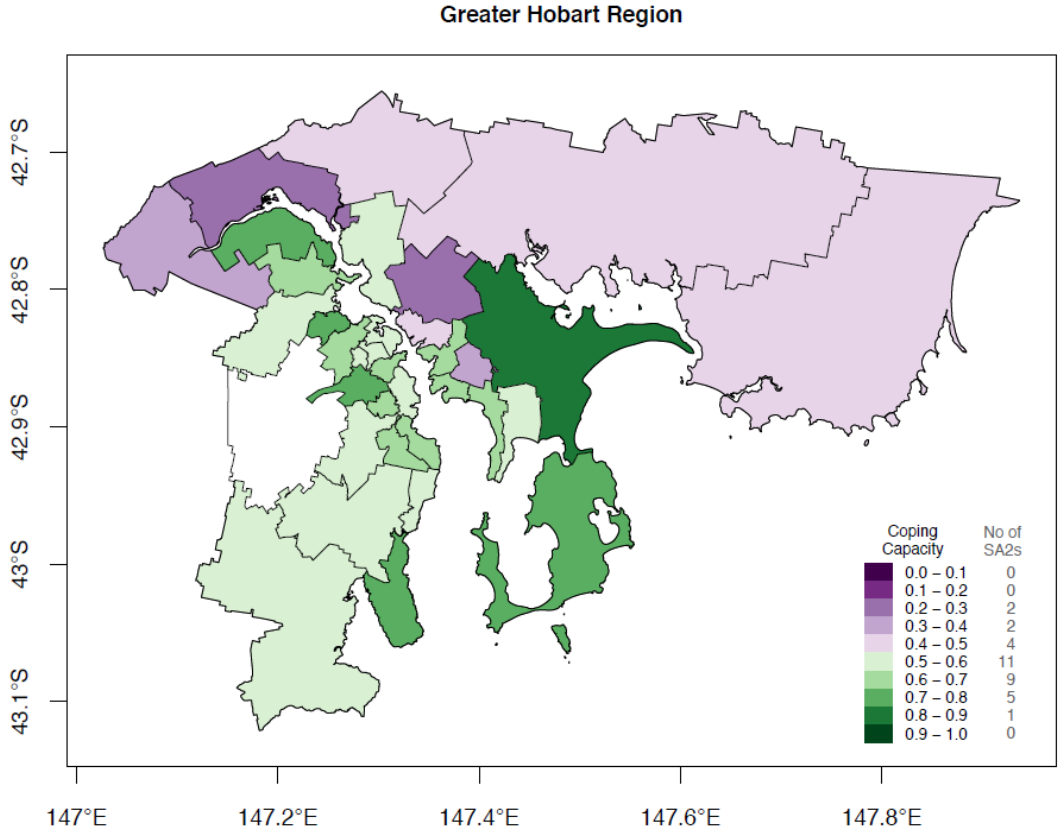
Appendix C. Adaptive capacity, WA.



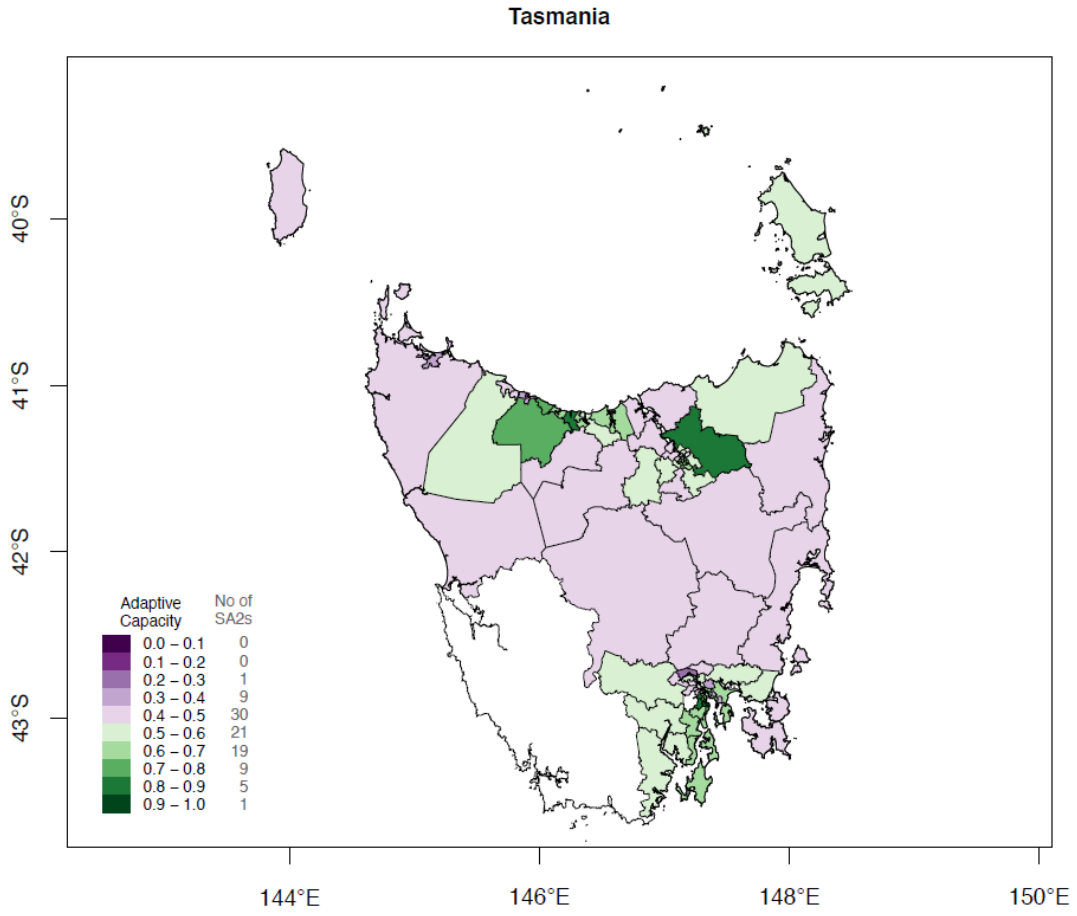


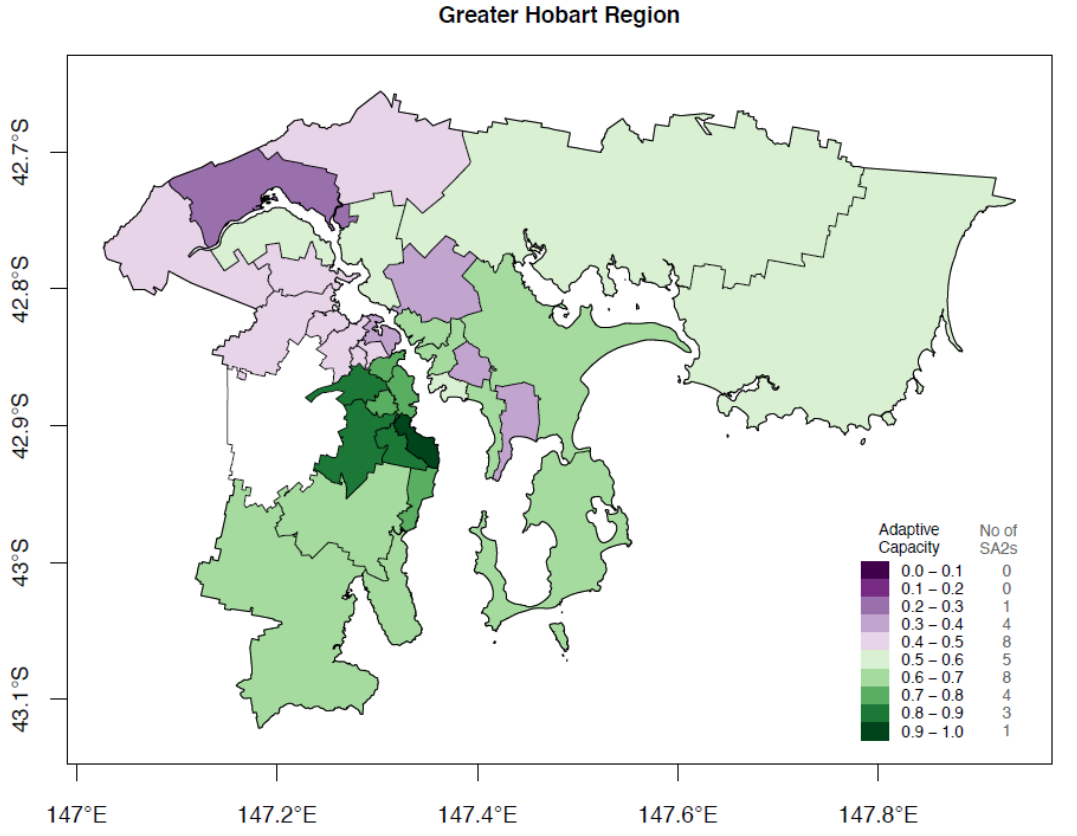
Appendix C. Coping capacity, TAS.



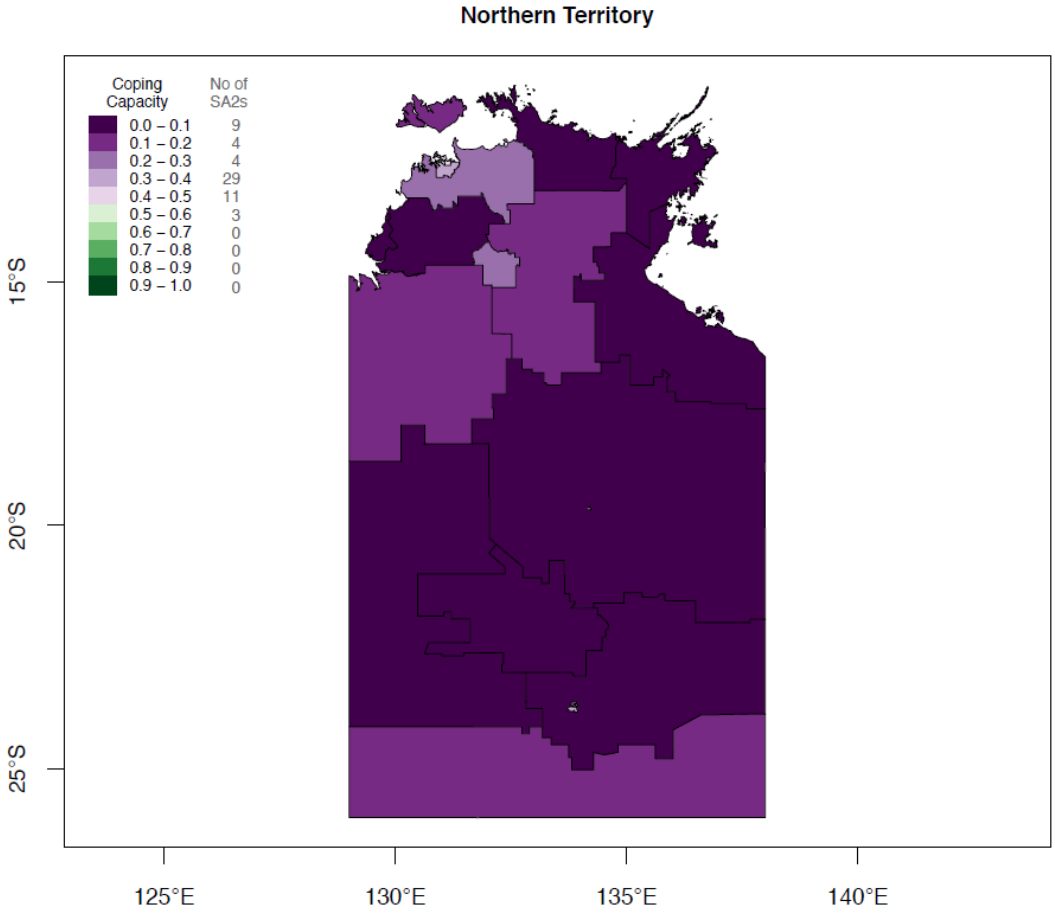


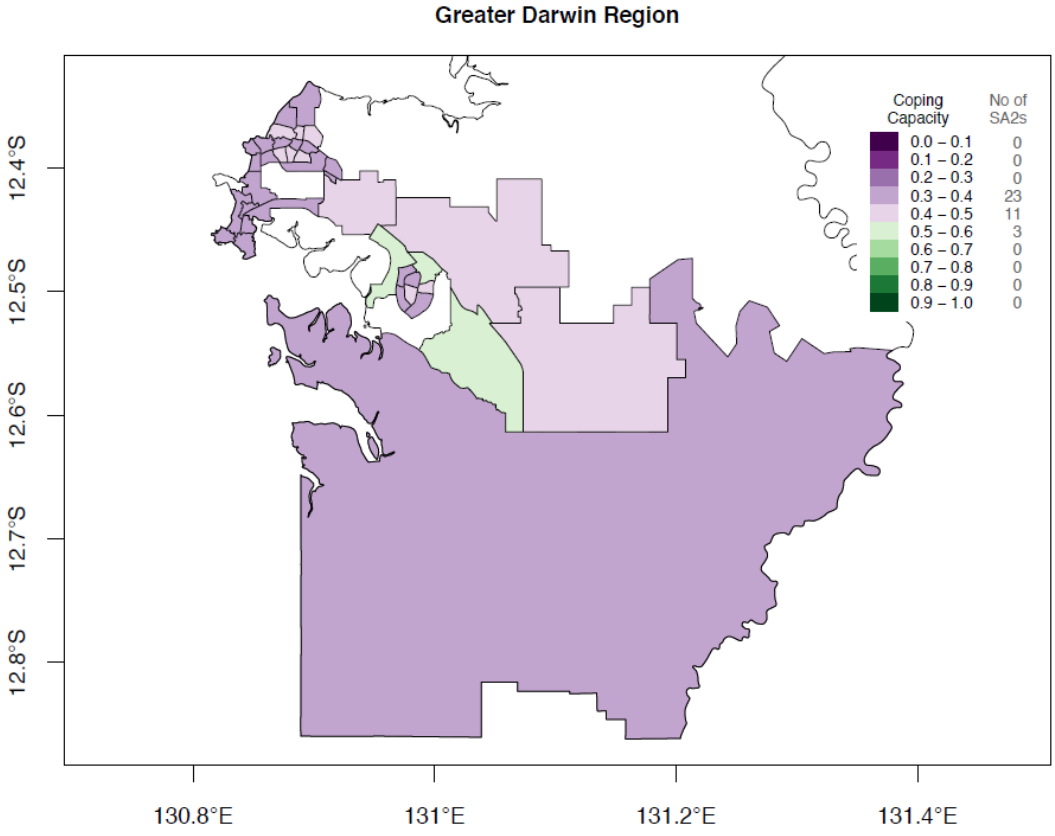
Appendix C. Adaptive capacity, TAS.



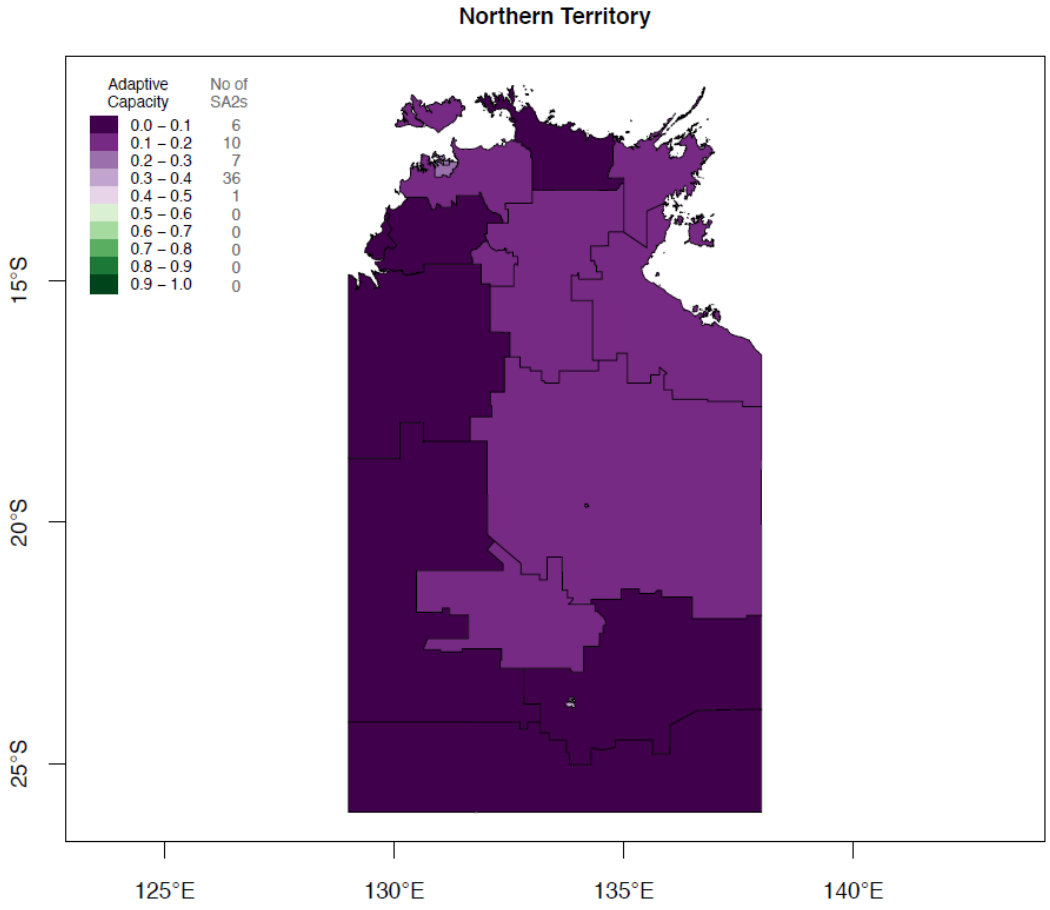


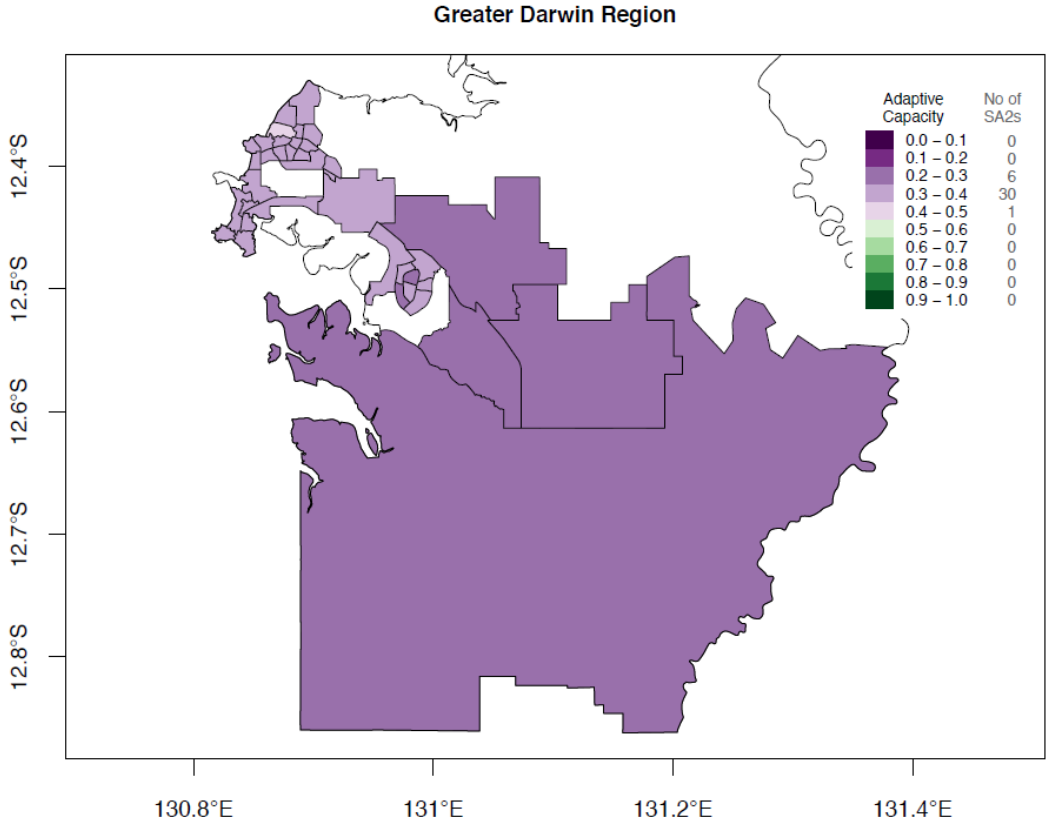
Appendix C. Coping capacity, NT.



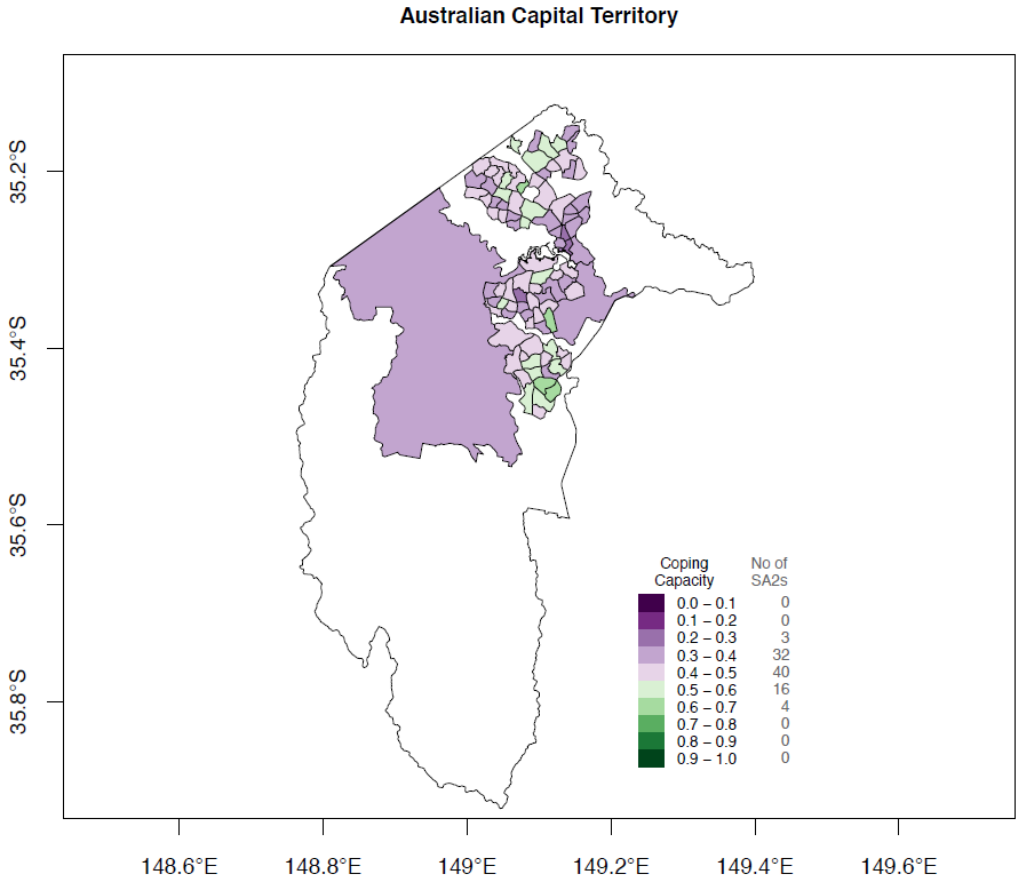


Appendix C. Adaptive capacity, NT.

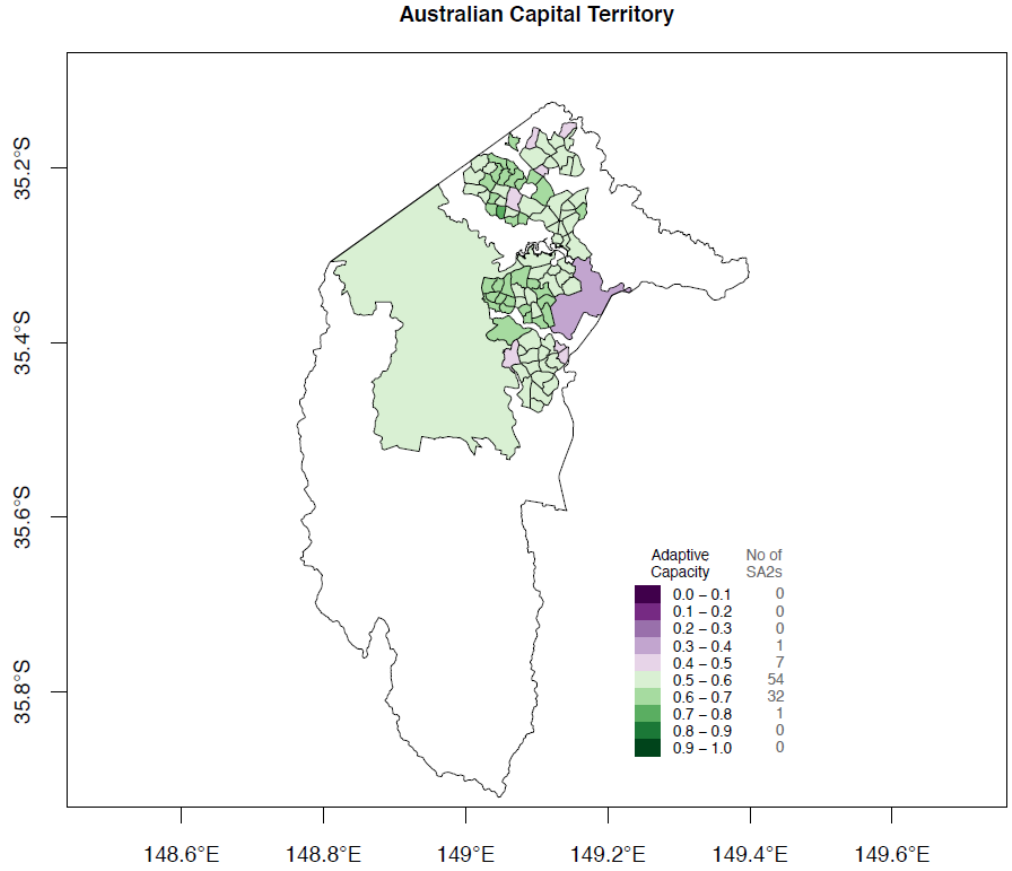




Appendix C. Coping capacity, ACT.



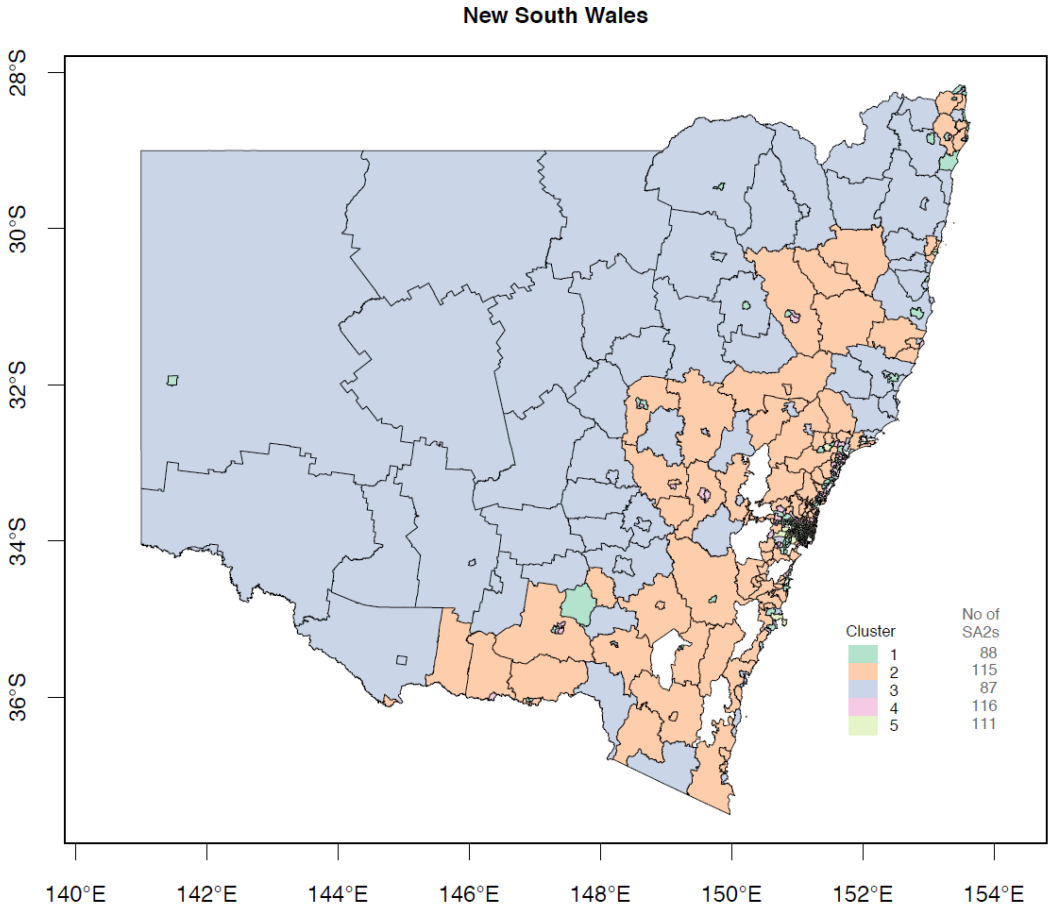
Appendix C. Adaptive capacity, ACT.

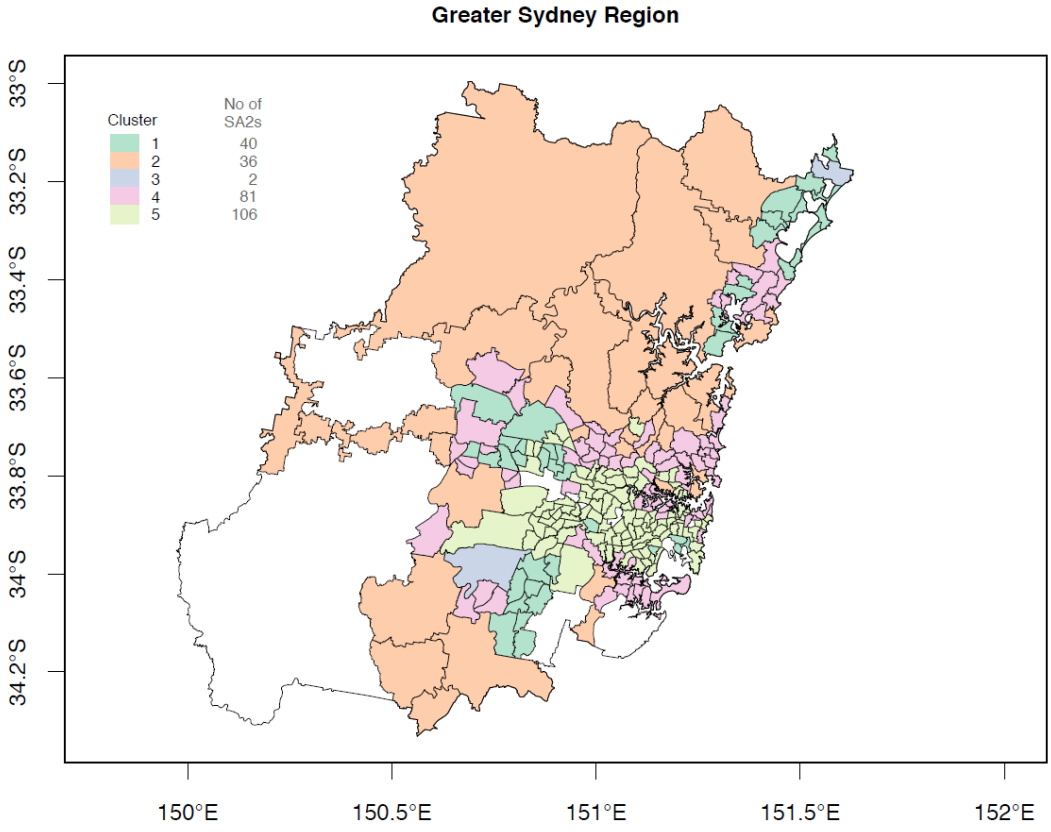


APPENDIX D – MAPS: TYPOLOGY GROUPS

Appendix D maps the typology groups at the resolution of individual States and Territories, and major metropolitan areas.

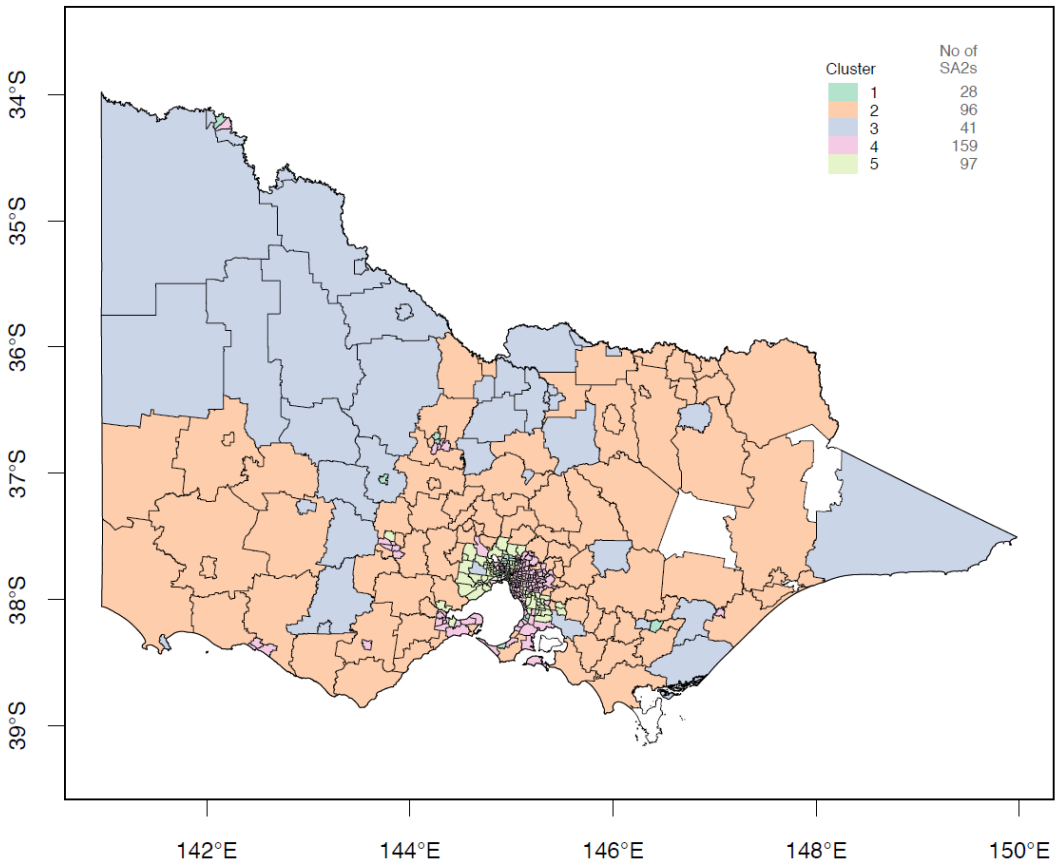
Appendix D. Typology groups, NSW.



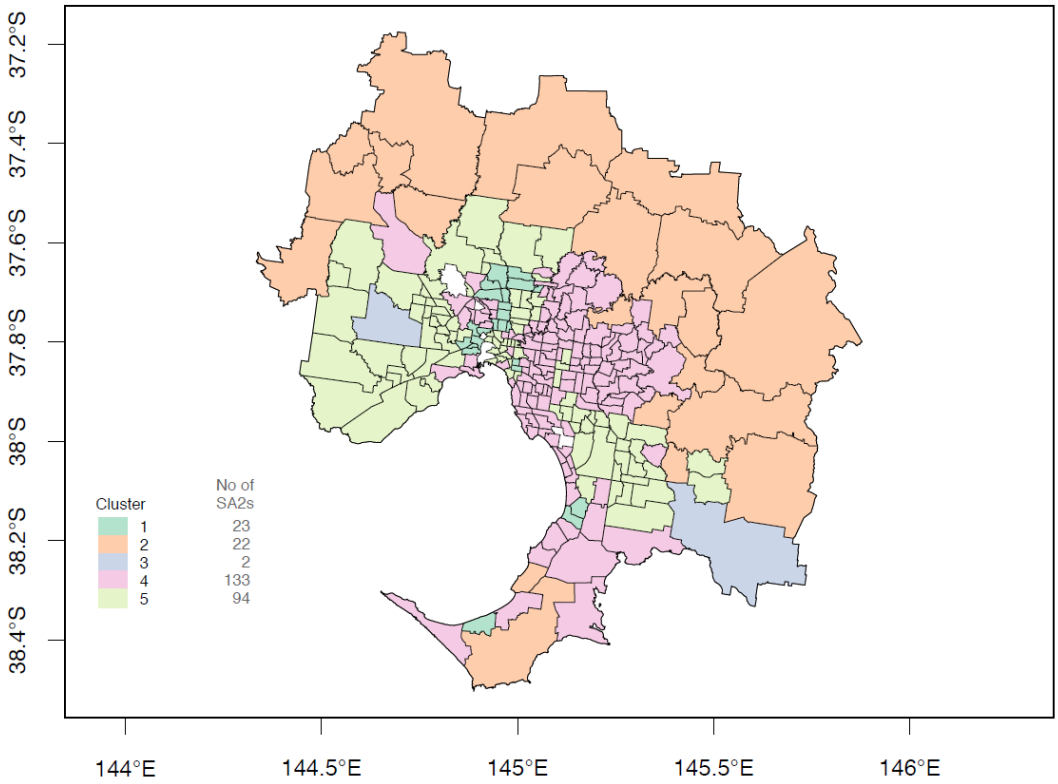


Appendix D. Typology groups, VIC.

Victoria

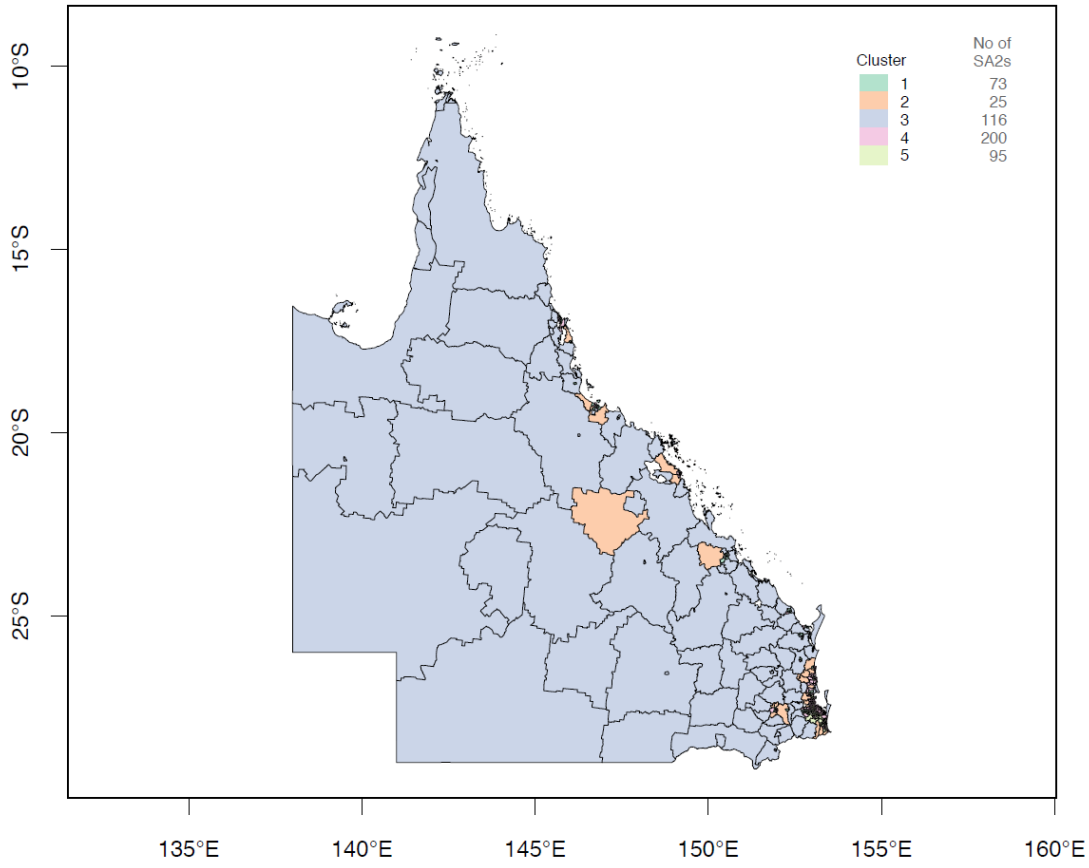


Greater Melbourne Region

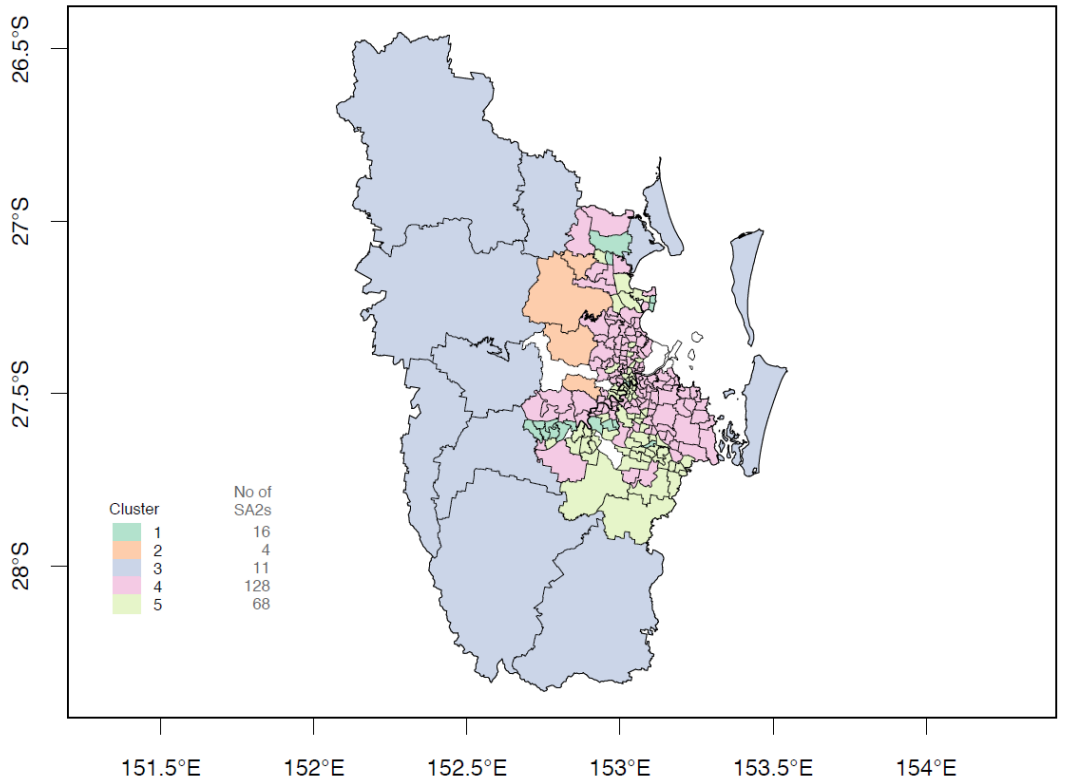


Appendix D. Typology groups, QLD.

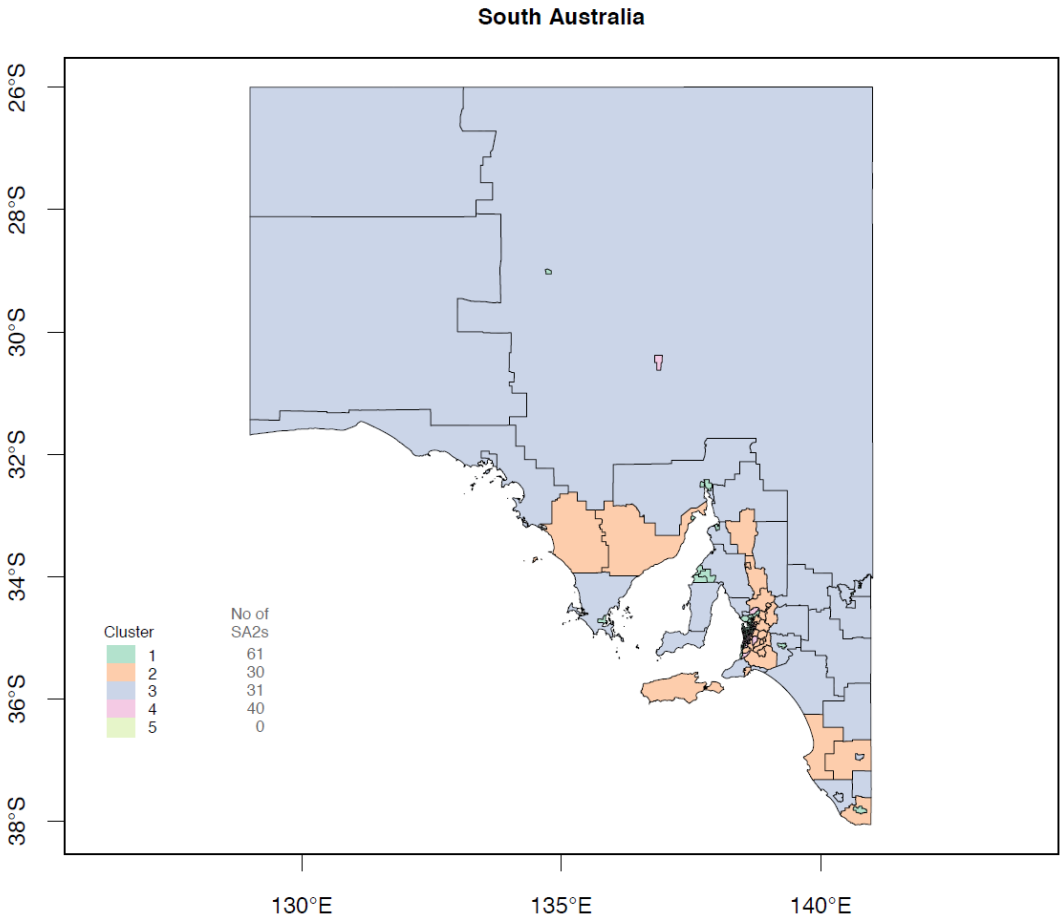
Queensland

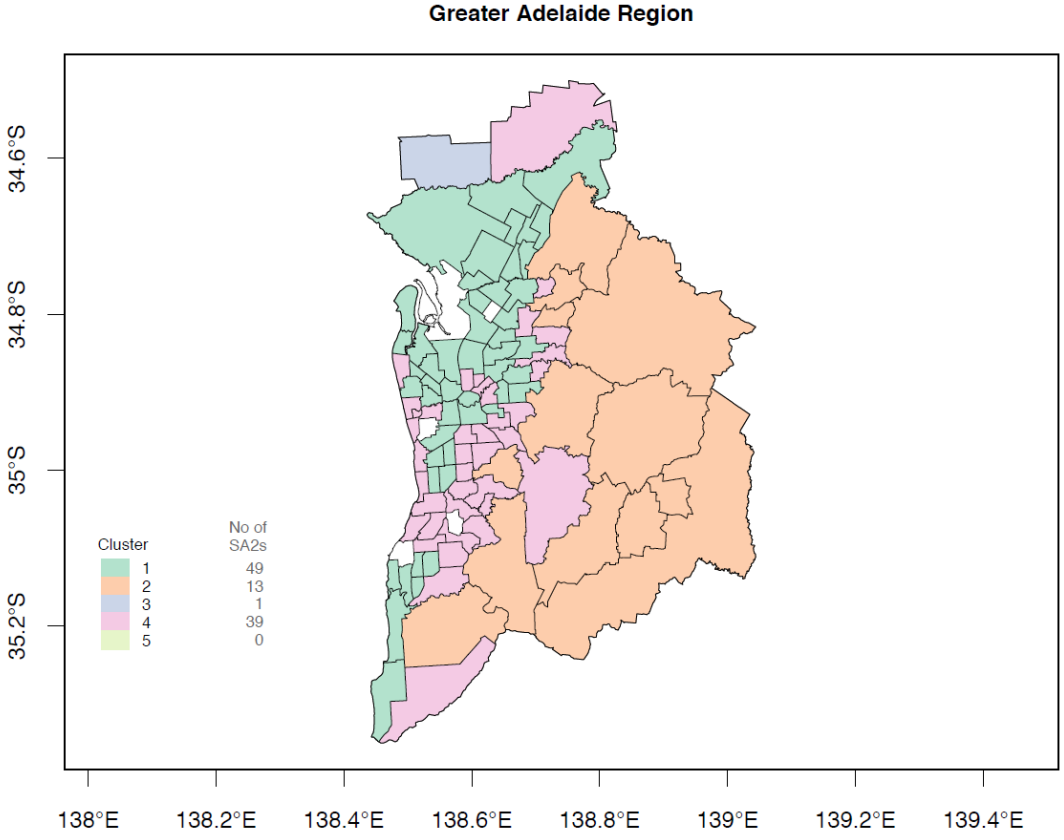


Greater Brisbane Region

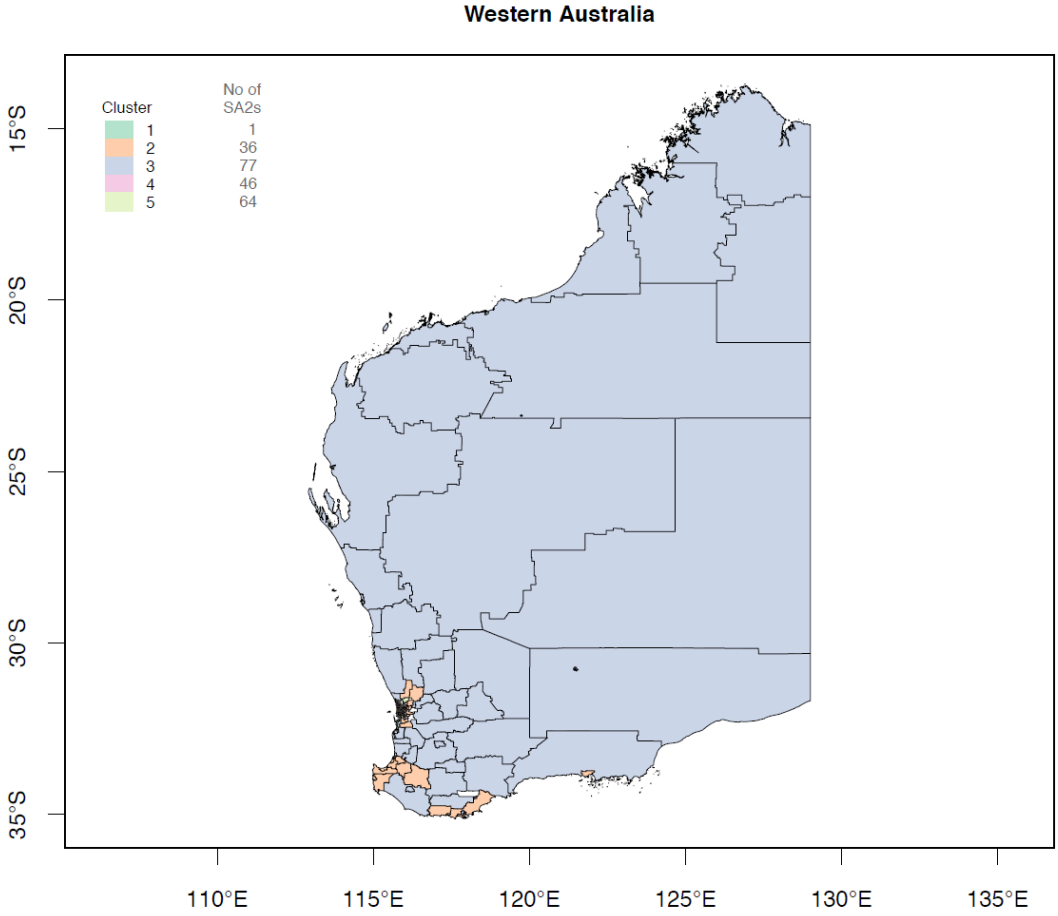


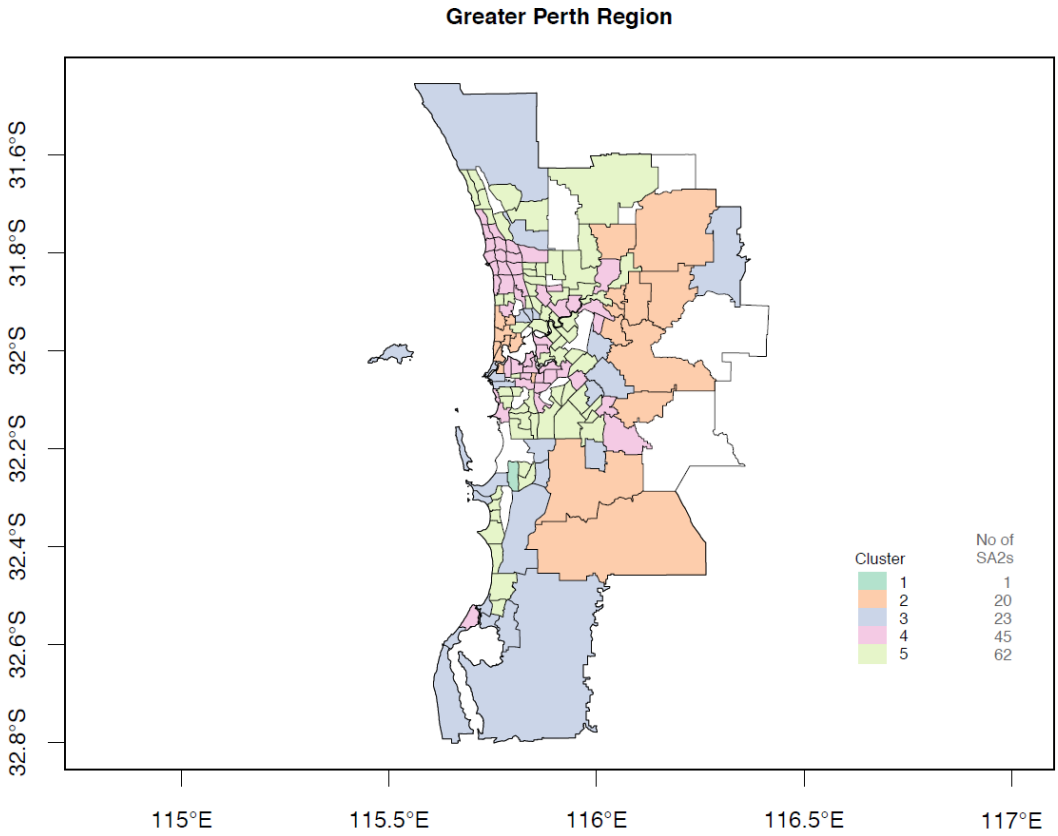
Appendix D. Typology groups, SA.



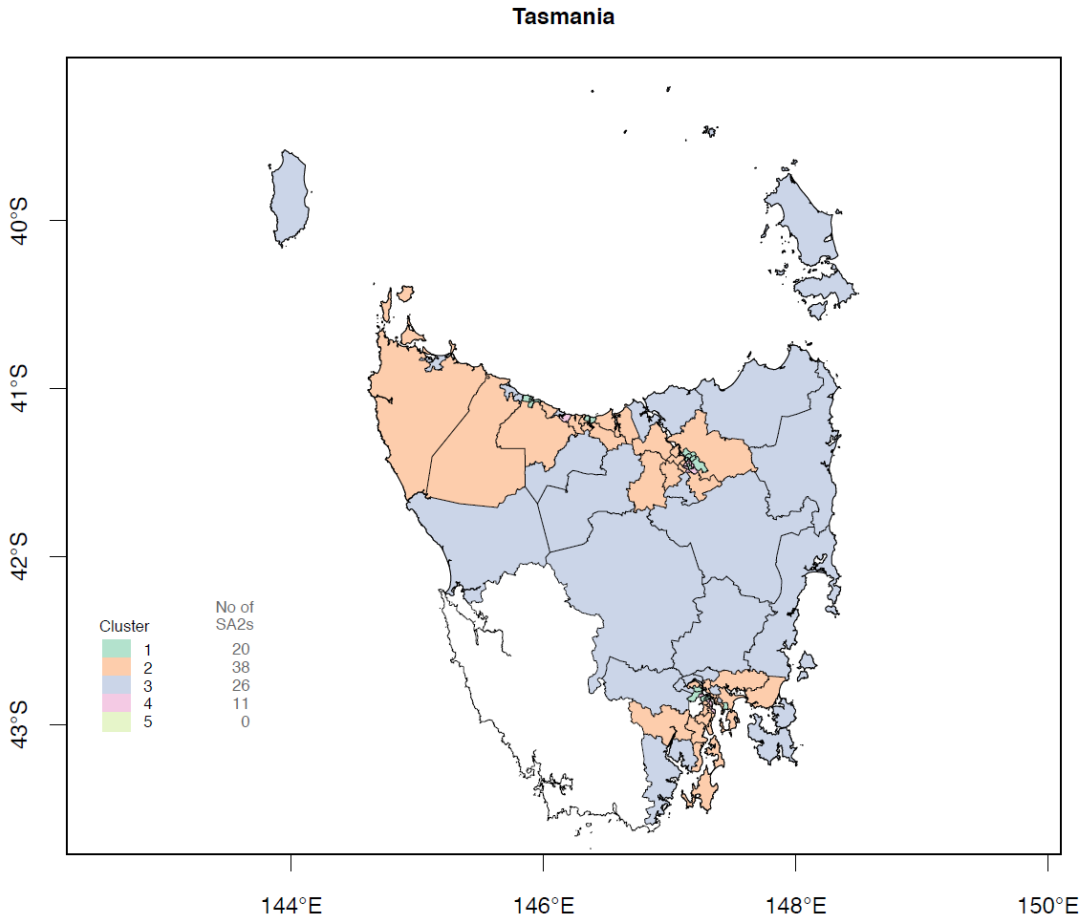


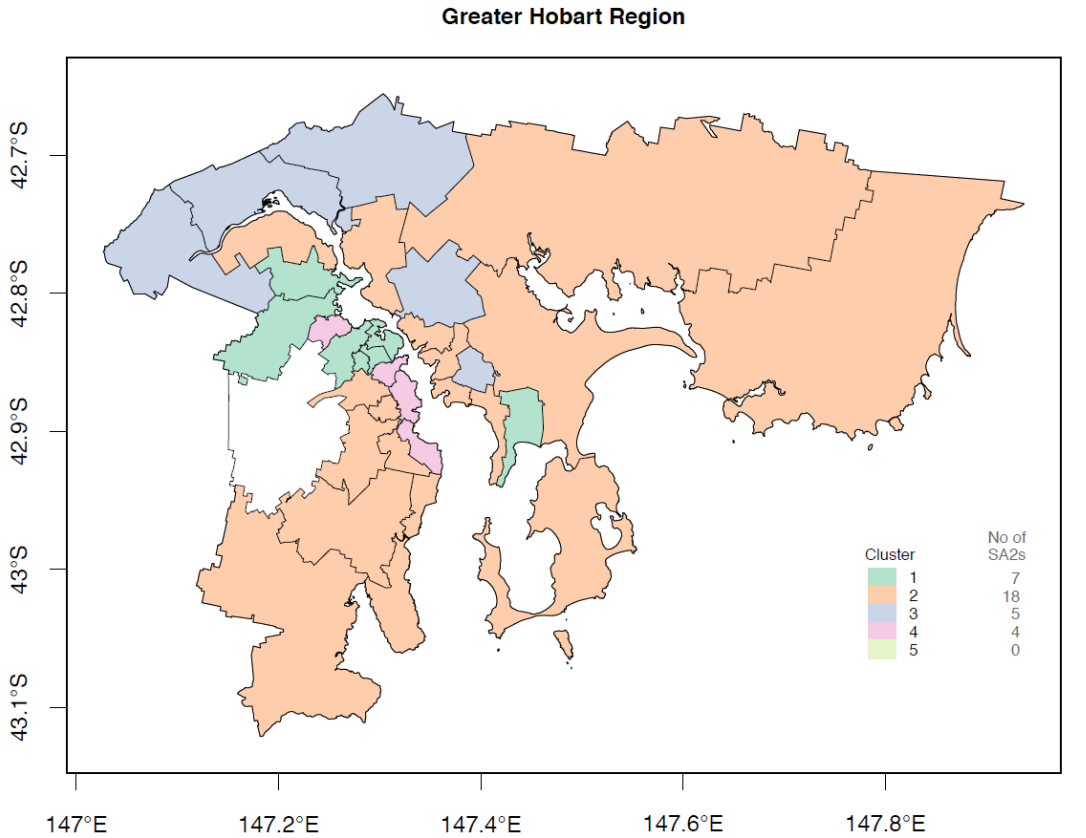
Appendix D. Typology groups, WA.





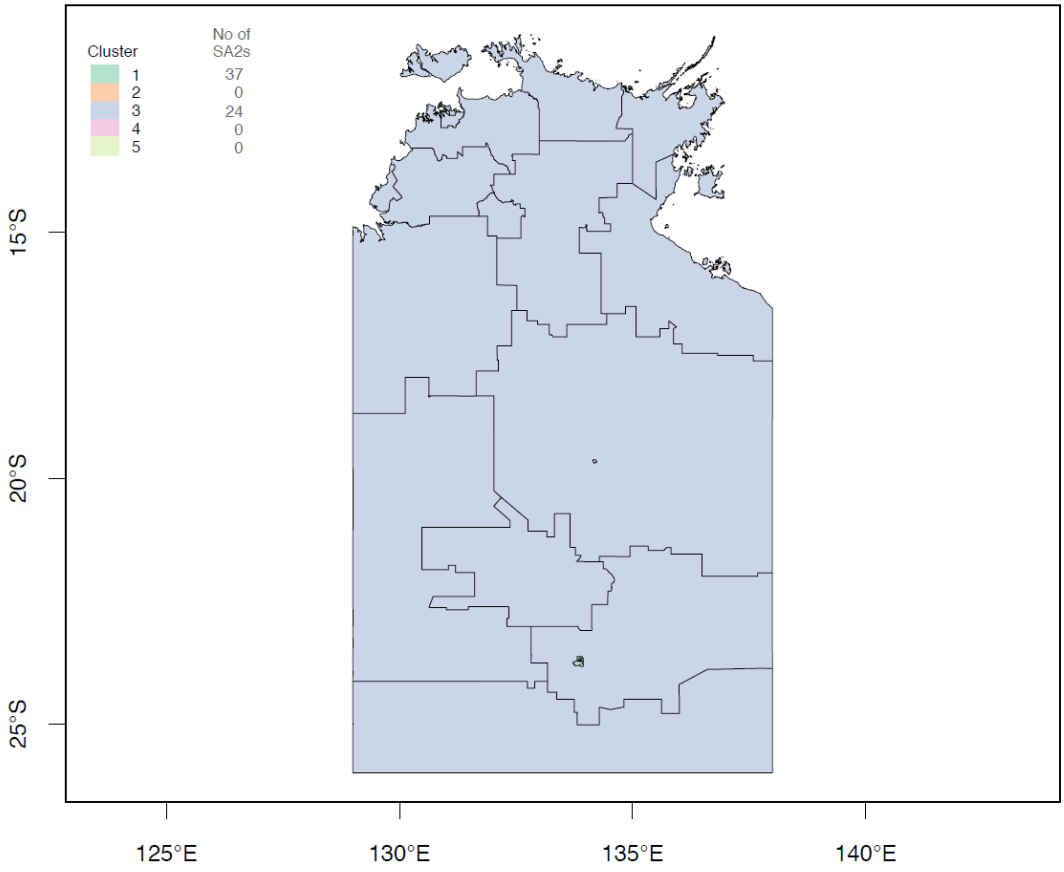
Appendix D. Typology groups, TAS.



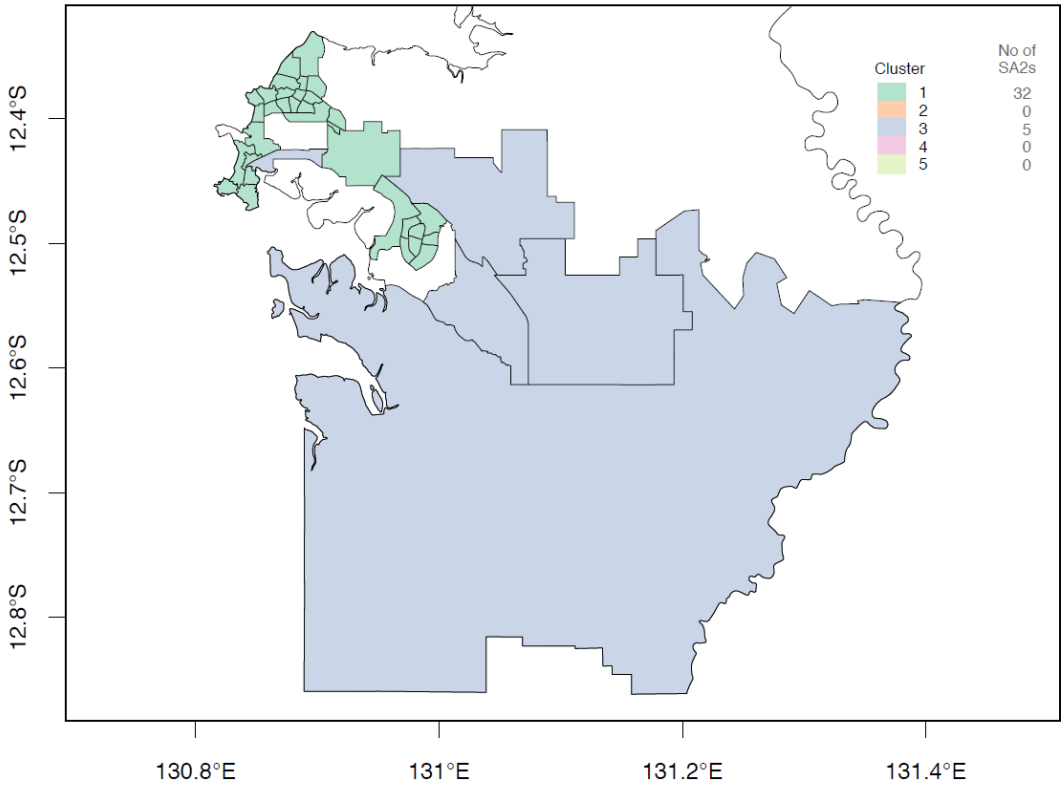


Appendix D. Typology groups, NT.

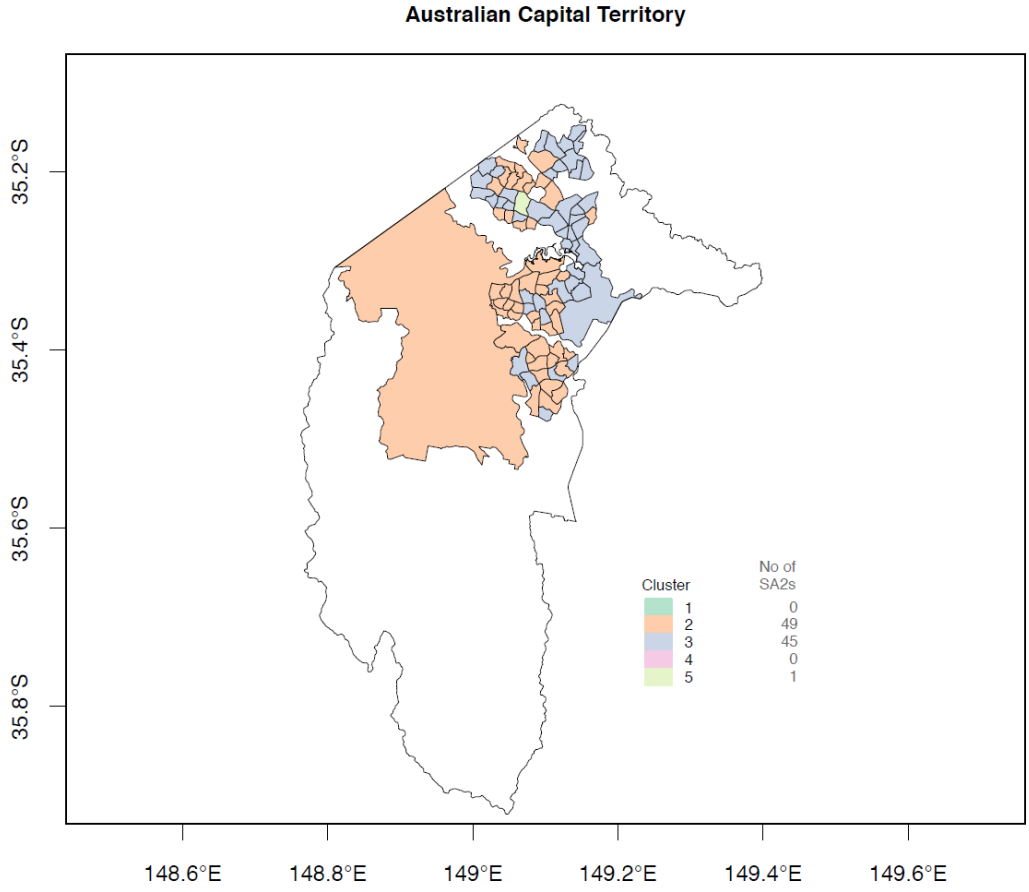
Northern Territory



Greater Darwin Region



Appendix D. Typology groups, ACT.



APPENDIX E – DATA TABLE

Appendix E gives the demographic and disaster resilience characteristics for the 2084 SA2s included in the assessment of disaster resilience.

Data item descriptions:

SA2 Code	SA2 Code (2011 ASGS)
SA2 Name	SA2 Name (2011 ASGS)
State	Ordered by States and Territories
Area (km²)	Area of the SA2 (2011 ASGS)
Remoteness	Australian Bureau of Statistics remoteness category (2011 ASGS)
Estimated resident population	Australian Bureau of Statistics estimated resident population, 30 June 2015
ANDRI quartile	High = >75th percentile (0.6599 – 1) Moderate = 25 – 75th percentile (0.4462 – 0.6598) Low = <25th percentile (0 – 0.4461)
ANDRI	Value of the Australian Natural Disaster Resilience Index
Coping and adaptive capacity	HCHA = High coping, high adaptive capacity HCMA = High coping, moderate adaptive capacity HCLA = High coping, low adaptive capacity MCHA = Moderate coping, high adaptive capacity MCMA = Moderate coping, moderate adaptive capacity MCLA = Moderate coping, low adaptive capacity LCHA = Low coping, high adaptive capacity LCMA = Low coping, moderate adaptive capacity LCLA = Low coping, low adaptive capacity Refer to Chapter 3 for coping and adaptive capacity index values associated with high, moderate and low classes.
Typology group	Groups 1-5 each have a characteristic disaster resilience profile. Refer to Chapter 4 for typology group descriptions.

A list of SA2s excluded from the analysis can be found in Volume II.

Appendix E. Data table

SA2 code	SA2 name	State	Area (km2)	Remoteness	Estimated resident population (2015)	ANDRI Quartile	ANDRI	Coping and adaptive capacity	Typology group
101011001	Goulburn	NSW	64.6	Inner regional	23138	Moderate	0.6279	HCMA	1
101011002	Goulburn Region	NSW	9035.1	Inner regional	12715	High	0.6605	MCHA	2
101011003	Yass	NSW	99.7	Inner regional	6635	Moderate	0.6170	MCMA	2
101011004	Yass Region	NSW	5682.0	Inner regional	11619	Moderate	0.6365	MCHA	2
101011005	Young	NSW	505.8	Inner regional	10740	Moderate	0.4464	MCLA	3
101011006	Young Region	NSW	5849.4	Inner regional	7444	Low	0.4441	LCMA	3
101021007	Braidwood	NSW	3418.5	Inner regional	3849	Moderate	0.5404	MCMA	2
101021008	Karabar	NSW	7.0	Metropolitan	8603	Moderate	0.5418	MCMA	1
101021009	Queanbeyan	NSW	4.8	Metropolitan	11213	Moderate	0.5666	MCMA	1
101021010	Queanbeyan - East	NSW	13.0	Metropolitan	4961	Moderate	0.5607	MCMA	1
101021011	Queanbeyan Region	NSW	3054.2	Inner regional	16618	Moderate	0.5437	MCMA	2
101021012	Queanbeyan West - Jerrabomberra	NSW	13.7	Metropolitan	13164	High	0.6904	HCMA	4
101031013	Bombala	NSW	3989.1	Outer regional	2428	Low	0.3907	LCLA	3
101031014	Cooma	NSW	103.7	Inner regional	6887	Moderate	0.5813	MCMA	2
101031015	Cooma Region	NSW	6249.0	Outer regional	3314	Moderate	0.5679	MCMA	2
101031016	Jindabyne - Berridale	NSW	3940.0	Outer regional	7020	Moderate	0.5077	MCMA	2
101041017	Batemans Bay	NSW	63.7	Inner regional	7829	Moderate	0.4584	LCMA	3
101041018	Batemans Bay - South	NSW	30.6	Inner regional	8519	Moderate	0.5322	MCMA	3
101041019	Bega - Tathra	NSW	184.4	Outer regional	8540	Moderate	0.5638	MCMA	2
101041020	Bega-Eden Hinterland	NSW	4709.4	Outer regional	8971	Moderate	0.5642	MCMA	2
101041021	Broulee - Tomakin	NSW	24.2	Inner regional	3275	Moderate	0.6260	MCMA	3
101041023	Eden	NSW	94.8	Outer regional	3303	Low	0.4377	LCMA	3
101041024	Eurobodalla Hinterland	NSW	1460.0	Inner regional	3356	Moderate	0.5244	MCMA	2
101041025	Merimbula - Tura Beach	NSW	97.3	Outer regional	10667	Moderate	0.5682	MCMA	2
101041026	Moruya - Tuross Head	NSW	165.4	Inner regional	8018	Moderate	0.5626	MCMA	2
101041027	Narooma - Bermagui	NSW	252.6	Outer regional	9101	Moderate	0.4881	LCMA	3
102011028	Avoca Beach - Copacabana	NSW	6.4	Metropolitan	7562	High	0.7215	HCMA	2
102011029	Box Head - MacMasters Beach	NSW	32.1	Metropolitan	10933	High	0.7598	HCMA	2
102011030	Calga - Kulnura	NSW	767.9	Inner regional	4799	Moderate	0.6016	MCMA	2
102011031	Erina - Green Point	NSW	33.8	Metropolitan	14285	High	0.7002	HCMA	4
102011032	Gosford - Springfield	NSW	16.9	Metropolitan	19194	Moderate	0.5700	HCMA	1
102011033	Kariong	NSW	8.3	Metropolitan	6607	Moderate	0.6556	HCMA	4
102011034	Kincumber - Picketts Valley	NSW	12.1	Metropolitan	7448	High	0.6809	HCMA	4
102011035	Narara	NSW	7.7	Metropolitan	6822	High	0.7072	HCMA	4
102011036	Niagara Park - Lisarow	NSW	16.7	Metropolitan	8215	High	0.7144	HCMA	4
102011037	Point Clare - Koolewong	NSW	6.8	Metropolitan	6410	High	0.6978	HCMA	4
102011038	Saratoga - Davistown	NSW	4.8	Metropolitan	7129	High	0.6912	HCMA	4
102011039	Terrigal - North Avoca	NSW	10.1	Metropolitan	13765	High	0.6812	HCMA	4
102011040	Umina - Booker Bay - Patonga	NSW	25.1	Metropolitan	23958	Moderate	0.5981	HCMA	1
102011041	Wamberal - Forresters Beach	NSW	13.7	Metropolitan	9861	High	0.7191	HCMA	4
102011042	Woy Woy - Blackwall	NSW	17.4	Metropolitan	14070	Moderate	0.5555	MCMA	1
102011043	Wyoming	NSW	8.4	Metropolitan	11722	Moderate	0.6501	HCMA	1
102021044	Bateau Bay - Killarney Vale	NSW	10.9	Metropolitan	22365	Moderate	0.6240	HCMA	1
102021045	Blue Haven - San Remo	NSW	21.0	Metropolitan	11237	Moderate	0.4885	MCLA	1

Appendix E (cont.) Data table

SA2 code	SA2 name	State	Area (km2)	Remoteness	Estimated resident population (2015)	ANDRI Quartile	ANDRI	Coping and adaptive capacity	Typology group
102021046	Budgewoi - Buff Point - Halekulani	NSW	9.4	Metropolitan	9495	Moderate	0.5592	MCMA	1
102021047	Chittaway Bay - Tumbi Umbi	NSW	24.6	Metropolitan	15871	High	0.6812	HCMA	4
102021048	Gorokan - Kanwal - Charmhaven	NSW	11.2	Metropolitan	22314	Moderate	0.5226	MCMA	1
102021049	Jilliby - Yarramalong	NSW	346.7	Metropolitan	3369	Moderate	0.6307	MCMA	2
102021050	Lake Munmorah - Mannering Park	NSW	35.5	Metropolitan	10808	Moderate	0.4816	LCMA	3
102021051	Ourimbah - Fountaindale	NSW	114.1	Metropolitan	5005	Moderate	0.6018	MCMA	2
102021052	Summerland Point - Gwandalan	NSW	9.2	Metropolitan	5818	Moderate	0.6279	HCMA	1
102021053	The Entrance	NSW	13.9	Metropolitan	15182	Moderate	0.4628	MCLA	1
102021054	Toukley - Norah Head	NSW	10.5	Metropolitan	9853	Moderate	0.5309	MCMA	1
102021055	Tuggerah - Kangy Angy	NSW	27.8	Metropolitan	5277	Moderate	0.5658	HCMA	1
102021056	Warnervale - Wadalba	NSW	42.9	Metropolitan	15004	Moderate	0.5459	MCMA	1
102021057	Wyong	NSW	15.0	Metropolitan	8886	Moderate	0.4936	MCLA	1
103011058	Bathurst	NSW	119.4	Inner regional	24326	High	0.7146	HCMA	4
103011059	Bathurst - East	NSW	94.1	Inner regional	11048	Moderate	0.6509	HCMA	4
103011060	Bathurst Region	NSW	3799.0	Inner regional	6963	Moderate	0.6460	MCHA	2
103011061	Oberon	NSW	2972.2	Inner regional	4681	Moderate	0.4562	LCMA	3
103021062	Condobolin	NSW	15859.9	Outer regional	6898	Low	0.4272	LCMA	3
103021063	Cowra	NSW	242.1	Inner regional	9281	Moderate	0.4610	MCMA	3
103021064	Cowra Region	NSW	3037.5	Outer regional	5520	Moderate	0.4929	MCMA	3
103021065	Forbes	NSW	4598.1	Outer regional	10358	Moderate	0.4926	LCMA	3
103021066	Grenfell	NSW	3294.3	Outer regional	3676	Low	0.3901	LCLA	3
103021067	Parkes (NSW)	NSW	234.7	Outer regional	11264	Moderate	0.5479	MCMA	3
103021068	Parkes Region	NSW	5417.1	Outer regional	3434	Moderate	0.4535	LCMA	3
103021069	West Wyalong	NSW	8317.6	Outer regional	5999	Low	0.4391	LCMA	3
103031070	Lithgow	NSW	120.0	Inner regional	13032	Low	0.4291	LCMA	3
103031071	Lithgow Region	NSW	2513.7	Inner regional	8359	Moderate	0.5151	MCMA	2
103031072	Mudgee	NSW	65.9	Inner regional	11880	Moderate	0.6047	MCMA	3
103031073	Mudgee Region - East	NSW	2851.8	Outer regional	3503	Low	0.4371	LCMA	3
103031074	Mudgee Region - West	NSW	8043.8	Outer regional	10478	Moderate	0.5057	MCMA	2
103041076	Blayney	NSW	1642.5	Inner regional	7334	Moderate	0.5434	MCMA	2
103041077	Orange	NSW	45.2	Inner regional	19565	High	0.7099	HCMA	4
103041078	Orange - North	NSW	99.4	Inner regional	19657	Moderate	0.6572	MCHA	2
103041079	Orange Region	NSW	4481.0	Inner regional	11644	High	0.6830	MCHA	2
104011080	Grafton	NSW	106.4	Inner regional	19037	Moderate	0.4766	MCMA	3
104011081	Grafton Region	NSW	8445.8	Outer regional	15577	Moderate	0.4942	MCMA	3
104011082	Maclean - Yamba - Iluka	NSW	711.1	Inner regional	16521	Moderate	0.4979	LCMA	3
104021083	Bellingen	NSW	1001.0	Outer regional	5981	Moderate	0.4982	LCMA	3
104021084	Coffs Harbour - North	NSW	25.7	Inner regional	17634	Moderate	0.5482	MCMA	5
104021085	Coffs Harbour - South	NSW	33.7	Inner regional	10442	Moderate	0.5079	MCMA	5
104021086	Coramba - Nana Glen - Bucca	NSW	363.9	Inner regional	3868	Moderate	0.5855	MCHA	2
104021087	Dorrigo	NSW	1987.7	Outer regional	3275	Low	0.4425	LCMA	3
104021088	Korora - Emerald Beach	NSW	57.7	Inner regional	8720	Moderate	0.5935	MCMA	2
104021089	Sawtell - Boambee	NSW	118.3	Inner regional	19842	Moderate	0.5230	MCMA	2

Appendix E (cont.) Data table

SA2 code	SA2 name	State	Area (km2)	Remoteness	Estimated resident population (2015)	ANDRI Quartile	ANDRI	Coping and adaptive capacity	Typology group
104021090	Urunga	NSW	108.4	Outer regional	4727	Moderate	0.4999	LCMA	3
104021091	Woolgoolga - Arrawarra	NSW	270.2	Inner regional	12601	Moderate	0.4921	LCMA	3
105011092	Bourke - Brewarrina	NSW	56850.2	Very remote	4261	Low	0.3130	LCLA	3
105011093	Cobar	NSW	45543.4	Remote	4802	Low	0.3861	LCMA	3
105011094	Coonamble	NSW	12142.8	Remote	4297	Low	0.3326	LCLA	3
105011095	Nyngan - Warren	NSW	21216.3	Remote	5164	Low	0.3338	LCLA	3
105011096	Walgett - Lightning Ridge	NSW	27011.7	Remote	6747	Low	0.2803	LCLA	3
105021097	Broken Hill	NSW	170.3	Outer regional	18360	Moderate	0.4488	MCLA	1
105021098	Far West	NSW	146691.0	Very remote	2618	Low	0.2432	LCLA	3
105031099	Coonabarabran	NSW	10473.9	Outer regional	8157	Low	0.3705	LCLA	3
105031100	Dubbo - East	NSW	87.7	Inner regional	10788	Moderate	0.5923	HCMA	1
105031101	Dubbo - South	NSW	25.4	Inner regional	17122	High	0.6758	HCMA	4
105031102	Dubbo - West	NSW	69.4	Inner regional	8805	Moderate	0.5677	HCMA	1
105031103	Dubbo Region	NSW	4130.1	Outer regional	5561	Moderate	0.6380	MCMA	2
105031104	Gilgandra	NSW	5393.9	Outer regional	4474	Low	0.4237	LCLA	3
105031105	Narromine	NSW	5955.0	Outer regional	6761	Low	0.3683	LCLA	3
105031106	Wellington	NSW	3603.0	Outer regional	9049	Low	0.4136	LCMA	3
106011107	Branxton - Greta - Pokolbin	NSW	392.3	Inner regional	10186	Moderate	0.5466	MCMA	2
106011108	Cessnock	NSW	69.0	Inner regional	22182	Moderate	0.5241	MCMA	1
106011109	Cessnock Region	NSW	1570.7	Inner regional	7883	Moderate	0.5709	MCMA	2
106011110	Dungog	NSW	2250.0	Inner regional	9008	Moderate	0.5693	MCMA	2
106011111	Kurri Kurri - Abermain	NSW	90.6	Metropolitan	17791	Moderate	0.4670	MCMA	5
106011112	Singleton	NSW	127.2	Inner regional	16570	Moderate	0.6418	MCMA	3
106011113	Singleton Region	NSW	4067.8	Inner regional	5010	Moderate	0.5434	MCMA	2
106021114	Maitland	NSW	32.1	Metropolitan	6482	Moderate	0.5260	MCLA	1
106021115	Maitland - East	NSW	40.6	Metropolitan	27833	High	0.6661	HCMA	4
106021116	Maitland - North	NSW	70.6	Metropolitan	7606	High	0.6633	HCMA	2
106021117	Maitland - West	NSW	175.4	Metropolitan	22361	Moderate	0.5443	MCMA	2
106021118	Thornton - Millers Forest	NSW	61.5	Metropolitan	9867	Moderate	0.6564	HCMA	4
106031119	Anna Bay	NSW	68.0	Inner regional	5812	Moderate	0.6526	MCMA	2
106031120	Lemon Tree Passage - Tanilba Bay	NSW	30.0	Inner regional	6740	Moderate	0.6209	MCMA	5
106031121	Nelson Bay Peninsula	NSW	47.5	Inner regional	21325	Moderate	0.5714	MCMA	2
106031122	Raymond Terrace	NSW	109.5	Metropolitan	14133	Moderate	0.4616	MCMA	3
106031123	Seaham - Woodville	NSW	247.5	Inner regional	5469	Moderate	0.6572	MCHA	2
106031124	Tea Gardens - Hawks Nest	NSW	204.3	Inner regional	5014	Moderate	0.4576	LCMA	3
106031125	Williamtown - Medowie - Karuah	NSW	365.2	Inner regional	13780	Moderate	0.5451	MCMA	2
106041126	Muswellbrook	NSW	262.4	Inner regional	12333	Low	0.4277	LCMA	3
106041127	Muswellbrook Region	NSW	3142.6	Inner regional	4102	Moderate	0.4739	MCMA	2
106041128	Scone	NSW	118.6	Inner regional	6035	Moderate	0.4900	MCMA	2
106041129	Scone Region	NSW	7948.9	Outer regional	8377	Moderate	0.4576	MCMA	2
107011130	Berkeley - Warrawong - Windang	NSW	25.0	Metropolitan	28649	Moderate	0.6277	MCMA	1
107011131	Dapto - Avondale	NSW	56.7	Metropolitan	23813	Moderate	0.6437	MCHA	2
107011132	Horsley - Kembla Grange	NSW	44.2	Metropolitan	8626	High	0.7392	MCHA	2
107011134	Unanderra - Mount Kembla	NSW	25.1	Metropolitan	15991	High	0.8067	HCHA	4

Appendix E (cont.) Data table

SA2 code	SA2 name	State	Area (km2)	Remoteness	Estimated resident population (2015)	ANDRI Quartile	ANDRI	Coping and adaptive capacity	Typology group
107031136	Albion Park - Macquarie Pass	NSW	75.1	Metropolitan	14559	Moderate	0.5823	MCMA	2
107031137	Albion Park Rail	NSW	7.2	Metropolitan	7112	Moderate	0.5843	HCMA	1
107031138	Kiama	NSW	13.9	Inner regional	7789	High	0.8238	HCHA	2
107031139	Kiama Downs - Minnamurra	NSW	7.3	Inner regional	6088	High	0.8010	HCHA	2
107031140	Kiama Hinterland - Gerringong	NSW	222.4	Inner regional	7930	High	0.7453	HCHA	2
107031141	Shellharbour - Flinders	NSW	49.6	Metropolitan	16641	Moderate	0.6426	HCMA	1
107031142	Shellharbour - Oak Flats	NSW	6.0	Metropolitan	10149	Moderate	0.6404	HCMA	1
107031143	Warilla	NSW	9.5	Metropolitan	21013	Moderate	0.4942	MCLA	1
107041144	Balgownie - Fairy Meadow	NSW	12.3	Metropolitan	21754	High	0.8246	HCHA	4
107041145	Corrimal - Tarrawanna - Bellambi	NSW	11.1	Metropolitan	15918	High	0.7459	HCHA	1
107041146	Figtree - Keiraville	NSW	18.8	Metropolitan	21536	High	0.8111	HCHA	4
107041147	Helensburgh	NSW	154.7	Metropolitan	9015	High	0.8108	MCHA	2
107041148	Thirroul - Austinmer - Coalcliff	NSW	16.1	Metropolitan	11607	High	0.8211	HCHA	2
107041149	Wollongong	NSW	11.2	Metropolitan	31290	High	0.7089	HCHA	1
107041150	Woonona - Bulli - Russell Vale	NSW	15.8	Metropolitan	20122	High	0.8947	HCHA	4
108011151	Bulahdelah - Stroud	NSW	2334.1	Inner regional	4804	Moderate	0.4560	LCMA	3
108011152	Forster	NSW	33.9	Inner regional	14450	Moderate	0.5459	MCMA	3
108011153	Forster-Tuncurry Region	NSW	749.4	Inner regional	6131	Moderate	0.4608	LCMA	3
108011154	Tuncurry	NSW	15.7	Inner regional	6185	Moderate	0.4582	LCMA	3
108021155	Kempsey	NSW	195.2	Inner regional	15055	Low	0.3698	LCLA	1
108021156	Kempsey Region	NSW	3627.2	Outer regional	9167	Low	0.4398	LCMA	3
108021157	Macksville - Scotts Head	NSW	83.8	Outer regional	4880	Low	0.4281	LCMA	3
108021158	Nambucca Heads	NSW	31.0	Outer regional	6885	Low	0.4435	MCLA	1
108021159	Nambucca Heads Region	NSW	1356.1	Outer regional	7773	Moderate	0.4550	LCMA	3
108021160	South West Rocks	NSW	46.0	Outer regional	5190	Moderate	0.4681	LCMA	3
108041162	Laurieton - Bonny Hills	NSW	524.9	Inner regional	16751	Moderate	0.5317	LCMA	2
108041163	Port Macquarie - East	NSW	42.1	Inner regional	28574	High	0.6905	HCMA	4
108041164	Port Macquarie - West	NSW	54.2	Inner regional	17224	Moderate	0.5529	MCMA	3
108041165	Port Macquarie Region	NSW	2871.8	Inner regional	5342	Moderate	0.5385	MCMA	2
108041166	Wauchope	NSW	194.8	Inner regional	11131	Moderate	0.6570	HCMA	2
108051167	Gloucester	NSW	2933.2	Inner regional	5084	Moderate	0.4661	LCMA	3
108051168	Old Bar - Manning Point - Red Head	NSW	209.6	Inner regional	10484	Moderate	0.4710	LCMA	3
108051169	Taree	NSW	125.1	Inner regional	20882	Moderate	0.4830	MCMA	1
108051170	Taree Region	NSW	3344.8	Inner regional	12376	Moderate	0.4599	LCMA	3
108051171	Wingham	NSW	61.5	Inner regional	5493	Low	0.4193	LCMA	3
109011172	Albury - East	NSW	101.5	Inner regional	14842	High	0.6877	HCMA	2
109011173	Albury - North	NSW	24.2	Inner regional	9900	Moderate	0.6358	HCMA	1
109011174	Albury - South	NSW	48.4	Inner regional	10727	Moderate	0.6226	MCMA	2
109011175	Albury Region	NSW	5402.2	Inner regional	11669	Moderate	0.5643	MCMA	2
109011176	Lavington	NSW	21.4	Inner regional	14614	Moderate	0.5100	MCMA	1
109021177	Hay	NSW	13920.1	Outer regional	3023	Low	0.3895	LCLA	3
109021178	Wentworth - Buronga	NSW	323.0	Outer regional	6049	Low	0.4250	LCMA	3
109021179	Wentworth-Balranald Region	NSW	49724.6	Outer regional	3708	Low	0.3529	LCLA	3
109031180	Corowa	NSW	77.2	Inner regional	5597	High	0.7076	HCHA	4

Appendix E (cont.) Data table

SA2 code	SA2 name	State	Area (km2)	Remoteness	Estimated resident population (2015)	ANDRI Quartile	ANDRI	Coping and adaptive capacity	Typology group
109031181	Corowa Region	NSW	4494.6	Inner regional	6817	Moderate	0.5885	MCHA	2
109031182	Deniliquin	NSW	143.2	Inner regional	7549	Moderate	0.5286	MCMA	3
109031183	Deniliquin Region	NSW	18338.0	Outer regional	6866	Low	0.4419	LCMA	3
109031184	Moama	NSW	167.1	Inner regional	5849	Moderate	0.5227	MCMA	2
109031185	Tocumwal - Finley - Jerilderie	NSW	5010.7	Inner regional	9851	Moderate	0.5119	MCMA	2
110011186	Armidale	NSW	274.7	Inner regional	23979	Moderate	0.6567	MCHA	2
110011187	Armidale Region - North	NSW	6097.9	Outer regional	4543	Moderate	0.4508	MCMA	2
110011188	Armidale Region - South	NSW	3280.1	Outer regional	6153	Moderate	0.5057	MCMA	2
110011189	Walcha	NSW	6742.7	Outer regional	3268	Low	0.4447	LCMA	2
110021190	Glen Innes	NSW	5480.4	Outer regional	8926	Low	0.4263	LCMA	3
110021191	Inverell	NSW	207.7	Outer regional	11870	Moderate	0.4635	MCLA	3
110021192	Inverell Region - East	NSW	9272.4	Outer regional	5365	Low	0.3664	LCLA	3
110021193	Inverell Region - West	NSW	8283.6	Outer regional	5998	Low	0.3817	LCLA	3
110021194	Tenterfield	NSW	7322.3	Outer regional	6713	Low	0.3740	LCMA	3
110031195	Moree	NSW	69.4	Outer regional	8570	Low	0.4179	MCLA	1
110031196	Moree Region	NSW	19813.2	Outer regional	5687	Low	0.3690	LCLA	3
110031197	Narrabri	NSW	180.4	Outer regional	7318	Moderate	0.4717	MCMA	3
110031198	Narrabri Region	NSW	11964.7	Outer regional	4943	Low	0.3866	LCMA	3
110041199	Gunnedah	NSW	90.2	Outer regional	9322	Moderate	0.5032	MCMA	1
110041200	Gunnedah Region	NSW	5766.2	Outer regional	4323	Low	0.4218	LCMA	3
110041201	Quirindi	NSW	5077.9	Outer regional	7836	Low	0.3961	LCLA	3
110041202	Tamworth - East	NSW	102.2	Inner regional	20742	Moderate	0.5924	HCMA	4
110041203	Tamworth - North	NSW	76.1	Inner regional	15100	Moderate	0.5852	HCMA	4
110041204	Tamworth - West	NSW	62.4	Inner regional	5740	Low	0.3570	MCLA	1
110041205	Tamworth Region	NSW	8980.5	Outer regional	18667	Moderate	0.5369	MCMA	2
111011206	Belmont - Bennetts Green	NSW	22.2	Metropolitan	18195	High	0.7318	HCMA	4
111011207	Belmont South - Blacksmiths	NSW	6.8	Metropolitan	5795	Moderate	0.6097	HCMA	1
111011208	Charlestown - Dudley	NSW	22.3	Metropolitan	24690	High	0.7583	HCMA	4
111011209	Glendale - Cardiff - Hillsborough	NSW	21.9	Metropolitan	23964	High	0.7423	HCMA	4
111011210	Mount Hutton - Windale	NSW	6.3	Metropolitan	9092	Moderate	0.5115	HCLA	1
111011211	Redhead	NSW	3.7	Metropolitan	3614	High	0.7394	HCMA	4
111011212	Swansea - Caves Beach	NSW	32.4	Metropolitan	11613	High	0.7177	HCMA	4
111011213	Valentine - Eleebana	NSW	10.0	Metropolitan	12379	High	0.8235	HCHA	4
111011214	Warners Bay - Boolaroo	NSW	12.5	Metropolitan	13611	High	0.7435	HCMA	4
111021215	Bolton Point - Teralba	NSW	22.0	Metropolitan	8762	Moderate	0.5992	MCMA	1
111021216	Bonnells Bay - Silverwater	NSW	10.2	Metropolitan	8772	High	0.7131	HCMA	4
111021217	Edgeworth - Cameron Park	NSW	15.6	Metropolitan	14006	Moderate	0.6585	HCMA	4
111021218	Morisset - Cooranbong	NSW	330.6	Metropolitan	15105	Moderate	0.5464	MCMA	2
111021219	Toronto - Awaba	NSW	43.7	Metropolitan	13801	High	0.6799	HCMA	4
111021220	Wangi Wangi - Rathmines	NSW	12.5	Metropolitan	9100	High	0.7566	HCMA	4
111021221	West Wallsend - Barnsley - Killingworth	NSW	72.5	Metropolitan	6547	Moderate	0.5715	MCMA	2
111031222	Adamstown - Kotara	NSW	8.0	Metropolitan	16039	High	0.8919	HCHA	4
111031223	Beresfield - Hexham	NSW	59.2	Metropolitan	8568	Moderate	0.6384	MCMA	1
111031224	Hamilton - Broadmeadow	NSW	6.7	Metropolitan	12299	High	0.7267	HCHA	1

Appendix E (cont.) Data table

SA2 code	SA2 name	State	Area (km2)	Remoteness	Estimated resident population (2015)	ANDRI Quartile	ANDRI	Coping and adaptive capacity	Typology group
111031225	Lambton - New Lambton	NSW	10.5	Metropolitan	17043	High	0.8142	HCHA	4
111031226	Maryland - Fletcher - Minmi	NSW	17.3	Metropolitan	13503	High	0.7541	HCHA	4
111031227	Mayfield - Warabrook	NSW	7.5	Metropolitan	15335	High	0.7163	HCMA	1
111031228	Merewether - The Junction	NSW	7.2	Metropolitan	14226	High	0.9085	HCHA	4
111031229	Newcastle - Cooks Hill	NSW	4.0	Metropolitan	11267	High	0.7090	HCMA	1
111031231	Shortland - Jesmond	NSW	12.7	Metropolitan	11576	Moderate	0.6241	MCMA	1
111031232	Stockton - Fullerton Cove	NSW	30.5	Metropolitan	7328	High	0.6769	MCHA	1
111031233	Wallsend - Elermore Vale	NSW	21.5	Metropolitan	20063	High	0.7990	HCHA	4
111031234	Waratah - North Lambton	NSW	5.1	Metropolitan	12460	High	0.7108	HCMA	1
111031235	Wickham - Carrington - Tighes Hill	NSW	3.6	Metropolitan	8334	Moderate	0.6583	HCMA	1
112011236	Ballina	NSW	35.6	Inner regional	17342	Moderate	0.5302	MCMA	1
112011237	Ballina Region	NSW	406.9	Inner regional	16906	Moderate	0.5653	MCMA	2
112011238	Bangalow	NSW	186.5	Inner regional	5914	Moderate	0.5872	MCMA	2
112011239	Brunswick Heads - Ocean Shores	NSW	54.4	Inner regional	8493	Moderate	0.5774	MCMA	1
112011240	Byron Bay	NSW	39.8	Inner regional	10018	Moderate	0.5557	MCMA	1
112011241	Evans Head	NSW	543.6	Inner regional	5281	Low	0.4331	LCMA	1
112011242	Lennox Head - Skennars Head	NSW	37.8	Inner regional	7983	Moderate	0.6328	HCMA	2
112011243	Mullumbimby	NSW	268.2	Inner regional	8193	Moderate	0.5150	MCMA	3
112021244	Casino	NSW	139.0	Inner regional	12444	Low	0.4206	LCLA	1
112021245	Casino Region	NSW	3950.1	Inner regional	7079	Low	0.4396	LCMA	3
112021246	Goonellabah	NSW	25.2	Inner regional	13345	High	0.7529	HCHA	4
112021247	Kyogle	NSW	1979.6	Inner regional	7530	Low	0.4316	LCMA	3
112021248	Lismore	NSW	63.3	Inner regional	15766	Moderate	0.6361	MCMA	1
112021249	Lismore Region	NSW	1233.3	Inner regional	15402	High	0.6745	MCHA	2
112031250	Kingscliff - Fingal Head	NSW	38.4	Metropolitan	12830	Moderate	0.6155	MCMA	1
112031251	Murwillumbah	NSW	24.2	Inner regional	8936	Moderate	0.5615	MCMA	1
112031252	Murwillumbah Region	NSW	908.3	Inner regional	9888	Moderate	0.5758	MCMA	2
112031253	Pottsville	NSW	189.3	Metropolitan	13412	Moderate	0.5279	MCMA	2
112031254	Tweed Heads	NSW	100.3	Metropolitan	19698	Moderate	0.4763	MCMA	1
112031255	Tweed Heads - South	NSW	46.9	Metropolitan	27497	Moderate	0.5367	MCMA	3
113011256	Griffith (NSW)	NSW	56.5	Outer regional	19499	Moderate	0.5245	MCMA	3
113011257	Griffith Region	NSW	23020.9	Outer regional	13182	Low	0.4368	LCMA	3
113011258	Leeton	NSW	373.8	Outer regional	10284	Moderate	0.4605	MCLA	3
113011259	Narrandera	NSW	5409.3	Outer regional	6171	Low	0.4128	LCLA	3
113021260	Tumbarumba	NSW	4524.9	Outer regional	3499	Low	0.4272	LCLA	3
113021261	Tumut	NSW	40.5	Inner regional	6423	Moderate	0.4805	MCMA	3
113021262	Tumut Region	NSW	4609.6	Inner regional	4758	Moderate	0.5043	MCMA	2
113031263	Cootamundra	NSW	1656.1	Inner regional	7677	Moderate	0.5132	MCMA	2
113031264	Gundagai	NSW	2362.0	Inner regional	3648	Moderate	0.4708	MCMA	3
113031265	Junee	NSW	1970.9	Inner regional	6289	Low	0.4431	MCLA	1
113031266	Temora	NSW	3434.3	Outer regional	6780	Moderate	0.4708	MCMA	3
113031267	Wagga Wagga - East	NSW	54.0	Inner regional	16892	High	0.7942	HCHA	4
113031268	Wagga Wagga - North	NSW	53.2	Inner regional	4262	High	0.7097	HCHA	4
113031269	Wagga Wagga - South	NSW	29.4	Inner regional	21704	High	0.7287	HCHA	4

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SA2 code	SA2 name	State	Area (km2)	Remoteness	Estimated resident population (2015)	ANDRI Quartile	ANDRI	Coping and adaptive capacity	Typology group
113031270	Wagga Wagga - West	NSW	54.9	Inner regional	12501	Moderate	0.6267	HCMA	1
113031271	Wagga Wagga Region	NSW	9336.6	Inner regional	14854	Moderate	0.6243	MCHA	2
114011272	Berry - Kangaroo Valley	NSW	536.3	Inner regional	8877	Moderate	0.5875	MCHA	2
114011273	Callala Bay - Currarong	NSW	166.9	Inner regional	3700	Moderate	0.5448	MCMA	5
114011274	Culburra Beach	NSW	76.4	Inner regional	5044	Moderate	0.5748	MCMA	3
114011276	Huskisson - Vincentia	NSW	31.0	Inner regional	4217	Moderate	0.5676	MCMA	3
114011277	North Nowra - Bomaderry	NSW	100.7	Inner regional	16091	Moderate	0.5403	MCMA	2
114011278	Nowra	NSW	101.7	Inner regional	20120	Moderate	0.5111	MCMA	1
114011279	St Georges Basin - Erowal Bay	NSW	76.9	Inner regional	14007	Moderate	0.5599	MCMA	1
114011280	Sussex Inlet - Berrara	NSW	39.8	Inner regional	4371	Moderate	0.5171	MCMA	3
114011281	Tomerong - Wandandian - Woollamia	NSW	375.9	Inner regional	3483	Moderate	0.5688	MCMA	2
114011282	Ulladulla	NSW	46.8	Inner regional	15383	Moderate	0.5130	MCMA	3
114011283	Ulladulla Region	NSW	677.6	Inner regional	5043	Moderate	0.5158	MCMA	2
114021284	Bowral	NSW	55.9	Inner regional	13101	High	0.7244	HCMA	2
114021285	Hill Top - Colo Vale	NSW	174.4	Inner regional	6071	Moderate	0.6158	MCMA	2
114021286	Mittagong	NSW	73.3	Inner regional	8930	Moderate	0.6306	MCMA	2
114021287	Moss Vale - Berrima	NSW	118.2	Inner regional	9825	High	0.6771	HCMA	2
114021288	Robertson - Fitzroy Falls	NSW	498.1	Inner regional	3574	Moderate	0.6419	MCMA	2
114021289	Southern Highlands	NSW	1409.2	Inner regional	6640	High	0.6677	MCMA	2
115011290	Baulkham Hills (East)	NSW	8.3	Metropolitan	23270	High	0.9118	HCHA	4
115011291	Baulkham Hills (West) - Bella Vista	NSW	11.0	Metropolitan	20555	High	1.0000	HCHA	4
115011292	Castle Hill	NSW	15.1	Metropolitan	29809	High	0.9491	HCHA	4
115011293	Cherrybrook	NSW	10.3	Metropolitan	25288	High	0.8130	HCHA	4
115011294	Glenhaven	NSW	7.2	Metropolitan	6403	High	0.9386	HCHA	4
115011295	Kellyville	NSW	12.2	Metropolitan	28231	High	0.7711	MCHA	2
115011296	West Pennant Hills	NSW	7.8	Metropolitan	13175	High	0.9747	HCHA	4
115021297	Dural - Kenthurst - Wisemans Ferry	NSW	377.5	Metropolitan	21522	High	0.7769	MCHA	2
115021298	Galston - Laughtondale	NSW	191.7	Metropolitan	5353	Moderate	0.6477	MCHA	2
115031299	Bilpin - Colo - St Albans	NSW	2159.6	Inner regional	2777	Moderate	0.4791	LCMA	2
115031300	Kurrajong Heights - Ebenezer	NSW	331.9	Inner regional	22341	Moderate	0.5969	MCMA	2
115041301	Pitt Town - McGraths Hill	NSW	81.6	Metropolitan	10504	Moderate	0.6480	HCMA	2
115041302	Rouse Hill - Beaumont Hills	NSW	36.7	Metropolitan	21958	High	0.9168	HCHA	4
116011303	Blacktown (East) - Kings Park	NSW	8.0	Metropolitan	17225	Moderate	0.5521	MCMA	1
116011304	Blacktown (North) - Marayong	NSW	7.4	Metropolitan	18335	Moderate	0.4899	MCMA	1
116011305	Blacktown (South)	NSW	8.0	Metropolitan	28988	Moderate	0.5699	MCMA	1
116011306	Doonside - Woodcroft	NSW	9.9	Metropolitan	22556	Moderate	0.5657	MCMA	1
116011307	Lalor Park - Kings Langley	NSW	11.8	Metropolitan	25466	Moderate	0.6327	MCMA	4
116011308	Seven Hills - Toongabbie	NSW	11.2	Metropolitan	24457	Moderate	0.6221	HCMA	1
116021309	Glenwood	NSW	5.1	Metropolitan	16543	Moderate	0.6236	MCMA	5
116021310	Parklea - Kellyville Ridge	NSW	9.9	Metropolitan	33103	Moderate	0.5844	MCMA	5
116021311	Quakers Hill - Acacia Gardens	NSW	8.7	Metropolitan	27419	Moderate	0.6228	MCMA	5
116021312	Riverstone - Marsden Park	NSW	79.4	Metropolitan	14393	Moderate	0.5392	MCMA	1

Appendix E (cont.) Data table

SA2 code	SA2 name	State	Area (km2)	Remoteness	Estimated resident population (2015)	ANDRI Quartile	ANDRI	Coping and adaptive capacity	Typology group
116031313	Bidwill - Hebersham - Emerton	NSW	6.1	Metropolitan	18994	Low	0.3044	LCLA	1
116031314	Glendenning Dean Park	NSW	5.1	Metropolitan	8584	Moderate	0.5621	MCMA	5
116031315	Hassall Grove - Plumpton	NSW	6.2	Metropolitan	21083	Moderate	0.5536	MCMA	5
116031316	Lethbridge Park - Tregear	NSW	11.4	Metropolitan	20207	Low	0.2874	LCLA	1
116031317	Mount Druitt - Whalan	NSW	8.7	Metropolitan	23240	Low	0.3928	MCLA	1
116031319	Rooty Hill - Minchinbury	NSW	14.7	Metropolitan	21546	Moderate	0.5780	MCMA	5
117011321	Botany	NSW	3.4	Metropolitan	10625	High	0.6615	HCMA	1
117011322	Mascot - Eastlakes	NSW	6.2	Metropolitan	23848	Moderate	0.5906	MCMA	1
117011323	Pagewood - Hillsdale - Daceyville	NSW	3.1	Metropolitan	11688	Moderate	0.5301	MCMA	1
117021326	Marrickville	NSW	5.8	Metropolitan	27551	High	0.7382	HCHA	5
117021327	Petersham - Stanmore	NSW	3.0	Metropolitan	21005	High	0.7712	HCHA	5
117021328	Sydenham - Tempe - St Peters	NSW	3.9	Metropolitan	8113	High	0.7852	HCHA	5
117031329	Darlinghurst	NSW	0.9	Metropolitan	12040	High	0.7046	MCHA	5
117031330	Erskineville - Alexandria	NSW	4.3	Metropolitan	16835	High	0.7666	HCHA	5
117031331	Glebe - Forest Lodge	NSW	2.3	Metropolitan	19814	High	0.6963	MCHA	5
117031332	Newtown - Camperdown - Darlington	NSW	3.3	Metropolitan	25487	High	0.7506	MCHA	5
117031333	Potts Point - Woolloomooloo	NSW	1.5	Metropolitan	22055	Moderate	0.6585	MCHA	5
117031334	Pyrmont - Ultimo	NSW	1.5	Metropolitan	22498	High	0.6877	MCHA	5
117031335	Redfern - Chippendale	NSW	2.2	Metropolitan	22756	Moderate	0.6528	MCHA	5
117031336	Surry Hills	NSW	1.3	Metropolitan	17514	High	0.6660	MCHA	5
117031337	Sydney - Haymarket - The Rocks	NSW	4.3	Metropolitan	28752	Moderate	0.6015	MCHA	5
117031338	Waterloo - Beaconsfield	NSW	3.6	Metropolitan	32178	High	0.6662	MCHA	5
118011339	Bondi - Tamarama - Bronte	NSW	2.5	Metropolitan	19622	Moderate	0.6561	MCHA	5
118011340	Bondi Beach - North Bondi	NSW	2.4	Metropolitan	22391	Moderate	0.5755	MCHA	5
118011341	Bondi Junction - Waverly	NSW	2.5	Metropolitan	17894	High	0.6888	MCHA	5
118011343	Double Bay - Bellevue Hill	NSW	4.7	Metropolitan	26465	High	0.7630	HCHA	4
118011344	Dover Heights	NSW	1.9	Metropolitan	11429	High	0.7425	HCHA	4
118011345	Paddington - Moore Park	NSW	3.7	Metropolitan	16163	High	0.7303	HCHA	4
118011346	Rose Bay - Vaucluse - Watsons Bay	NSW	5.1	Metropolitan	12566	High	0.7619	HCHA	4
118011347	Woollahra	NSW	1.3	Metropolitan	7987	High	0.7494	HCHA	4
118021348	Coogee - Clovelly	NSW	3.8	Metropolitan	26951	High	0.7242	MCHA	4
118021349	Kensington - Kingsford	NSW	4.7	Metropolitan	31597	High	0.7083	MCHA	5
118021350	Malabar - La Perouse - Chifley	NSW	11.8	Metropolitan	24473	High	0.6890	MCHA	5
118021351	Maroubra	NSW	5.9	Metropolitan	32415	Moderate	0.6551	MCHA	5
118021352	Randwick	NSW	5.3	Metropolitan	31463	Moderate	0.6497	MCHA	5
119011353	Bankstown	NSW	7.2	Metropolitan	33453	Low	0.4405	MCLA	5
119011354	Bass Hill - Georges Hall	NSW	8.9	Metropolitan	22477	Moderate	0.5062	MCMA	1
119011356	Condell Park	NSW	10.0	Metropolitan	11515	Moderate	0.5076	MCMA	5
119011357	Greenacre - Mount Lewis	NSW	7.0	Metropolitan	26916	Moderate	0.5061	MCMA	5
119011358	Padstow	NSW	6.5	Metropolitan	16926	High	0.6686	MCHA	5
119011359	Panania - Milperra - Picnic Point	NSW	14.4	Metropolitan	26360	High	0.6939	MCHA	4

Appendix E (cont.) Data table

SA2 code	SA2 name	State	Area (km2)	Remoteness	Estimated resident population (2015)	ANDRI Quartile	ANDRI	Coping and adaptive capacity	Typology group
119011360	Revesby	NSW	5.1	Metropolitan	16628	Moderate	0.6207	MCMA	5
119011361	Yagoona - Birrong	NSW	5.6	Metropolitan	21259	Moderate	0.4935	MCMA	5
119021362	Belmore - Belfield	NSW	4.5	Metropolitan	19856	Moderate	0.6061	MCHA	5
119021363	Canterbury (South) - Campsie	NSW	4.8	Metropolitan	31057	Moderate	0.5743	MCHA	5
119021364	Kingsgrove (North) - Earlwood	NSW	8.2	Metropolitan	24863	High	0.7571	MCHA	5
119021365	Lakemba - Wiley Park	NSW	3.6	Metropolitan	28415	Moderate	0.5015	LCMA	5
119021366	Punchbowl	NSW	5.3	Metropolitan	21555	Moderate	0.5558	MCMA	5
119021367	Roselands	NSW	3.6	Metropolitan	14340	Moderate	0.6384	MCHA	5
119031368	Hurstville	NSW	3.6	Metropolitan	23973	Moderate	0.5758	MCMA	5
119031369	Mortdale - Penshurst	NSW	6.1	Metropolitan	24525	High	0.7020	MCHA	5
119031370	Narwee - Beverly Hills	NSW	3.4	Metropolitan	14178	Moderate	0.6597	MCMA	5
119031371	Oatley - Hurstville Grove	NSW	4.4	Metropolitan	12970	High	0.8732	HCHA	4
119031372	Peakhurst - Lugarno	NSW	7.4	Metropolitan	18489	High	0.7460	HCHA	4
119031373	Riverwood	NSW	2.8	Metropolitan	11219	Moderate	0.4989	MCMA	5
119031374	South Hurstville - Blakehurst	NSW	6.2	Metropolitan	24963	High	0.7817	MCHA	5
119041375	Arncliffe - Bardwell Valley	NSW	5.0	Metropolitan	21064	Moderate	0.5316	MCMA	5
119041376	Bexley	NSW	5.3	Metropolitan	27656	Moderate	0.5766	MCMA	5
119041377	Kingsgrove (South) - Bardwell Park	NSW	3.8	Metropolitan	13217	Moderate	0.6141	MCMA	5
119041378	Kogarah	NSW	2.2	Metropolitan	11556	Moderate	0.5358	MCMA	5
119041379	Kogarah Bay - Carlton - Allawah	NSW	3.5	Metropolitan	16641	High	0.7230	MCHA	5
119041380	Monterey - Brighton-le-Sands - Kyeemagh	NSW	3.4	Metropolitan	14708	Moderate	0.5395	MCMA	5
119041381	Rockdale - Banksia	NSW	3.6	Metropolitan	20788	Moderate	0.4996	MCMA	1
119041382	Sans Souci - Ramsgate	NSW	4.6	Metropolitan	16643	Moderate	0.5973	MCMA	5
120011383	Concord - Mortlake - Cabarita	NSW	6.3	Metropolitan	22405	High	0.8678	HCHA	4
120011384	Concord West - North Strathfield	NSW	5.1	Metropolitan	25092	High	0.7546	MCHA	5
120011385	Drummoyne - Rodd Point	NSW	3.7	Metropolitan	19166	High	0.8774	HCHA	4
120011386	Five Dock - Abbotsford	NSW	4.6	Metropolitan	21241	High	0.8699	HCHA	4
120021387	Balmain	NSW	2.6	Metropolitan	16408	High	0.8642	HCHA	4
120021388	Leichhardt - Annandale	NSW	4.5	Metropolitan	27288	High	0.8478	HCHA	4
120021389	Lilyfield - Rozelle	NSW	3.6	Metropolitan	14528	High	0.8450	HCHA	4
120031390	Ashfield	NSW	3.7	Metropolitan	25204	Moderate	0.6338	MCMA	5
120031391	Burwood - Croydon	NSW	4.5	Metropolitan	25260	Moderate	0.6251	MCMA	5
120031392	Canterbury (North) - Ashbury	NSW	3.0	Metropolitan	10667	High	0.7836	HCHA	5
120031393	Croydon Park - Enfield	NSW	4.0	Metropolitan	17875	High	0.6828	HCMA	5
120031394	Dulwich Hill - Lewisham	NSW	2.7	Metropolitan	17374	High	0.7318	MCHA	5
120031395	Haberfield - Summer Hill	NSW	3.5	Metropolitan	14047	High	0.7132	HCMA	5
120031396	Homebush	NSW	3.8	Metropolitan	16198	Moderate	0.5919	MCMA	5
120031397	Strathfield	NSW	9.0	Metropolitan	29503	High	0.6946	MCHA	5
121011398	Chatswood (East) - Artarmon	NSW	5.1	Metropolitan	28845	High	0.7047	MCHA	5
121011399	Chatswood (West) - Lane Cove North	NSW	5.5	Metropolitan	20981	High	0.7732	MCHA	5
121011400	Lane Cove - Greenwich	NSW	9.1	Metropolitan	27176	High	0.7338	HCHA	2

Appendix E (cont.) Data table

SA2 code	SA2 name	State	Area (km2)	Remoteness	Estimated resident population (2015)	ANDRI Quartile	ANDRI	Coping and adaptive capacity	Typology group
121011401	St Leonards - Naremburn	NSW	2.8	Metropolitan	10780	High	0.7154	MCHA	5
121011402	Willoughby - Castle Cove - Northbridge	NSW	10.8	Metropolitan	26483	High	0.8622	HCHA	4
121021403	Asquith - Mount Colah	NSW	34.7	Metropolitan	18730	High	0.7760	HCHA	2
121021404	Berowra - Brooklyn - Cowan	NSW	81.8	Metropolitan	11990	Moderate	0.6397	MCHA	2
121021405	Hornsby - Waitara	NSW	11.0	Metropolitan	32479	Moderate	0.5818	MCMA	5
121021406	Normanhurst - Thornleigh - Westleigh	NSW	10.0	Metropolitan	19040	High	0.7570	HCHA	2
121031407	Gordon - Killara	NSW	11.7	Metropolitan	21899	High	0.8320	HCHA	4
121031408	Lindfield - Roseville	NSW	11.9	Metropolitan	23674	High	0.8648	HCHA	4
121031409	Pymble	NSW	10.3	Metropolitan	16902	High	0.8796	HCHA	4
121031410	St Ives	NSW	17.8	Metropolitan	20875	High	0.7537	MCHA	2
121031411	Turramurra	NSW	20.6	Metropolitan	19808	High	0.7902	MCHA	2
121031412	Wahroonga - Warrawee	NSW	13.3	Metropolitan	18463	High	0.8614	HCHA	4
121041413	Cremorne - Cammeray	NSW	3.2	Metropolitan	19961	High	0.7471	MCHA	4
121041414	Crows Nest - Waverton	NSW	3.0	Metropolitan	18882	High	0.7312	MCHA	5
121041415	Mosman	NSW	8.7	Metropolitan	30045	High	0.7128	MCHA	2
121041416	Neutral Bay - Kirribilli	NSW	2.2	Metropolitan	18870	High	0.6885	MCHA	5
121041417	North Sydney - Lavender Bay	NSW	1.9	Metropolitan	11160	High	0.6948	MCHA	5
122011418	Balgowlah - Clontarf - Seaforth	NSW	7.6	Metropolitan	20966	High	0.7687	HCHA	2
122011419	Manly - Fairlight	NSW	6.7	Metropolitan	23403	High	0.7059	HCMA	4
122021420	Avalon - Palm Beach	NSW	8.6	Metropolitan	12990	High	0.8624	HCHA	2
122021421	Bayview - Elanora Heights	NSW	64.4	Metropolitan	10990	High	0.7719	HCHA	2
122021422	Newport - Bilgola	NSW	5.7	Metropolitan	13881	High	0.8344	HCHA	4
122021423	Warriewood - Mona Vale	NSW	11.7	Metropolitan	24796	High	0.8215	HCHA	4
122031424	Beacon Hill - Narraweena	NSW	4.3	Metropolitan	14282	High	0.9099	HCHA	4
122031425	Cromer	NSW	7.5	Metropolitan	7732	High	0.8939	HCHA	4
122031426	Dee Why - North Curl Curl	NSW	4.1	Metropolitan	25859	High	0.7749	HCHA	4
122031427	Forestville - Killarney Heights	NSW	8.9	Metropolitan	13179	High	0.9415	HCHA	4
122031428	Frenchs Forest - Belrose	NSW	30.1	Metropolitan	25989	High	0.9894	HCHA	4
122031429	Freshwater - Brookvale	NSW	7.2	Metropolitan	21832	High	0.9139	HCHA	4
122031430	Manly Vale - Allambie Heights	NSW	9.4	Metropolitan	17460	High	0.9160	HCHA	4
122031431	Narrabeen - Collaroy	NSW	7.2	Metropolitan	25467	High	0.9448	HCHA	4
122031432	Terrey Hills - Duffys Forest	NSW	70.7	Metropolitan	3767	High	0.8538	HCHA	2
123011433	Camden - Ellis Lane	NSW	26.2	Metropolitan	13209	High	0.7226	HCMA	4
123011434	Elderslie - Harrington Park	NSW	21.5	Metropolitan	20071	Moderate	0.6554	HCMA	4
123011435	Mount Annan - Currans Hill	NSW	26.2	Metropolitan	28516	Moderate	0.6512	HCMA	4
123021436	Bradbury - Wedderburn	NSW	36.7	Metropolitan	19450	Low	0.3778	MCLA	1
123021437	Campbelltown - Woodbine	NSW	13.7	Metropolitan	18113	Moderate	0.4954	HCLA	1
123021438	Claymore - Eagle Vale - Raby	NSW	22.9	Metropolitan	20998	Low	0.4397	MCLA	1
123021440	Ingleburn - Denham Court	NSW	30.9	Metropolitan	19759	Moderate	0.4858	MCLA	1
123021441	Leumeah - Minto Heights	NSW	23.6	Metropolitan	16748	Moderate	0.4978	MCLA	1
123021442	Macquarie Fields - Glenfield	NSW	16.0	Metropolitan	23761	Low	0.4181	MCLA	1
123021443	Minto - St Andrews	NSW	12.4	Metropolitan	19888	Moderate	0.4602	MCLA	1
123021444	Rosemeadow - Glen Alpine	NSW	48.1	Metropolitan	21255	Moderate	0.4700	MCLA	1

Appendix E (cont.) Data table

SA2 code	SA2 name	State	Area (km2)	Remoteness	Estimated resident population (2015)	ANDRI Quartile	ANDRI	Coping and adaptive capacity	Typology group
123031445	Bargo	NSW	67.7	Inner regional	5776	High	0.6694	HCMA	2
123031446	Douglas Park - Appin	NSW	289.9	Inner regional	9236	Moderate	0.6189	MCMA	2
123031447	Picton - Tahmoor - Buxton	NSW	189.9	Inner regional	16812	Moderate	0.5910	MCMA	2
123031448	The Oaks - Oakdale	NSW	322.7	Inner regional	9225	Moderate	0.5937	MCMA	2
124011449	Blackheath - Megalong Valley	NSW	139.2	Inner regional	5725	Moderate	0.5676	MCMA	2
124011450	Blaxland - Warrimoo - Lapstone	NSW	29.7	Metropolitan	19378	High	0.7014	MCHA	2
124011452	Katoomba - Leura	NSW	40.9	Metropolitan	13668	Moderate	0.5595	MCMA	2
124011453	Lawson - Hazelbrook - Linden	NSW	46.9	Metropolitan	11519	High	0.6768	HCMA	2
124011454	Springwood - Winmalee	NSW	69.7	Metropolitan	22181	High	0.6859	MCHA	2
124011455	Wentworth Falls	NSW	21.0	Metropolitan	6188	Moderate	0.6225	MCMA	2
124031457	Cambridge Park	NSW	6.6	Metropolitan	15880	High	0.6873	HCMA	4
124031458	Castlereagh - Cranebrook	NSW	71.4	Metropolitan	22953	High	0.7148	HCMA	4
124031459	Emu Plains - Leonay	NSW	13.8	Metropolitan	14534	High	0.8244	HCHA	4
124031460	Glenmore Park - Regentville	NSW	9.2	Metropolitan	21740	High	0.8239	HCHA	4
124031461	Jamisontown - South Penrith	NSW	9.0	Metropolitan	17675	High	0.7327	HCHA	4
124031462	Kingswood - Werrington	NSW	14.0	Metropolitan	19389	Moderate	0.6386	HCMA	1
124031463	Mulgoa - Luddenham - Orchard Hills	NSW	165.2	Inner regional	9329	High	0.6799	MCHA	2
124031464	Penrith	NSW	10.4	Metropolitan	13317	Moderate	0.6024	HCMA	1
124031465	Warragamba - Silverdale	NSW	63.7	Inner regional	5391	Moderate	0.6565	HCMA	4
124041466	Richmond - Clarendon	NSW	74.7	Metropolitan	14138	Moderate	0.5857	HCMA	4
124041467	Windsor - Bligh Park	NSW	22.7	Metropolitan	15797	Moderate	0.5922	HCMA	4
124041468	Yarramundi - Londonderry	NSW	81.5	Metropolitan	7506	Moderate	0.5890	MCMA	1
124051469	Erskine Park	NSW	8.4	Metropolitan	6732	High	0.7664	HCHA	4
124051470	St Clair	NSW	7.2	Metropolitan	20528	High	0.7152	HCHA	4
124051471	St Marys - Colyton	NSW	17.4	Metropolitan	28006	Moderate	0.5524	MCMA	1
125011472	Auburn	NSW	8.3	Metropolitan	38120	Moderate	0.5309	MCMA	5
125011473	Homebush Bay - Silverwater	NSW	11.3	Metropolitan	17402	Moderate	0.6531	MCHA	5
125011474	Lidcombe - Regents Park	NSW	10.5	Metropolitan	34529	Moderate	0.6301	MCHA	5
125021476	Carlingford	NSW	9.7	Metropolitan	27676	High	0.8211	HCHA	4
125021477	Ermington - Rydalmere	NSW	9.9	Metropolitan	21618	High	0.7234	MCHA	5
125021478	Oatlands - Dundas Valley	NSW	6.1	Metropolitan	17992	High	0.7271	MCHA	5
125031479	Chester Hill - Sefton	NSW	7.3	Metropolitan	18706	Moderate	0.4664	MCMA	5
125031480	Fairfield - East	NSW	5.7	Metropolitan	15821	Low	0.3947	LCLA	5
125031481	Granville - Clyde	NSW	5.6	Metropolitan	21331	Moderate	0.5720	MCMA	5
125031482	Greystanes - Pemulwuy	NSW	11.8	Metropolitan	26894	Moderate	0.6069	MCMA	4
125031483	Guildford - South Granville	NSW	6.8	Metropolitan	21558	Moderate	0.5325	MCMA	5
125031484	Guildford West - Merrylands West	NSW	5.5	Metropolitan	21173	Moderate	0.4897	MCMA	5
125031485	Merrylands - Holroyd	NSW	6.7	Metropolitan	29130	Moderate	0.5083	MCMA	5
125041488	Girraween - Westmead	NSW	8.4	Metropolitan	28985	Moderate	0.5630	MCMA	5
125041489	North Parramatta	NSW	7.1	Metropolitan	22678	Moderate	0.5849	MCHA	5
125041490	North Rocks	NSW	5.4	Metropolitan	8121	High	0.7402	MCHA	4
125041491	Northmead	NSW	5.9	Metropolitan	20622	High	0.6668	MCHA	5
125041492	Parramatta - Rosehill	NSW	8.5	Metropolitan	29617	Moderate	0.5419	MCMA	5

Appendix E (cont.) Data table

SA2 code	SA2 name	State	Area (km2)	Remoteness	Estimated resident population (2015)	ANDRI Quartile	ANDRI	Coping and adaptive capacity	Typology group
125041493	Toongabbie - Constitution Hill	NSW	7.5	Metropolitan	22335	High	0.7304	MCHA	5
125041494	Winston Hills	NSW	4.3	Metropolitan	10997	High	0.7367	MCHA	4
126011495	Epping - North Epping	NSW	8.9	Metropolitan	27312	High	0.7525	HCHA	4
126011496	Pennant Hills - Cheltenham	NSW	13.3	Metropolitan	20946	High	0.7876	HCHA	2
126021497	Eastwood - Denistone	NSW	7.8	Metropolitan	25894	High	0.8153	HCHA	5
126021498	Gladesville - Huntleys Point	NSW	4.7	Metropolitan	14803	High	0.8856	HCHA	4
126021499	Hunters Hill - Woolwich	NSW	4.2	Metropolitan	10765	High	0.8057	HCHA	4
126021500	Macquarie Park - Marsfield	NSW	10.7	Metropolitan	22052	Moderate	0.5812	LCHA	5
126021501	North Ryde - East Ryde	NSW	6.2	Metropolitan	12688	High	0.8576	HCHA	4
126021502	Ryde - Putney	NSW	8.8	Metropolitan	31488	High	0.8264	HCHA	5
126021503	West Ryde - Meadowbank	NSW	4.8	Metropolitan	19645	High	0.7531	MCHA	5
127011504	Ashcroft - Busby - Miller	NSW	5.5	Metropolitan	17769	Low	0.2560	LCLA	5
127011505	Badgerys Creek - Greendale	NSW	122.3	Metropolitan	11454	Moderate	0.4563	LCMA	5
127011506	Cobbitty - Leppington	NSW	132.3	Metropolitan	14321	Low	0.4419	LCMA	3
127011507	Green Valley - Cecil Hills	NSW	12.2	Metropolitan	32266	Moderate	0.5027	MCMA	5
127011508	Hoxton Park - Horningsea Park	NSW	12.7	Metropolitan	24069	Moderate	0.4567	LCMA	5
127021509	Bonnyrigg Heights - Bonnyrigg	NSW	5.2	Metropolitan	16456	Low	0.4221	MCLA	5
127021510	Bossley Park - Abbotsbury	NSW	9.5	Metropolitan	19395	Moderate	0.5591	MCMA	5
127021511	Cabramatta - Lansvale	NSW	7.6	Metropolitan	25335	Low	0.3108	LCLA	5
127021512	Cabramatta West - Mount Pritchard	NSW	5.3	Metropolitan	17486	Low	0.3129	LCLA	5
127021513	Canley Vale - Canley Heights	NSW	5.4	Metropolitan	21240	Low	0.3582	LCLA	5
127021514	Edensor Park	NSW	3.1	Metropolitan	10129	Moderate	0.5389	MCMA	5
127021515	Fairfield	NSW	4.2	Metropolitan	18215	Low	0.3463	LCLA	5
127021516	Fairfield - West	NSW	4.7	Metropolitan	19320	Low	0.3691	LCLA	5
127021517	Greenfield Park - Prairiewood	NSW	3.6	Metropolitan	8484	Moderate	0.4781	MCMA	5
127021518	Horsley Park - Kemps Creek	NSW	56.3	Metropolitan	4639	Moderate	0.5394	MCMA	5
127021519	Smithfield - Wetherill Park	NSW	6.6	Metropolitan	18316	Low	0.4309	LCMA	5
127021520	St Johns Park - Wakeley	NSW	3.6	Metropolitan	11159	Low	0.3872	LCMA	5
127031522	Casula	NSW	7.1	Metropolitan	16062	Moderate	0.5301	MCMA	5
127031523	Chipping Norton - Moorebank	NSW	14.5	Metropolitan	18826	Moderate	0.6290	MCMA	4
127031524	Holsworthy - Wattle Grove	NSW	73.7	Metropolitan	20944	Moderate	0.4696	LCMA	5
127031525	Liverpool - Warwick Farm	NSW	11.0	Metropolitan	33467	Low	0.3693	LCLA	5
127031526	Prestons - Lurnea	NSW	17.6	Metropolitan	29314	Moderate	0.4757	MCMA	5
128011527	Caringbah - Lilli Pilli	NSW	9.3	Metropolitan	27731	High	0.9762	HCHA	4
128011528	Cronulla - Kurnell - Bundeena	NSW	28.4	Metropolitan	32374	High	0.9471	HCHA	4
128011529	Gymea - Grays Point	NSW	5.8	Metropolitan	17976	High	0.9622	HCHA	4
128011530	Miranda - Yowie Bay	NSW	6.0	Metropolitan	18817	High	0.8579	HCHA	4
128011531	Sylvania - Taren Point	NSW	6.1	Metropolitan	16636	High	0.9224	HCHA	4
128021532	Engadine - Loftus	NSW	15.9	Metropolitan	28647	High	0.9345	HCHA	4
128021533	Heathcote - Waterfall	NSW	27.6	Metropolitan	6686	High	0.8725	HCHA	2
128021534	Illawong - Alfords Point	NSW	7.3	Metropolitan	10960	High	0.9675	HCHA	4
128021535	Menai - Lucas Heights - Woronora	NSW	33.4	Metropolitan	21762	High	0.8090	MCHA	2

Appendix E (cont.) Data table

SA2 code	SA2 name	State	Area (km2)	Remoteness	Estimated resident population (2015)	ANDRI Quartile	ANDRI	Coping and adaptive capacity	Typology group
128021536	Oyster Bay - Como - Jannali	NSW	8.9	Metropolitan	21752	High	0.9681	HCHA	4
128021538	Sutherland - Kirrawee	NSW	7.8	Metropolitan	21251	High	0.9071	HCHA	4
201011001	Alfredton	VIC	52.7	Inner regional	11039	High	0.7706	HCHA	4
201011002	Ballarat	VIC	12.4	Inner regional	12300	High	0.6997	MCHA	4
201011003	Ballarat - North	VIC	92.3	Inner regional	23211	Moderate	0.6075	MCHA	2
201011004	Ballarat - South	VIC	32.9	Inner regional	24296	High	0.7067	HCMA	4
201011005	Buninyong	VIC	51.6	Inner regional	7191	High	0.8644	HCHA	4
201011006	Delacombe	VIC	34.2	Inner regional	6846	High	0.7640	HCHA	4
201011007	Smythes Creek	VIC	104.7	Inner regional	3966	Moderate	0.5772	MCMA	2
201011008	Wendouree - Miners Rest	VIC	67.6	Inner regional	14779	Moderate	0.6298	MCMA	5
201021009	Bacchus Marsh Region	VIC	1038.9	Inner regional	5903	Moderate	0.5936	MCMA	2
201021010	Creswick - Clunes	VIC	856.8	Inner regional	7781	Moderate	0.4733	LCMA	2
201021011	Daylesford	VIC	920.8	Inner regional	9018	Moderate	0.5124	LCMA	2
201021012	Gordon (Vic.)	VIC	850.3	Inner regional	5692	Moderate	0.5441	MCMA	2
201031013	Avoca	VIC	1714.2	Inner regional	3317	Low	0.3619	LCMA	3
201031014	Beaufort	VIC	1863.0	Inner regional	4317	Low	0.3536	LCMA	3
201031015	Golden Plains - North	VIC	922.1	Inner regional	4444	Moderate	0.5615	MCMA	2
201031016	Maryborough (Vic.)	VIC	45.5	Inner regional	7915	Low	0.4112	MCLA	1
201031017	Maryborough Region	VIC	1627.6	Inner regional	5222	Low	0.3927	LCMA	3
202011018	Bendigo	VIC	16.0	Inner regional	14753	Moderate	0.4804	MCLA	1
202011019	California Gully - Eaglehawk	VIC	33.0	Inner regional	11705	Moderate	0.5428	HCMA	1
202011020	East Bendigo - Kennington	VIC	17.1	Inner regional	13805	Moderate	0.6412	HCMA	4
202011021	Flora Hill - Spring Gully	VIC	13.2	Inner regional	9460	Moderate	0.5890	HCMA	4
202011022	Kangaroo Flat - Golden Square	VIC	40.9	Inner regional	19676	Moderate	0.5901	HCMA	4
202011023	Maiden Gully	VIC	43.0	Inner regional	5049	High	0.7218	HCMA	2
202011024	Strathfieldsaye	VIC	56.4	Inner regional	8355	High	0.7439	HCMA	4
202011025	White Hills - Ascot	VIC	67.8	Inner regional	11232	Moderate	0.6456	HCMA	2
202021026	Bendigo Region - South	VIC	796.9	Inner regional	7020	High	0.6905	HCMA	2
202021027	Castlemaine	VIC	83.9	Inner regional	10545	Moderate	0.5846	MCMA	2
202021028	Castlemaine Region	VIC	1515.0	Inner regional	8539	Moderate	0.5460	MCMA	2
202021029	Heathcote	VIC	756.8	Inner regional	4452	Moderate	0.5196	MCMA	3
202021030	Kyneton	VIC	556.5	Inner regional	9656	High	0.6885	MCHA	2
202021031	Woodend	VIC	211.9	Inner regional	6908	High	0.7449	HCHA	2
202031032	Bendigo Region - North	VIC	1440.2	Inner regional	4351	Moderate	0.5377	MCMA	2
202031033	Loddon	VIC	6193.3	Outer regional	7085	Low	0.3524	LCMA	3
203011034	Bannockburn	VIC	192.2	Inner regional	6192	Moderate	0.5969	MCMA	2
203011035	Golden Plains - South	VIC	1484.5	Inner regional	6786	Moderate	0.5740	MCMA	2
203011036	Winchelsea	VIC	903.2	Inner regional	5805	Moderate	0.6285	MCHA	2
203021037	Belmont	VIC	9.4	Metropolitan	14175	Moderate	0.6549	MCHA	4
203021038	Corio - Norlane	VIC	80.8	Metropolitan	26806	Moderate	0.4630	LCMA	5
203021039	Geelong	VIC	12.7	Metropolitan	12955	Moderate	0.6218	MCHA	4
203021040	Geelong West - Hamlyn Heights	VIC	32.0	Metropolitan	19756	Moderate	0.6181	MCHA	4
203021041	Grovedale	VIC	55.7	Metropolitan	22204	High	0.8143	HCHA	4
203021042	Highton	VIC	40.7	Metropolitan	22390	High	0.8346	HCHA	4

Appendix E (cont.) Data table

SA2 code	SA2 name	State	Area (km2)	Remoteness	Estimated resident population (2015)	ANDRI Quartile	ANDRI	Coping and adaptive capacity	Typology group
203021043	Lara	VIC	588.5	Metropolitan	17996	High	0.7132	MCHA	2
203021044	Leopold	VIC	27.9	Metropolitan	12544	High	0.8841	HCHA	4
203021045	Newcomb - Moolap	VIC	43.4	Metropolitan	14858	Moderate	0.5858	MCMA	5
203021046	Newtown (Vic.)	VIC	5.8	Metropolitan	10368	High	0.6752	MCHA	4
203021047	North Geelong - Bell Park	VIC	21.9	Metropolitan	14710	Moderate	0.6144	MCHA	4
203031048	Clifton Springs	VIC	65.1	Inner regional	13074	High	0.8963	HCHA	4
203031049	Lorne - Anglesea	VIC	448.0	Inner regional	5211	Moderate	0.6583	MCHA	2
203031050	Ocean Grove - Barwon Heads	VIC	157.0	Inner regional	22747	High	0.8712	HCHA	4
203031051	Portarlington	VIC	71.9	Inner regional	7276	High	0.7400	HCHA	4
203031052	Queenscliff	VIC	61.7	Inner regional	4218	High	0.6722	MCHA	2
203031053	Torquay	VIC	126.3	Inner regional	18365	High	0.7772	HCHA	2
204011054	Alexandra	VIC	2119.0	Inner regional	6404	Moderate	0.5325	MCMA	2
204011055	Euroa	VIC	2057.9	Inner regional	6247	Low	0.4457	LCMA	3
204011056	Kilmore - Broadford	VIC	461.5	Inner regional	13642	Moderate	0.5837	MCMA	2
204011057	Mansfield (Vic.)	VIC	3927.9	Outer regional	8788	Moderate	0.6037	MCHA	2
204011058	Nagambie	VIC	1294.4	Inner regional	3936	Moderate	0.4970	MCMA	2
204011059	Seymour	VIC	79.3	Inner regional	6407	Moderate	0.4669	MCMA	3
204011060	Seymour Region	VIC	1689.0	Inner regional	4472	Moderate	0.4853	MCMA	2
204011061	Upper Yarra Valley	VIC	854.8	Inner regional	192	Low	0.3959	LCMA	3
204011062	Yea	VIC	1474.2	Inner regional	3531	Moderate	0.4823	LCMA	2
204021063	Benalla	VIC	315.3	Inner regional	10425	Moderate	0.4761	LCMA	2
204021064	Benalla Region	VIC	2105.3	Inner regional	3559	Moderate	0.4971	LCMA	2
204021065	Rutherglen	VIC	479.3	Inner regional	3857	Moderate	0.5365	MCMA	2
204021066	Wangaratta	VIC	57.6	Inner regional	18624	Moderate	0.5442	MCMA	2
204021067	Wangaratta Region	VIC	3587.3	Inner regional	9519	Moderate	0.5413	MCMA	2
204031068	Beechworth	VIC	371.3	Inner regional	4541	Moderate	0.5144	LCMA	2
204031069	Bright - Mount Beauty	VIC	4253.7	Outer regional	8179	Moderate	0.5424	LCHA	2
204031070	Chiltern - Indigo Valley	VIC	513.2	Inner regional	3055	Moderate	0.5421	MCMA	2
204031071	Myrtleford	VIC	553.4	Inner regional	4689	Moderate	0.4647	LCMA	3
204031072	Towong	VIC	6668.7	Outer regional	5974	Moderate	0.4989	LCMA	2
204031073	West Wodonga	VIC	153.9	Inner regional	15111	Moderate	0.5361	MCMA	2
204031074	Wodonga	VIC	278.8	Inner regional	24112	Moderate	0.4990	MCMA	2
204031075	Yackandandah	VIC	708.2	Inner regional	4536	Moderate	0.6056	MCMA	2
205011076	Drouin	VIC	326.8	Inner regional	15787	Moderate	0.5941	MCMA	2
205011077	Mount Baw Baw Region	VIC	2756.8	Inner regional	6078	Moderate	0.5558	LCHA	2
205011078	Trafalgar (Vic.)	VIC	500.4	Inner regional	7656	Moderate	0.6413	MCHA	2
205011079	Warragul	VIC	353.3	Inner regional	18466	Moderate	0.5829	MCHA	2
205021081	Bairnsdale	VIC	155.0	Outer regional	14524	Moderate	0.5233	MCMA	2
205021082	Bruthen - Omeo	VIC	7378.1	Outer regional	7781	Moderate	0.5450	MCMA	2
205021084	Lakes Entrance	VIC	214.0	Outer regional	9949	Moderate	0.5432	MCMA	2
205021085	Orbost	VIC	11382.7	Outer regional	6528	Moderate	0.4528	LCMA	3
205021086	Paynesville	VIC	417.7	Outer regional	6200	Moderate	0.6389	MCHA	2
205031087	Foster	VIC	1500.0	Inner regional	8774	Moderate	0.4812	LCMA	2
205031089	Korumburra	VIC	600.7	Inner regional	9167	Moderate	0.4796	LCMA	2
205031090	Leongatha	VIC	801.0	Inner regional	11077	Moderate	0.5307	MCMA	2

Appendix E (cont.) Data table

SA2 code	SA2 name	State	Area (km2)	Remoteness	Estimated resident population (2015)	ANDRI Quartile	ANDRI	Coping and adaptive capacity	Typology group
205031091	Phillip Island	VIC	100.6	Inner regional	10334	High	0.7288	HCHA	4
205031093	Wonthaggi - Inverloch	VIC	727.7	Inner regional	22039	Moderate	0.5635	MCMA	2
205041094	Churchill	VIC	796.7	Inner regional	11574	Moderate	0.5440	LCHA	2
205041095	Moe - Newborough	VIC	105.3	Inner regional	16815	Moderate	0.4588	LCMA	3
205041096	Morwell	VIC	85.5	Inner regional	14049	Low	0.4206	LCLA	1
205041097	Traralgon	VIC	149.6	Inner regional	27076	Moderate	0.6421	MCMA	2
205041098	Yallourn North - Glengarry	VIC	342.9	Inner regional	4585	Moderate	0.6279	MCHA	2
205051100	Longford - Loch Sport	VIC	1611.2	Outer regional	4269	Moderate	0.5136	MCMA	2
205051101	Maffra	VIC	2532.1	Inner regional	13873	Moderate	0.4913	LCMA	2
205051102	Rosedale	VIC	968.3	Inner regional	4759	Low	0.3974	LCMA	3
205051103	Sale	VIC	45.6	Inner regional	14781	Moderate	0.5892	MCMA	4
205051104	Yarram	VIC	1931.6	Inner regional	5351	Low	0.4246	LCMA	3
206011105	Brunswick	VIC	5.1	Metropolitan	26799	Moderate	0.5228	MCMA	1
206011106	Brunswick East	VIC	2.2	Metropolitan	11062	Moderate	0.5160	MCMA	1
206011107	Brunswick West	VIC	3.2	Metropolitan	14344	Moderate	0.5101	LCMA	1
206011108	Coburg	VIC	6.9	Metropolitan	27420	Moderate	0.5805	MCHA	1
206011109	Pascoe Vale South	VIC	3.0	Metropolitan	10251	Moderate	0.6287	MCHA	4
206021110	Alphington - Fairfield	VIC	2.9	Metropolitan	9134	High	0.6892	MCHA	4
206021111	Northcote	VIC	6.1	Metropolitan	25992	Moderate	0.6567	MCHA	5
206021112	Thornbury	VIC	5.0	Metropolitan	19254	Moderate	0.6254	MCHA	5
206031113	Ascot Vale	VIC	3.8	Metropolitan	15219	Moderate	0.5715	MCMA	1
206031114	Essendon - Aberfeldie	VIC	8.4	Metropolitan	28065	High	0.6765	MCHA	4
206031115	Flemington	VIC	1.6	Metropolitan	10531	Moderate	0.5298	MCMA	5
206031116	Moonee Ponds	VIC	4.4	Metropolitan	14949	Moderate	0.6296	MCHA	4
206041117	Carlton	VIC	1.8	Metropolitan	18983	Moderate	0.4865	LCHA	5
206041118	Docklands	VIC	3.0	Metropolitan	10444	High	0.6612	MCHA	5
206041119	East Melbourne	VIC	2.9	Metropolitan	5411	Moderate	0.6350	MCHA	4
206041121	Kensington	VIC	2.1	Metropolitan	11291	High	0.7022	MCHA	5
206041122	Melbourne	VIC	2.4	Metropolitan	37162	Moderate	0.5441	LCHA	5
206041123	North Melbourne	VIC	3.2	Metropolitan	20779	Moderate	0.5614	LCHA	5
206041124	Parkville	VIC	4.0	Metropolitan	7682	Moderate	0.6198	MCHA	5
206041125	South Yarra - West	VIC	1.5	Metropolitan	6405	Moderate	0.6383	MCHA	5
206041126	Southbank	VIC	3.1	Metropolitan	18626	High	0.6620	MCHA	5
206051128	Albert Park	VIC	4.7	Metropolitan	16053	High	0.6599	MCHA	4
206051129	Elwood	VIC	2.6	Metropolitan	16145	Moderate	0.6311	MCHA	4
206051130	Port Melbourne	VIC	2.8	Metropolitan	17254	High	0.7873	HCHA	5
206051132	South Melbourne	VIC	2.5	Metropolitan	12253	Moderate	0.6127	MCHA	5
206051133	St Kilda	VIC	3.9	Metropolitan	27349	Moderate	0.5787	MCHA	5
206051134	St Kilda East	VIC	2.4	Metropolitan	17315	Moderate	0.6126	MCHA	5
206061135	Armadale	VIC	2.2	Metropolitan	9485	Moderate	0.5920	MCMA	4
206061136	Prahran - Windsor	VIC	2.9	Metropolitan	20834	Moderate	0.5251	MCMA	1
206061137	South Yarra - East	VIC	2.5	Metropolitan	20587	Moderate	0.5145	MCMA	1
206061138	Toorak	VIC	4.3	Metropolitan	13939	Moderate	0.6347	MCHA	4
206071139	Abbotsford	VIC	1.7	Metropolitan	8078	High	0.6698	MCHA	5
206071140	Carlton North - Princes Hill	VIC	2.3	Metropolitan	8964	Moderate	0.6586	MCHA	4

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SA2 code	SA2 name	State	Area (km2)	Remoteness	Estimated resident population (2015)	ANDRI Quartile	ANDRI	Coping and adaptive capacity	Typology group
206071141	Collingwood	VIC	1.3	Metropolitan	8582	Moderate	0.5196	LCMA	5
206071142	Fitzroy	VIC	1.4	Metropolitan	11056	Moderate	0.5494	LCHA	5
206071143	Fitzroy North	VIC	2.5	Metropolitan	12901	Moderate	0.6585	MCHA	4
206071144	Richmond (Vic.)	VIC	6.2	Metropolitan	31722	Moderate	0.6441	MCHA	5
206071145	Yarra - North	VIC	5.2	Metropolitan	9449	High	0.7305	MCHA	4
207011146	Ashburton (Vic.)	VIC	2.9	Metropolitan	8082	High	0.7345	MCHA	4
207011147	Balwyn	VIC	5.6	Metropolitan	16573	High	0.7698	MCHA	4
207011148	Balwyn North	VIC	8.8	Metropolitan	21332	High	0.7806	MCHA	4
207011149	Camberwell	VIC	7.3	Metropolitan	22179	High	0.7681	MCHA	4
207011150	Glen Iris - East	VIC	5.7	Metropolitan	17011	High	0.7894	MCHA	4
207011151	Hawthorn	VIC	5.7	Metropolitan	24047	High	0.6671	MCHA	4
207011152	Hawthorn East	VIC	3.8	Metropolitan	15601	High	0.7071	MCHA	4
207011153	Kew	VIC	10.5	Metropolitan	26223	High	0.7643	MCHA	4
207011154	Kew East	VIC	4.0	Metropolitan	6742	High	0.7331	MCHA	4
207011155	Surrey Hills (West) - Canterbury	VIC	5.7	Metropolitan	16963	High	0.7890	MCHA	4
207021156	Bulleen	VIC	6.7	Metropolitan	11504	High	0.6695	MCHA	4
207021157	Doncaster	VIC	8.8	Metropolitan	21076	Moderate	0.6476	MCHA	4
207021158	Doncaster East	VIC	11.2	Metropolitan	29544	High	0.8111	HCHA	4
207021159	Templestowe	VIC	16.1	Metropolitan	17550	High	0.8359	HCHA	4
207021160	Templestowe Lower	VIC	5.9	Metropolitan	14155	High	0.6751	MCHA	4
207031161	Blackburn	VIC	8.6	Metropolitan	21850	High	0.7725	MCHA	4
207031162	Blackburn South	VIC	3.6	Metropolitan	11101	High	0.7427	MCHA	4
207031163	Box Hill	VIC	7.0	Metropolitan	20170	Moderate	0.6361	MCHA	5
207031164	Box Hill North	VIC	6.2	Metropolitan	18205	High	0.7143	MCHA	4
207031165	Burwood	VIC	5.0	Metropolitan	12493	High	0.6630	MCHA	5
207031166	Burwood East	VIC	4.3	Metropolitan	10713	High	0.7377	MCHA	4
207031167	Surrey Hills (East) - Mont Albert	VIC	3.3	Metropolitan	10356	High	0.7324	MCHA	4
208011168	Beaumaris	VIC	6.0	Metropolitan	13995	High	0.8593	HCHA	4
208011169	Brighton (Vic.)	VIC	8.2	Metropolitan	23933	High	0.8100	HCHA	4
208011170	Brighton East	VIC	5.6	Metropolitan	16585	High	0.8311	HCHA	4
208011171	Cheltenham - Highett (West)	VIC	5.3	Metropolitan	11226	High	0.8182	HCHA	4
208011172	Hampton	VIC	5.7	Metropolitan	18345	High	0.7996	HCHA	4
208011173	Sandringham - Black Rock	VIC	6.4	Metropolitan	17184	High	0.8328	HCHA	4
208021174	Bentleigh - McKinnon	VIC	6.2	Metropolitan	23295	High	0.7594	MCHA	4
208021175	Bentleigh East	VIC	9.2	Metropolitan	28665	High	0.7852	MCHA	4
208021176	Carnegie	VIC	3.8	Metropolitan	18645	High	0.6797	MCHA	4
208021177	Caulfield - North	VIC	6.4	Metropolitan	21956	High	0.7474	MCHA	4
208021178	Caulfield - South	VIC	4.7	Metropolitan	18156	High	0.7624	MCHA	4
208021179	Elsternwick	VIC	2.9	Metropolitan	11825	High	0.7048	MCHA	4
208021180	Hughesdale	VIC	2.0	Metropolitan	7882	High	0.6974	MCHA	4
208021181	Murrumbeena	VIC	2.5	Metropolitan	9640	High	0.7061	MCHA	4
208021182	Ormond - Glen Huntly	VIC	2.9	Metropolitan	13742	High	0.6811	MCHA	4
208031183	Aspendale Gardens - Waterways	VIC	5.3	Metropolitan	9366	High	0.8888	HCHA	4
208031185	Carrum - Patterson Lakes	VIC	5.8	Metropolitan	11953	High	0.8644	HCHA	4

Appendix E (cont.) Data table

SA2 code	SA2 name	State	Area (km2)	Remoteness	Estimated resident population (2015)	ANDRI Quartile	ANDRI	Coping and adaptive capacity	Typology group
208031186	Chelsea - Bonbeach	VIC	5.4	Metropolitan	14396	High	0.6677	MCHA	4
208031187	Chelsea Heights	VIC	3.2	Metropolitan	5485	High	0.8105	HCHA	4
208031188	Cheltenham - Highett (East)	VIC	8.7	Metropolitan	22962	High	0.7388	MCHA	4
208031189	Edithvale - Aspendale	VIC	5.1	Metropolitan	13152	High	0.7853	MCHA	4
208031190	Mentone	VIC	4.4	Metropolitan	13332	High	0.7314	MCHA	4
208031191	Moorabbin - Heatherton	VIC	11.7	Metropolitan	8952	High	0.7290	MCHA	4
208031193	Mordialloc - Parkdale	VIC	8.0	Metropolitan	20560	High	0.7954	MCHA	4
208041194	Malvern - Glen Iris	VIC	6.2	Metropolitan	21009	Moderate	0.6559	MCHA	4
208041195	Malvern East	VIC	7.6	Metropolitan	22174	High	0.6607	MCHA	4
209011196	Bundoora - East	VIC	4.1	Metropolitan	10136	High	0.7796	MCHA	4
209011197	Greensborough	VIC	10.1	Metropolitan	21224	High	0.9046	HCHA	4
209011198	Heidelberg - Rosanna	VIC	6.4	Metropolitan	15245	High	0.8055	MCHA	4
209011199	Heidelberg West	VIC	6.7	Metropolitan	14634	Moderate	0.5955	MCMA	5
209011200	Ivanhoe	VIC	5.1	Metropolitan	11851	High	0.7891	MCHA	4
209011201	Ivanhoe East - Eaglemont	VIC	4.3	Metropolitan	8088	High	0.8676	HCHA	4
209011202	Montmorency - Briar Hill	VIC	12.0	Metropolitan	16508	High	0.8965	HCHA	4
209011203	Viewbank - Yallambie	VIC	10.2	Metropolitan	18943	High	0.8088	HCHA	4
209011204	Watsonia	VIC	3.8	Metropolitan	9459	High	0.8074	HCHA	4
209021205	Kingsbury	VIC	9.0	Metropolitan	11730	High	0.6672	MCHA	5
209021206	Preston	VIC	11.3	Metropolitan	33219	Moderate	0.6234	MCHA	5
209021207	Reservoir - East	VIC	9.0	Metropolitan	27735	Moderate	0.5741	LCHA	5
209021208	Reservoir - West	VIC	10.2	Metropolitan	24910	Moderate	0.6097	MCHA	5
209031209	Eltham	VIC	19.5	Metropolitan	23849	High	0.8266	HCHA	4
209031210	Hurstbridge	VIC	14.8	Metropolitan	3603	High	0.8115	HCHA	4
209031211	Kinglake	VIC	319.5	Inner regional	3922	Moderate	0.5951	MCMA	2
209031212	Panton Hill - St Andrews	VIC	292.2	Inner regional	5342	High	0.6675	MCHA	2
209031213	Plenty - Yarrambat	VIC	29.1	Metropolitan	9706	High	0.8113	HCHA	4
209031214	Research - North Warrandyte	VIC	49.8	Metropolitan	6954	High	0.8603	HCHA	4
209031215	Wattle Glen - Diamond Creek	VIC	26.8	Metropolitan	14221	High	0.8587	HCHA	4
209041216	Bundoora - North	VIC	4.7	Metropolitan	7511	Moderate	0.6450	MCHA	4
209041217	Bundoora - West	VIC	2.6	Metropolitan	6440	Moderate	0.5687	MCHA	1
209041218	Epping	VIC	84.9	Metropolitan	39748	Moderate	0.5938	MCMA	5
209041219	Lalor	VIC	12.1	Metropolitan	23290	Low	0.4231	LCMA	1
209041220	Mill Park - North	VIC	8.1	Metropolitan	18653	High	0.7393	HCHA	4
209041221	Mill Park - South	VIC	4.9	Metropolitan	12510	High	0.6991	HCHA	5
209041222	South Morang	VIC	59.7	Metropolitan	59032	High	0.6607	MCMA	5
209041223	Thomastown	VIC	14.7	Metropolitan	21442	Low	0.4368	LCMA	1
209041224	Wallan	VIC	507.7	Metropolitan	15686	Moderate	0.5720	MCMA	2
209041225	Whittlesea	VIC	298.0	Inner regional	8221	Moderate	0.6139	MCHA	2
210011226	Airport West	VIC	3.7	Metropolitan	7694	Moderate	0.6522	MCHA	4
210011228	Keilor	VIC	17.5	Metropolitan	8886	High	0.8431	HCHA	4
210011229	Keilor East	VIC	10.9	Metropolitan	26960	Moderate	0.6257	MCHA	4
210011230	Niddrie - Essendon West	VIC	2.8	Metropolitan	7069	High	0.6939	MCHA	4
210011231	Strathmore	VIC	4.1	Metropolitan	9729	High	0.6943	MCHA	4
210021232	Gisborne	VIC	211.0	Inner regional	12850	High	0.7381	HCHA	2

Appendix E (cont.) Data table

SA2 code	SA2 name	State	Area (km2)	Remoteness	Estimated resident population (2015)	ANDRI Quartile	ANDRI	Coping and adaptive capacity	Typology group
210021233	Macedon	VIC	73.0	Inner regional	3476	High	0.6885	MCHA	2
210021234	Riddells Creek	VIC	83.3	Inner regional	4113	High	0.7294	MCHA	2
210021235	Romsey	VIC	624.7	Inner regional	9389	Moderate	0.6460	MCHA	2
210031236	Coburg North	VIC	4.9	Metropolitan	7789	Moderate	0.5467	MCMA	1
210031237	Fawkner	VIC	5.1	Metropolitan	14185	Moderate	0.4583	LCMA	1
210031238	Glenroy - Hadfield	VIC	13.4	Metropolitan	31281	Moderate	0.4982	MCMA	1
210031239	Pascoe Vale	VIC	7.0	Metropolitan	23913	Moderate	0.5997	MCHA	4
210041240	Sunbury	VIC	129.5	Metropolitan	13170	Moderate	0.6236	MCHA	2
210041241	Sunbury - South	VIC	131.1	Metropolitan	26779	High	0.7034	HCHA	4
210051242	Broadmeadows	VIC	8.8	Metropolitan	13529	Low	0.3520	LCLA	1
210051243	Campbellfield - Coolaroo	VIC	18.2	Metropolitan	17013	Low	0.3945	LCLA	1
210051244	Craigieburn - Mickleham	VIC	106.1	Metropolitan	51271	Moderate	0.4926	LCMA	5
210051245	Gladstone Park - Westmeadows	VIC	13.9	Metropolitan	18135	Moderate	0.6332	MCMA	4
210051246	Greenvale - Bulla	VIC	95.8	Metropolitan	14700	Moderate	0.6028	MCHA	5
210051247	Meadow Heights	VIC	4.6	Metropolitan	15755	Low	0.4170	MCLA	5
210051249	Roxburgh Park - Somerton	VIC	12.4	Metropolitan	23261	Moderate	0.5221	MCMA	5
210051250	Tullamarine	VIC	3.9	Metropolitan	6674	Moderate	0.6544	MCMA	5
211011251	Bayswater	VIC	8.0	Metropolitan	12415	High	0.7241	MCHA	4
211011252	Boronia - The Basin	VIC	17.0	Metropolitan	26853	High	0.7287	MCHA	4
211011253	Ferntree Gully	VIC	16.2	Metropolitan	29406	High	0.7996	HCHA	4
211011254	Knoxfield - Scoresby	VIC	15.2	Metropolitan	15140	High	0.7990	HCHA	4
211011255	Lysterfield	VIC	18.5	Metropolitan	6898	High	0.8941	HCHA	4
211011256	Rowville - Central	VIC	8.2	Metropolitan	15835	High	0.9369	HCHA	4
211011257	Rowville - North	VIC	4.2	Metropolitan	8342	High	0.9486	HCHA	4
211011258	Rowville - South	VIC	9.3	Metropolitan	11044	High	0.8946	HCHA	4
211011259	Wantirna	VIC	8.3	Metropolitan	14376	High	0.7715	MCHA	4
211011260	Wantirna South	VIC	13.4	Metropolitan	18437	High	0.8979	HCHA	4
211021261	Donvale - Park Orchards	VIC	20.8	Metropolitan	16520	High	0.7673	HCHA	4
211021262	Warrandyte - Wonga Park	VIC	45.8	Metropolitan	10560	High	0.6814	MCHA	2
211031263	Bayswater North	VIC	9.9	Metropolitan	12126	High	0.7819	HCHA	4
211031264	Croydon	VIC	17.7	Metropolitan	33530	High	0.6993	MCHA	4
211031265	Croydon Hills - Warranwood	VIC	9.5	Metropolitan	18697	High	0.8317	HCHA	4
211031266	Ringwood	VIC	9.9	Metropolitan	17654	Moderate	0.6387	MCHA	4
211031267	Ringwood East	VIC	9.4	Metropolitan	20657	High	0.7024	MCHA	4
211031268	Ringwood North	VIC	4.7	Metropolitan	9910	High	0.7704	HCHA	4
211041269	Forest Hill	VIC	4.1	Metropolitan	10874	High	0.7627	MCHA	4
211041270	Mitcham (Vic.)	VIC	6.6	Metropolitan	16686	High	0.7706	HCHA	4
211041271	Nunawading	VIC	5.1	Metropolitan	12089	High	0.7799	MCHA	4
211041272	Vermont	VIC	4.6	Metropolitan	10750	High	0.8467	HCHA	4
211041273	Vermont South	VIC	6.2	Metropolitan	12143	High	0.7920	MCHA	4
211051274	Belgrave - Selby	VIC	55.6	Metropolitan	10429	High	0.6990	MCHA	2
211051275	Chirnside Park	VIC	22.2	Metropolitan	9941	High	0.7975	HCHA	4
211051276	Healesville - Yarra Glen	VIC	369.5	Inner regional	13900	High	0.6762	MCHA	2
211051277	Kilsyth	VIC	8.2	Metropolitan	9280	High	0.6785	MCMA	4
211051278	Lilydale - Coldstream	VIC	109.4	Metropolitan	19212	High	0.7046	HCMA	2

Appendix E (cont.) Data table

SA2 code	SA2 name	State	Area (km2)	Remoteness	Estimated resident population (2015)	ANDRI Quartile	ANDRI	Coping and adaptive capacity	Typology group
211051279	Monbulk - Silvan	VIC	68.6	Metropolitan	5791	High	0.6688	MCHA	2
211051280	Montrose	VIC	10.5	Metropolitan	7031	High	0.7415	HCHA	4
211051281	Mooroolbark	VIC	12.5	Metropolitan	22604	High	0.6751	MCHA	4
211051282	Mount Dandenong - Olinda	VIC	81.9	Metropolitan	10066	High	0.7746	HCHA	4
211051283	Mount Evelyn	VIC	17.0	Metropolitan	9941	High	0.6992	HCHA	4
211051284	Upwey - Tecoma	VIC	8.9	Metropolitan	10019	High	0.7256	HCHA	4
211051285	Wandin - Seville	VIC	111.7	Metropolitan	7798	High	0.6677	MCHA	2
211051286	Yarra Valley	VIC	728.8	Inner regional	16537	Moderate	0.6332	MCMA	2
212011287	Beaconsfield - Officer	VIC	41.7	Metropolitan	12242	Moderate	0.5818	MCMA	2
212011288	Bunyip - Garfield	VIC	373.1	Inner regional	8796	Moderate	0.5991	MCHA	2
212011289	Emerald - Cockatoo	VIC	370.7	Metropolitan	18375	Moderate	0.6373	MCHA	2
212011290	Koo Wee Rup	VIC	409.4	Inner regional	7397	Moderate	0.5886	MCMA	3
212011291	Pakenham - North	VIC	36.7	Metropolitan	17616	Moderate	0.4623	LCMA	5
212011292	Pakenham - South	VIC	49.8	Metropolitan	28050	Moderate	0.5486	MCMA	5
212021293	Berwick - North	VIC	19.7	Metropolitan	23614	High	0.8395	HCHA	4
212021294	Berwick - South	VIC	14.9	Metropolitan	25990	High	0.7128	MCHA	5
212021295	Doveton	VIC	5.2	Metropolitan	11665	Low	0.4103	LCMA	5
212021296	Endeavour Hills	VIC	20.1	Metropolitan	26616	High	0.6641	MCHA	5
212021297	Hallam	VIC	8.1	Metropolitan	11125	High	0.6629	MCHA	5
212021298	Narre Warren	VIC	14.2	Metropolitan	28120	High	0.6777	MCHA	5
212021299	Narre Warren North	VIC	34.4	Metropolitan	7909	High	0.7294	MCHA	5
212031300	Cranbourne	VIC	13.0	Metropolitan	20568	Moderate	0.5742	MCMA	5
212031301	Cranbourne East	VIC	42.9	Metropolitan	21199	Moderate	0.5230	LCHA	5
212031302	Cranbourne North	VIC	10.2	Metropolitan	19505	Moderate	0.6060	MCMA	5
212031303	Cranbourne South	VIC	81.7	Metropolitan	8703	High	0.7012	MCHA	5
212031304	Cranbourne West	VIC	12.9	Metropolitan	13995	Moderate	0.5257	MCMA	5
212031305	Hampton Park - Lynbrook	VIC	13.3	Metropolitan	26239	Moderate	0.5905	MCHA	5
212031306	Lynbrook - Lyndhurst	VIC	7.4	Metropolitan	15459	Moderate	0.6465	MCHA	5
212031307	Narre Warren South	VIC	13.0	Metropolitan	30925	High	0.7041	MCHA	5
212031308	Pearcedale - Tooradin	VIC	98.5	Metropolitan	7896	High	0.7162	MCHA	4
212041309	Clarinda - Oakleigh South	VIC	6.3	Metropolitan	12290	High	0.6782	MCHA	5
212041310	Clayton South	VIC	7.9	Metropolitan	13141	Moderate	0.6047	LCHA	5
212041311	Dandenong	VIC	61.8	Metropolitan	31909	Low	0.4211	LCMA	5
212041312	Dandenong North	VIC	9.5	Metropolitan	23449	Moderate	0.5238	LCHA	5
212041313	Dingley Village	VIC	7.2	Metropolitan	10603	High	0.8053	MCHA	4
212041314	Keysborough	VIC	30.3	Metropolitan	25758	Moderate	0.5694	LCHA	5
212041315	Noble Park	VIC	8.6	Metropolitan	31866	Moderate	0.4775	LCHA	5
212041316	Noble Park North	VIC	3.8	Metropolitan	7826	Moderate	0.5385	LCHA	5
212041317	Springvale	VIC	11.1	Metropolitan	22188	Low	0.4453	LCHA	5
212041318	Springvale South	VIC	4.6	Metropolitan	13065	Low	0.4355	LCMA	5
212051319	Ashwood - Chadstone	VIC	6.7	Metropolitan	18835	High	0.6613	MCHA	5
212051320	Clayton	VIC	9.4	Metropolitan	22510	Moderate	0.5827	LCHA	5
212051321	Glen Waverley - East	VIC	9.2	Metropolitan	22020	High	0.7715	MCHA	4
212051322	Glen Waverley - West	VIC	7.7	Metropolitan	19951	High	0.7236	MCHA	4
212051323	Mount Waverley - North	VIC	6.5	Metropolitan	15903	High	0.7456	MCHA	4

Appendix E (cont.) Data table

SA2 code	SA2 name	State	Area (km2)	Remoteness	Estimated resident population (2015)	ANDRI Quartile	ANDRI	Coping and adaptive capacity	Typology group
212051324	Mount Waverley - South	VIC	8.7	Metropolitan	18940	High	0.7585	MCHA	4
212051325	Mulgrave	VIC	10.7	Metropolitan	20181	High	0.7293	MCHA	4
212051326	Oakleigh - Huntingdale	VIC	10.2	Metropolitan	22225	High	0.6860	MCHA	4
212051327	Wheelers Hill	VIC	10.5	Metropolitan	20727	High	0.7957	MCHA	4
213011328	Ardeer - Albion	VIC	4.6	Metropolitan	7937	Low	0.4275	LCMA	5
213011329	Cairnlea	VIC	4.4	Metropolitan	10040	Moderate	0.5338	LCHA	5
213011330	Deer Park - Derrimut	VIC	21.3	Metropolitan	26746	Moderate	0.6004	MCHA	5
213011331	Delahey	VIC	3.5	Metropolitan	8815	Moderate	0.6296	MCMA	5
213011332	Keilor Downs	VIC	7.7	Metropolitan	13960	High	0.6974	MCHA	5
213011333	Kings Park (Vic.)	VIC	4.4	Metropolitan	14373	Low	0.4392	LCMA	5
213011334	St Albans - North	VIC	6.5	Metropolitan	20490	Low	0.4336	LCMA	5
213011335	St Albans - South	VIC	6.3	Metropolitan	17725	Low	0.4274	LCMA	5
213011336	Sunshine	VIC	4.7	Metropolitan	10083	Moderate	0.5106	LCHA	5
213011337	Sunshine North	VIC	8.0	Metropolitan	11890	Low	0.4433	LCMA	5
213011338	Sunshine West	VIC	13.0	Metropolitan	19013	Moderate	0.4845	LCMA	5
213011339	Sydenham	VIC	3.9	Metropolitan	12432	High	0.7277	MCHA	5
213011340	Taylors Lakes	VIC	18.5	Metropolitan	18474	High	0.7480	MCHA	5
213021341	Altona	VIC	17.7	Metropolitan	12979	Moderate	0.6551	MCHA	4
213021342	Altona Meadows	VIC	10.5	Metropolitan	19818	Moderate	0.6271	MCMA	5
213021343	Altona North	VIC	16.2	Metropolitan	14519	Moderate	0.5148	MCMA	5
213021344	Newport	VIC	8.8	Metropolitan	18134	Moderate	0.6561	MCHA	4
213021345	Seabrook	VIC	1.6	Metropolitan	5352	High	0.6978	HCMA	5
213021346	Williamstown	VIC	7.3	Metropolitan	16006	High	0.7542	HCHA	4
213031347	Braybrook	VIC	7.5	Metropolitan	18759	Moderate	0.4585	MCLA	5
213031348	Footscray	VIC	5.0	Metropolitan	16762	Low	0.3897	LCMA	1
213031349	Maribyrnong	VIC	5.5	Metropolitan	12562	Moderate	0.5214	LCMA	1
213031350	Seddon - Kingsville	VIC	1.7	Metropolitan	9521	Moderate	0.4833	LCMA	1
213031351	West Footscray - Tottenham	VIC	6.0	Metropolitan	11849	Low	0.4458	LCMA	1
213031352	Yarraville	VIC	5.6	Metropolitan	15330	Moderate	0.5540	MCMA	1
213041353	Bacchus Marsh	VIC	196.3	Inner regional	20207	Moderate	0.5692	MCMA	2
213041354	Caroline Springs	VIC	11.5	Metropolitan	31454	Moderate	0.6503	MCHA	5
213041355	Hillside	VIC	66.5	Metropolitan	19597	Moderate	0.6160	MCMA	5
213041356	Melton	VIC	130.7	Metropolitan	19242	Low	0.4029	LCMA	5
213041357	Melton South	VIC	111.0	Metropolitan	22403	Low	0.4285	LCMA	5
213041358	Melton West	VIC	24.2	Metropolitan	17387	Moderate	0.4675	LCMA	5
213041359	Rockbank - Mount Cottrell	VIC	125.8	Inner regional	3044	Low	0.3582	LCLA	3
213041360	Taylors Hill	VIC	6.0	Metropolitan	19486	Moderate	0.6587	MCHA	5
213051361	Hoppers Crossing - North	VIC	11.1	Metropolitan	20034	High	0.7511	HCHA	5
213051362	Hoppers Crossing - South	VIC	7.0	Metropolitan	20001	High	0.7285	MCHA	5
213051363	Laverton	VIC	22.2	Metropolitan	8334	Moderate	0.4890	MCMA	5
213051364	Point Cook	VIC	36.9	Metropolitan	48526	High	0.7057	MCHA	5
213051365	Tarneit	VIC	62.1	Metropolitan	33599	Moderate	0.6034	MCHA	5
213051366	Truganina	VIC	27.0	Metropolitan	21470	Moderate	0.5935	MCMA	5
213051367	Werribee	VIC	135.4	Metropolitan	32113	Moderate	0.5791	MCHA	5
213051368	Werribee - South	VIC	114.0	Metropolitan	11491	High	0.6827	MCHA	5

Appendix E (cont.) Data table

SA2 code	SA2 name	State	Area (km2)	Remoteness	Estimated resident population (2015)	ANDRI Quartile	ANDRI	Coping and adaptive capacity	Typology group
213051369	Wyndham Vale	VIC	128.2	Metropolitan	23113	Moderate	0.6302	MCHA	5
214011370	Carrum Downs	VIC	20.3	Metropolitan	21291	Moderate	0.5951	MCMA	5
214011371	Frankston	VIC	11.6	Metropolitan	23135	Moderate	0.5640	MCMA	1
214011372	Frankston North	VIC	13.2	Metropolitan	19827	Moderate	0.5023	MCMA	1
214011373	Frankston South	VIC	14.6	Metropolitan	18793	High	0.7276	HCHA	4
214011374	Langwarrin	VIC	37.6	Metropolitan	24357	High	0.8103	HCHA	4
214011375	Seaford (Vic.)	VIC	12.4	Metropolitan	17046	Moderate	0.6116	MCMA	4
214011376	Skye - Sandhurst	VIC	19.8	Metropolitan	13341	High	0.6690	HCMA	4
214021377	Dromana	VIC	45.1	Metropolitan	10785	Moderate	0.5283	MCMA	4
214021378	Flinders	VIC	287.4	Inner regional	5604	High	0.6725	MCHA	2
214021379	Hastings - Somers	VIC	108.9	Metropolitan	22524	Moderate	0.5504	MCMA	4
214021380	Mornington	VIC	21.1	Metropolitan	24633	Moderate	0.6250	MCMA	4
214021381	Mount Eliza	VIC	23.2	Metropolitan	18471	High	0.7306	HCHA	4
214021382	Mount Martha	VIC	30.2	Metropolitan	19071	High	0.6599	MCHA	2
214021383	Point Nepean	VIC	67.2	Metropolitan	17731	Moderate	0.6077	MCMA	4
214021384	Rosebud - McCrae	VIC	23.7	Metropolitan	21327	Moderate	0.5272	MCMA	1
214021385	Somerville	VIC	117.4	Metropolitan	18685	High	0.6667	MCHA	4
215011386	Ararat	VIC	161.2	Inner regional	8324	Moderate	0.4643	MCMA	3
215011387	Ararat Region	VIC	4023.4	Outer regional	3163	Moderate	0.4767	LCMA	2
215011388	Horsham	VIC	83.1	Outer regional	16363	Moderate	0.5628	MCMA	2
215011389	Horsham Region	VIC	4251.8	Outer regional	3451	Moderate	0.4989	LCMA	2
215011390	Nhill Region	VIC	11042.8	Outer regional	7023	Low	0.3628	LCLA	3
215011391	St Arnaud	VIC	3008.6	Outer regional	3413	Low	0.4244	LCMA	3
215011392	Stawell	VIC	2741.6	Inner regional	8239	Moderate	0.5149	MCMA	2
215011393	West Wimmera	VIC	5686.1	Outer regional	2780	Low	0.3934	LCMA	2
215011394	Yarriambiack	VIC	7139.6	Outer regional	6775	Low	0.3508	LCLA	3
215021395	Irymple	VIC	88.3	Outer regional	6858	Moderate	0.5651	HCMA	4
215021396	Merbein	VIC	101.8	Outer regional	4767	Low	0.4394	LCMA	3
215021397	Mildura	VIC	76.2	Outer regional	32906	Moderate	0.5181	MCLA	1
215021398	Mildura Region	VIC	21569.5	Outer regional	3770	Low	0.3906	LCLA	3
215021399	Red Cliffs	VIC	246.7	Outer regional	5855	Low	0.4177	LCLA	3
215031400	Buloke	VIC	8068.7	Outer regional	6307	Moderate	0.4669	LCMA	3
215031401	Gannawarra	VIC	3568.2	Outer regional	6628	Low	0.4044	LCMA	3
215031402	Kerang	VIC	146.6	Outer regional	3900	Low	0.4424	MCLA	3
215031403	Robinvale	VIC	181.7	Outer regional	3412	Low	0.3123	LCLA	3
215031404	Swan Hill	VIC	126.6	Outer regional	11022	Moderate	0.4840	MCMA	3
215031405	Swan Hill Region	VIC	5759.2	Outer regional	6466	Low	0.4279	LCMA	3
216011406	Echuca	VIC	183.8	Inner regional	14776	Moderate	0.6105	HCMA	2
216011407	Kyabram	VIC	738.9	Inner regional	11001	Moderate	0.5030	MCMA	3
216011408	Lockington - Gunbower	VIC	1646.4	Inner regional	3837	Moderate	0.4681	LCMA	2
216011409	Rochester	VIC	351.6	Inner regional	3887	Moderate	0.4849	MCMA	3
216011410	Rushworth	VIC	1633.9	Inner regional	4084	Low	0.4297	LCMA	3
216021411	Cobram	VIC	131.7	Inner regional	6399	Low	0.3694	LCMA	3
216021412	Moira	VIC	1498.8	Inner regional	2613	Low	0.4420	LCMA	2
216021413	Numurkah	VIC	2321.0	Inner regional	12420	Low	0.3924	LCMA	3

Appendix E (cont.) Data table

SA2 code	SA2 name	State	Area (km2)	Remoteness	Estimated resident population (2015)	ANDRI Quartile	ANDRI	Coping and adaptive capacity	Typology group
216021414	Yarrawonga	VIC	95.0	Inner regional	7856	Moderate	0.5809	MCMA	3
216031415	Mooroopna	VIC	40.0	Inner regional	8010	Moderate	0.5152	MCMA	3
216031416	Shepparton - North	VIC	65.7	Inner regional	18810	Moderate	0.5038	MCMA	3
216031417	Shepparton - South	VIC	143.2	Inner regional	23341	Moderate	0.5328	MCMA	3
216031418	Shepparton Region - East	VIC	1055.6	Inner regional	3895	Moderate	0.6367	MCMA	2
216031419	Shepparton Region - West	VIC	1028.7	Inner regional	10241	Moderate	0.5651	MCMA	3
217011420	Glenelg (Vic.)	VIC	6121.1	Outer regional	8765	Moderate	0.4562	LCMA	2
217011421	Hamilton (Vic.)	VIC	198.3	Inner regional	10080	Moderate	0.5369	MCMA	2
217011422	Portland	VIC	64.0	Outer regional	10919	Moderate	0.4637	LCMA	3
217011423	Southern Grampians	VIC	6563.8	Outer regional	6184	Moderate	0.4785	LCMA	2
217021424	Camperdown	VIC	98.1	Inner regional	3516	Moderate	0.5108	MCMA	3
217021425	Colac	VIC	54.7	Inner regional	12337	Moderate	0.5675	MCMA	4
217021426	Colac Region	VIC	1934.3	Inner regional	5381	Moderate	0.4935	LCMA	2
217021427	Corangamite - North	VIC	2538.3	Inner regional	5434	Moderate	0.4531	LCMA	3
217021428	Corangamite - South	VIC	1805.2	Outer regional	7306	Moderate	0.4691	LCMA	2
217021429	Moyne - East	VIC	3278.0	Inner regional	6716	Moderate	0.4504	LCMA	2
217021430	Moyne - West	VIC	2035.7	Inner regional	9467	Moderate	0.4865	MCMA	2
217021431	Otway	VIC	1505.9	Inner regional	3538	Moderate	0.5536	MCMA	2
217021432	Warrnambool - North	VIC	62.4	Inner regional	21217	High	0.7325	HCMA	4
217021433	Warrnambool - South	VIC	120.2	Inner regional	13150	High	0.7231	HCMA	4
301011001	Alexandra Hills	QLD	13.6	Metropolitan	17017	Moderate	0.5257	HCLA	4
301011002	Belmont - Gumdale	QLD	33.2	Metropolitan	7779	High	0.7241	HCMA	4
301011003	Birkdale	QLD	11.6	Metropolitan	15367	Moderate	0.5424	HCLA	4
301011004	Capalaba	QLD	18.9	Metropolitan	18044	Moderate	0.5347	HCLA	4
301011005	Thorneside	QLD	2.5	Metropolitan	3827	Low	0.4305	MCLA	4
301011006	Wellington Point	QLD	9.4	Metropolitan	11980	Moderate	0.5693	HCLA	4
301021007	Cleveland	QLD	11.8	Metropolitan	15248	Moderate	0.5200	HCLA	4
301021008	Ormiston	QLD	4.9	Metropolitan	5997	Moderate	0.5445	HCLA	4
301021009	Redland Bay	QLD	46.8	Metropolitan	15544	Moderate	0.5223	HCLA	4
301021010	Redland Islands	QLD	490.0	Outer regional	9629	Low	0.3025	LCLA	3
301021011	Sheldon - Mount Cotton	QLD	65.3	Metropolitan	7934	Moderate	0.5655	HCLA	4
301021012	Thornlands	QLD	21.7	Metropolitan	14422	Moderate	0.5419	HCLA	4
301021013	Victoria Point	QLD	13.4	Metropolitan	15470	Moderate	0.5307	HCLA	4
301031015	Manly - Lota	QLD	4.0	Metropolitan	7623	High	0.6604	HCMA	4
301031016	Manly West	QLD	5.0	Metropolitan	11719	Moderate	0.6515	HCMA	4
301031017	Murarrie	QLD	8.3	Metropolitan	4304	Moderate	0.6448	HCMA	4
301031018	Tingalpa	QLD	8.9	Metropolitan	9046	High	0.6685	HCMA	4
301031019	Wakerley	QLD	4.9	Metropolitan	9366	High	0.6996	HCMA	4
301031020	Wynnum	QLD	6.1	Metropolitan	13644	Moderate	0.6081	HCMA	4
301031021	Wynnum West - Hemmant	QLD	12.2	Metropolitan	15334	Moderate	0.6273	HCMA	4
302011022	Bald Hills	QLD	13.0	Metropolitan	7483	High	0.6699	HCMA	4
302011023	Bridgeman Downs	QLD	9.5	Metropolitan	8344	High	0.7698	HCMA	4
302011024	Carseldine	QLD	4.6	Metropolitan	9255	High	0.6835	HCMA	4
302011025	Everton Park	QLD	4.2	Metropolitan	9120	Moderate	0.6457	HCMA	4
302011026	McDowall	QLD	4.4	Metropolitan	7847	High	0.7914	HCMA	4

Appendix E (cont.) Data table

SA2 code	SA2 name	State	Area (km2)	Remoteness	Estimated resident population (2015)	ANDRI Quartile	ANDRI	Coping and adaptive capacity	Typology group
302021027	Aspley	QLD	6.3	Metropolitan	12754	High	0.6819	HCMA	4
302021028	Chermside	QLD	3.4	Metropolitan	9364	Moderate	0.5276	MCMA	5
302021029	Chermside West	QLD	3.4	Metropolitan	6481	High	0.6633	HCMA	4
302021030	Geebung	QLD	4.0	Metropolitan	4518	High	0.6677	HCMA	4
302021031	Kedron - Gordon Park	QLD	5.2	Metropolitan	14060	Moderate	0.6317	HCMA	4
302021032	Stafford	QLD	3.4	Metropolitan	6758	Moderate	0.5720	MCMA	4
302021033	Stafford Heights	QLD	2.9	Metropolitan	7064	Moderate	0.6451	MCMA	4
302021034	Wavell Heights	QLD	3.6	Metropolitan	10140	Moderate	0.6349	HCMA	4
302031035	Boondall	QLD	10.9	Metropolitan	9585	High	0.6828	HCMA	4
302031038	Northgate - Virginia	QLD	6.1	Metropolitan	6885	Moderate	0.6454	HCMA	4
302031039	Nudgee - Banyo	QLD	13.3	Metropolitan	9831	Moderate	0.6509	HCMA	4
302031040	Nundah	QLD	3.7	Metropolitan	12348	Moderate	0.5850	MCMA	5
302041041	Bracken Ridge	QLD	8.4	Metropolitan	17565	Moderate	0.6446	HCMA	4
302041042	Brighton (Qld)	QLD	6.5	Metropolitan	9750	Moderate	0.6171	MCMA	4
302041043	Deagon	QLD	2.8	Metropolitan	3741	Moderate	0.6386	HCMA	4
302041044	Sandgate - Shorncliffe	QLD	4.3	Metropolitan	7028	Moderate	0.6356	MCMA	4
302041045	Taigum - Fitzgibbon	QLD	6.3	Metropolitan	11725	Moderate	0.6194	HCMA	4
302041046	Zillmere	QLD	3.7	Metropolitan	9204	Moderate	0.5271	MCMA	5
303011047	Camp Hill	QLD	4.6	Metropolitan	11549	High	0.6689	HCMA	4
303011048	Cannon Hill	QLD	4.0	Metropolitan	5675	Moderate	0.6174	HCMA	4
303011049	Carina	QLD	4.4	Metropolitan	11333	Moderate	0.6490	HCMA	4
303011050	Carina Heights	QLD	3.4	Metropolitan	6715	Moderate	0.6083	MCMA	4
303011051	Carindale	QLD	10.2	Metropolitan	16354	High	0.7609	HCHA	4
303021052	Annerley	QLD	2.9	Metropolitan	12021	Moderate	0.5802	MCMA	5
303021053	Coorparoo	QLD	5.3	Metropolitan	16457	Moderate	0.6271	HCMA	4
303021054	Fairfield - Dutton Park	QLD	2.1	Metropolitan	4977	Moderate	0.5700	MCMA	5
303021055	Greenslopes	QLD	2.9	Metropolitan	9528	Moderate	0.5756	MCMA	5
303021056	Holland Park	QLD	3.3	Metropolitan	8498	Moderate	0.6401	MCMA	4
303021057	Holland Park West	QLD	2.6	Metropolitan	6552	High	0.6914	HCMA	4
303021058	Woolloongabba	QLD	2.4	Metropolitan	5693	Moderate	0.5257	MCMA	5
303021059	Yeronga	QLD	6.1	Metropolitan	9687	Moderate	0.6598	HCMA	4
303031060	Eight Mile Plains	QLD	7.7	Metropolitan	15794	High	0.6623	HCMA	4
303031061	Macgregor (Qld)	QLD	2.7	Metropolitan	6186	Moderate	0.6222	MCMA	5
303031062	Mansfield (Qld)	QLD	5.3	Metropolitan	8985	High	0.6902	HCMA	4
303031063	Mount Gravatt	QLD	7.4	Metropolitan	15291	High	0.6611	HCMA	4
303031064	Rochedale - Burbank	QLD	47.3	Metropolitan	5917	High	0.6625	MCHA	4
303031065	Upper Mount Gravatt	QLD	4.2	Metropolitan	9663	Moderate	0.6049	MCMA	5
303031066	Wishart	QLD	4.8	Metropolitan	11112	High	0.7141	HCMA	4
303041067	Coopers Plains	QLD	4.4	Metropolitan	5447	Moderate	0.5930	HCMA	5
303041068	Moorooka	QLD	4.1	Metropolitan	10778	Moderate	0.6027	MCMA	4
303041069	Robertson	QLD	1.9	Metropolitan	5410	Moderate	0.6277	MCMA	5
303041070	Salisbury - Nathan	QLD	9.6	Metropolitan	7482	Moderate	0.6484	HCMA	4
303041071	Tarragindi	QLD	4.5	Metropolitan	11028	Moderate	0.6561	MCMA	4
303051072	Algester	QLD	3.7	Metropolitan	8745	Moderate	0.5604	MCMA	4
303051073	Calamvale - Stretton	QLD	19.7	Metropolitan	21723	High	0.6768	HCMA	5

Appendix E (cont.) Data table

SA2 code	SA2 name	State	Area (km2)	Remoteness	Estimated resident population (2015)	ANDRI Quartile	ANDRI	Coping and adaptive capacity	Typology group
303051074	Pallara - Willawong	QLD	26.6	Metropolitan	4719	Moderate	0.6456	HCMA	4
303051075	Parkinson - Drewvale	QLD	12.7	Metropolitan	15896	High	0.6881	HCMA	5
303051076	Rocklea - Acacia Ridge	QLD	22.5	Metropolitan	9724	Moderate	0.5157	MCMA	5
303061077	Kuraby	QLD	4.7	Metropolitan	8690	Moderate	0.6393	MCMA	4
303061078	Runcorn	QLD	6.6	Metropolitan	14954	Moderate	0.6457	HCMA	5
303061079	Sunnybank	QLD	4.5	Metropolitan	9289	Moderate	0.6283	MCMA	5
303061080	Sunnybank Hills	QLD	6.4	Metropolitan	19013	High	0.6740	HCMA	4
304011081	Jindalee - Mount Ommaney	QLD	4.8	Metropolitan	7871	High	0.7283	HCMA	4
304011082	Middle Park - Jamboree Heights	QLD	2.7	Metropolitan	7424	High	0.7195	HCMA	4
304011083	Riverhills	QLD	2.2	Metropolitan	4250	Moderate	0.6417	MCMA	4
304011084	Seventeen Mile Rocks - Sinnamon Park	QLD	5.4	Metropolitan	10059	High	0.7496	HCHA	4
304011085	Westlake	QLD	1.9	Metropolitan	4616	High	0.7924	HCHA	4
304021086	Bellbowrie - Moggill	QLD	16.2	Metropolitan	10325	High	0.7660	HCHA	4
304021087	Brookfield - Kenmore Hills	QLD	57.9	Metropolitan	7082	High	0.6908	MCHA	2
304021088	Chapel Hill	QLD	5.4	Metropolitan	10661	High	0.7555	HCHA	4
304021089	Fig Tree Pocket	QLD	4.3	Metropolitan	4177	Moderate	0.6400	MCMA	4
304021090	Kenmore	QLD	5.2	Metropolitan	9055	High	0.7126	HCHA	4
304021091	Pinjarra Hills - Pullenvale	QLD	43.6	Metropolitan	5649	Moderate	0.6287	MCHA	4
304031092	Chelmer - Graceville	QLD	3.2	Metropolitan	7643	High	0.6913	HCMA	4
304031093	Corinda	QLD	2.9	Metropolitan	4972	High	0.6787	HCMA	4
304031094	Indooroopilly	QLD	7.4	Metropolitan	12628	Moderate	0.5927	MCMA	5
304031095	Sherwood	QLD	2.3	Metropolitan	5740	Moderate	0.6590	MCMA	4
304031096	St Lucia	QLD	3.4	Metropolitan	12876	Moderate	0.5208	MCMA	5
304031097	Taringa	QLD	2.1	Metropolitan	8748	Moderate	0.5540	MCMA	5
304041098	Enoggera	QLD	9.3	Metropolitan	8491	Moderate	0.5325	MCMA	5
304041100	Keperra	QLD	5.5	Metropolitan	7387	Moderate	0.6517	HCMA	4
304041101	Mitchelton	QLD	4.2	Metropolitan	8482	Moderate	0.6445	HCMA	4
304041103	The Gap	QLD	12.3	Metropolitan	17086	High	0.7914	HCHA	4
304041104	Upper Kedron - Ferny Grove	QLD	13.2	Metropolitan	10144	High	0.6859	HCMA	4
305011105	Brisbane City	QLD	2.2	Metropolitan	10606	Moderate	0.5031	MCMA	1
305011106	Fortitude Valley	QLD	1.3	Metropolitan	7017	Moderate	0.5253	MCMA	5
305011107	Highgate Hill	QLD	1.2	Metropolitan	6585	Moderate	0.4746	MCMA	5
305011108	Kangaroo Point	QLD	1.3	Metropolitan	8583	Moderate	0.5711	MCMA	5
305011109	New Farm	QLD	2.1	Metropolitan	13453	Moderate	0.5531	MCMA	5
305011110	South Brisbane	QLD	2.0	Metropolitan	7330	Moderate	0.5290	MCMA	5
305011111	Spring Hill	QLD	1.2	Metropolitan	6341	Moderate	0.5154	MCMA	5
305011112	West End	QLD	1.9	Metropolitan	9861	Moderate	0.5244	MCMA	5
305021113	Balmoral	QLD	1.4	Metropolitan	4365	Moderate	0.6152	MCMA	4
305021114	Bulimba	QLD	2.0	Metropolitan	6964	Moderate	0.6503	HCMA	4
305021115	East Brisbane	QLD	1.9	Metropolitan	6099	Moderate	0.5845	MCMA	5
305021116	Hawthorne	QLD	1.4	Metropolitan	5221	Moderate	0.5974	MCMA	4
305021117	Morningside - Seven Hills	QLD	6.5	Metropolitan	13042	Moderate	0.6424	HCMA	4
305021118	Norman Park	QLD	2.3	Metropolitan	6578	Moderate	0.5997	MCMA	4
305031119	Albion	QLD	1.5	Metropolitan	2908	Moderate	0.5477	MCMA	4

Appendix E (cont.) Data table

SA2 code	SA2 name	State	Area (km2)	Remoteness	Estimated resident population (2015)	ANDRI Quartile	ANDRI	Coping and adaptive capacity	Typology group
305031120	Alderley	QLD	2.5	Metropolitan	6224	Moderate	0.6213	MCMA	4
305031121	Ascot	QLD	2.5	Metropolitan	5403	Moderate	0.6146	MCMA	4
305031122	Clayfield	QLD	2.9	Metropolitan	10959	Moderate	0.6121	MCMA	4
305031123	Grange	QLD	1.8	Metropolitan	4393	High	0.6787	HCMA	4
305031124	Hamilton (Qld)	QLD	1.6	Metropolitan	6315	Moderate	0.6161	MCMA	4
305031125	Hendra	QLD	2.7	Metropolitan	4845	Moderate	0.6469	HCMA	4
305031126	Kelvin Grove - Herston	QLD	3.4	Metropolitan	10182	Moderate	0.5361	MCMA	5
305031127	Newmarket	QLD	1.7	Metropolitan	5171	Moderate	0.5963	HCMA	4
305031128	Newstead - Bowen Hills	QLD	3.0	Metropolitan	10365	Moderate	0.5913	MCMA	5
305031129	Wilston	QLD	1.4	Metropolitan	4173	Moderate	0.6417	MCMA	4
305031130	Windsor	QLD	2.9	Metropolitan	7424	Moderate	0.5875	MCMA	5
305031131	Wooloowin - Lutwyche	QLD	3.1	Metropolitan	9940	Moderate	0.5790	MCMA	5
305041132	Ashgrove	QLD	6.5	Metropolitan	13770	High	0.6933	HCMA	4
305041133	Auchenflower	QLD	1.3	Metropolitan	5800	Moderate	0.5409	MCMA	4
305041134	Bardon	QLD	4.7	Metropolitan	10093	High	0.6601	MCHA	4
305041135	Paddington - Milton	QLD	3.6	Metropolitan	11349	Moderate	0.6093	HCMA	4
305041136	Red Hill (Qld)	QLD	1.7	Metropolitan	5988	Moderate	0.6113	HCMA	4
305041137	Toowong	QLD	3.9	Metropolitan	11390	Moderate	0.5832	MCMA	5
306011138	Brinsmead	QLD	5.1	Outer regional	5528	High	0.6683	HCMA	4
306011139	Clifton Beach - Kewarra Beach	QLD	37.5	Outer regional	11043	Moderate	0.5832	MCMA	4
306011140	Freshwater - Stratford	QLD	15.1	Outer regional	3742	Moderate	0.6515	HCMA	4
306011141	Redlynch	QLD	59.4	Outer regional	12917	Moderate	0.6148	MCMA	4
306011142	Trinity Beach - Smithfield	QLD	22.4	Outer regional	13703	Moderate	0.5973	HCMA	5
306011143	Yorkeys Knob - Machans Beach	QLD	21.0	Outer regional	6290	Moderate	0.5900	HCMA	1
306021144	Bentley Park	QLD	6.9	Outer regional	8284	Moderate	0.5485	MCMA	5
306021145	Cairns City	QLD	6.2	Outer regional	11621	Moderate	0.4695	MCLA	1
306021146	Earlville - Bayview Heights	QLD	7.9	Outer regional	8472	High	0.7113	HCMA	4
306021147	Edmonton	QLD	20.0	Outer regional	10918	Moderate	0.5379	MCMA	5
306021148	Gordonvale - Trinity	QLD	326.9	Outer regional	8850	Moderate	0.5839	MCMA	4
306021149	Kanimbla - Mooroobool	QLD	7.7	Outer regional	10005	Moderate	0.6352	HCMA	4
306021151	Manoora	QLD	2.2	Outer regional	6211	Low	0.4255	MCLA	1
306021152	Manunda	QLD	4.2	Outer regional	5524	Moderate	0.4701	MCLA	1
306021153	Mount Sheridan	QLD	6.7	Outer regional	8503	High	0.6693	HCMA	4
306021154	Westcourt - Bungalow	QLD	9.7	Outer regional	6571	Moderate	0.4623	MCLA	1
306021155	White Rock	QLD	9.5	Outer regional	4866	Moderate	0.4894	MCLA	1
306021156	Whitfield - Edge Hill	QLD	6.9	Outer regional	8452	Moderate	0.6443	HCMA	4
306021157	Woree	QLD	5.7	Outer regional	4953	Moderate	0.5079	MCLA	1
306031158	Babinda	QLD	668.8	Outer regional	4284	Moderate	0.5519	MCMA	2
306031159	Innisfail	QLD	53.0	Outer regional	9564	Low	0.4059	MCLA	1
306031160	Johnstone	QLD	1294.4	Outer regional	8009	Low	0.4102	MCLA	3
306031161	Tully	QLD	3062.7	Outer regional	10729	Low	0.3767	LCLA	3
306031163	Yarrabah	QLD	158.8	Outer regional	2695	Low	0.0699	LCLA	3
306041164	Daintree	QLD	2230.9	Outer regional	6412	Low	0.4409	MCLA	3
306041165	Port Douglas	QLD	189.6	Outer regional	5357	Low	0.4148	MCLA	3

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SA2 code	SA2 name	State	Area (km2)	Remoteness	Estimated resident population (2015)	ANDRI Quartile	ANDRI	Coping and adaptive capacity	Typology group
306051166	Atherton	QLD	235.4	Outer regional	10856	Low	0.2594	MCLA	3
306051167	Herberton	QLD	9577.0	Outer regional	5732	Low	0.2207	LCLA	3
306051168	Kuranda	QLD	591.9	Outer regional	4597	Low	0.2755	MCLA	3
306051169	Malanda - Yungaburra	QLD	1255.5	Outer regional	8523	Low	0.2796	MCLA	3
306051170	Mareeba	QLD	479.5	Outer regional	11185	Low	0.2224	LCLA	3
307011171	Balonne	QLD	31106.2	Remote	4610	Low	0.3258	LCLA	3
307011172	Chinchilla	QLD	8049.4	Outer regional	8037	Low	0.3888	MCLA	3
307011173	Goondiwindi	QLD	832.3	Outer regional	6523	Low	0.3747	MCLA	3
307011174	Inglewood - Waggamba	QLD	17511.5	Outer regional	4281	Low	0.3170	LCLA	3
307011175	Miles - Wandoan	QLD	11840.2	Outer regional	4085	Low	0.3598	LCLA	3
307011176	Roma	QLD	77.7	Outer regional	7225	Low	0.4363	MCLA	3
307011177	Roma Region	QLD	58633.6	Remote	6067	Low	0.3274	LCLA	3
307011178	Tara	QLD	13207.8	Outer regional	4326	Low	0.2870	LCLA	3
307021179	Crows Nest - Rosalie	QLD	3250.6	Inner regional	8539	Moderate	0.4522	LCMA	3
307021180	Jondaryan	QLD	2130.3	Inner regional	7698	Low	0.4293	LCLA	3
307021181	Millmerran	QLD	4518.3	Outer regional	3347	Low	0.4056	LCLA	3
307021182	Pittsworth	QLD	1055.0	Inner regional	5745	Moderate	0.4636	MCMA	3
307021183	Wambo	QLD	5702.0	Inner regional	17419	Low	0.3497	LCLA	3
307031184	Clifton - Greenmount	QLD	1263.8	Inner regional	4857	Moderate	0.4525	LCMA	3
307031185	Southern Downs - East	QLD	1634.3	Inner regional	4261	Low	0.3216	LCLA	3
307031186	Southern Downs - West	QLD	2686.4	Inner regional	4662	Low	0.3046	LCLA	3
307031187	Stanthorpe	QLD	33.6	Outer regional	5541	Low	0.3782	MCLA	3
307031188	Stanthorpe Region	QLD	2660.5	Outer regional	5773	Low	0.3422	LCLA	3
307031189	Warwick	QLD	159.1	Inner regional	15417	Low	0.3282	LCLA	3
308011190	Central Highlands - East	QLD	18637.4	Outer regional	7683	Low	0.2422	LCLA	3
308011191	Central Highlands - West	QLD	41548.6	Remote	8498	Low	0.2599	LCLA	3
308011192	Emerald	QLD	39.2	Outer regional	13951	Low	0.3202	MCLA	3
308021193	Agnes Water - Miriam Vale	QLD	3769.2	Outer regional	6074	Low	0.3510	LCLA	3
308021194	Banana	QLD	28527.0	Outer regional	8744	Low	0.3446	MCLA	3
308021195	Biloela	QLD	19.3	Outer regional	5963	Low	0.4231	MCLA	3
308021196	Boyne Island - Tannum Sands	QLD	122.3	Inner regional	10075	Low	0.3924	MCLA	3
308021198	Clinton - New Auckland	QLD	23.1	Inner regional	13961	Low	0.3949	MCLA	3
308021199	Gladstone	QLD	10.1	Inner regional	6366	Low	0.3543	MCLA	1
308021200	Gladstone Hinterland	QLD	6456.4	Inner regional	11988	Low	0.3504	MCLA	3
308021201	Kin Kora - Sun Valley	QLD	2.7	Inner regional	3851	Low	0.4035	HCLA	4
308021203	Telina - Toolooa	QLD	23.4	Inner regional	6340	Low	0.3962	MCLA	3
308021204	West Gladstone	QLD	7.2	Inner regional	5018	Low	0.3689	MCLA	1
308031205	Berserker	QLD	10.0	Inner regional	7176	Low	0.2968	MCLA	1
308031206	Bouldercombe	QLD	1338.7	Inner regional	1936	Low	0.3140	LCLA	3
308031207	Emu Park	QLD	40.8	Inner regional	5403	Low	0.3588	MCLA	3
308031208	Frenchville - Mount Archer	QLD	30.2	Inner regional	9329	Low	0.3640	MCLA	3
308031209	Glenlee - Rockyview	QLD	208.0	Inner regional	5052	Low	0.4041	MCLA	3
308031210	Gracemere	QLD	154.1	Inner regional	11743	Low	0.3723	MCLA	1
308031211	Lakes Creek	QLD	16.8	Inner regional	5145	Low	0.2830	LCLA	1
308031212	Mount Morgan	QLD	490.7	Inner regional	3075	Low	0.1979	LCLA	3

Appendix E (cont.) Data table

SA2 code	SA2 name	State	Area (km2)	Remoteness	Estimated resident population (2015)	ANDRI Quartile	ANDRI	Coping and adaptive capacity	Typology group
308031213	Norman Gardens	QLD	36.1	Inner regional	10161	Low	0.3493	MCLA	3
308031214	Park Avenue	QLD	5.0	Inner regional	5365	Low	0.3377	MCLA	1
308031215	Parkhurst - Kawana	QLD	28.4	Inner regional	7055	Low	0.3572	MCLA	1
308031216	Rockhampton - West	QLD	34.5	Inner regional	6128	Low	0.3053	MCLA	3
308031217	Rockhampton City	QLD	51.2	Inner regional	3447	Low	0.2551	LCLA	1
308031218	Rockhampton Region - East	QLD	680.2	Inner regional	3465	Low	0.3626	MCLA	3
308031219	Rockhampton Region - North	QLD	7566.9	Inner regional	4289	Low	0.3669	MCLA	3
308031220	Rockhampton Region - West	QLD	4359.0	Inner regional	2958	Low	0.3358	MCLA	2
308031222	The Range - Allenstown	QLD	5.5	Inner regional	8508	Low	0.3609	MCLA	1
308031223	Yeppoon	QLD	78.6	Inner regional	18355	Low	0.3945	MCLA	3
309011224	Broadbeach Waters	QLD	5.3	Metropolitan	8087	Moderate	0.5877	MCMA	4
309011225	Burleigh Heads	QLD	8.5	Metropolitan	9019	Moderate	0.6226	HCMA	4
309011226	Burleigh Waters	QLD	6.7	Metropolitan	14584	High	0.6713	HCMA	4
309011227	Mermaid Beach - Broadbeach	QLD	3.0	Metropolitan	12285	Moderate	0.5265	MCMA	5
309011228	Mermaid Waters	QLD	7.1	Metropolitan	12579	Moderate	0.5771	MCMA	5
309011229	Miami	QLD	3.0	Metropolitan	7105	Moderate	0.5938	MCMA	4
309021230	Coolangatta	QLD	1.9	Metropolitan	6026	Moderate	0.4790	MCMA	1
309021231	Currumbin - Tugun	QLD	7.9	Metropolitan	11489	Moderate	0.6091	HCMA	4
309021232	Currumbin Waters	QLD	9.9	Metropolitan	9415	High	0.6961	HCMA	4
309021233	Elanora	QLD	8.9	Metropolitan	12342	High	0.7105	HCMA	4
309021234	Palm Beach	QLD	6.3	Metropolitan	15103	Moderate	0.5899	MCMA	4
309031235	Arundel	QLD	9.7	Metropolitan	10568	Moderate	0.6474	HCMA	5
309031236	Biggera Waters	QLD	3.2	Metropolitan	8423	Moderate	0.5850	MCMA	5
309031237	Coombabah	QLD	11.6	Metropolitan	10497	Moderate	0.5706	MCMA	5
309031238	Labrador	QLD	5.0	Metropolitan	18692	Moderate	0.5320	MCMA	5
309031239	Paradise Point - Hollywell	QLD	5.6	Metropolitan	9563	Moderate	0.6545	HCMA	4
309031240	Runaway Bay	QLD	5.5	Metropolitan	9374	High	0.6762	HCMA	4
309041241	Guanaba - Springbrook	QLD	303.8	Inner regional	4246	Moderate	0.5752	MCMA	2
309041242	Tamborine - Canungra	QLD	524.2	Metropolitan	14387	Moderate	0.4511	MCLA	2
309051243	Currumbin Valley - Tallebudgera	QLD	114.5	Metropolitan	7392	Moderate	0.6212	MCMA	2
309051244	Mudgeeraba - Bonogin	QLD	66.7	Metropolitan	18707	Moderate	0.5733	MCMA	5
309051245	Reedy Creek - Andrews	QLD	8.1	Metropolitan	8014	Moderate	0.6422	HCMA	5
309061246	Carrara	QLD	14.6	Metropolitan	12542	Moderate	0.6264	MCMA	4
309061247	Highland Park	QLD	4.7	Metropolitan	8695	High	0.6954	HCMA	4
309061248	Nerang - Mount Nathan	QLD	61.2	Metropolitan	20701	Moderate	0.5245	MCMA	5
309061249	Pacific Pines - Gaven	QLD	16.5	Metropolitan	18706	Moderate	0.5739	MCMA	5
309061250	Worongary - Tallai	QLD	26.2	Metropolitan	8046	High	0.7313	HCHA	4
309071251	Coomera	QLD	24.4	Metropolitan	12258	Moderate	0.5544	MCMA	5
309071252	Helensvale	QLD	19.9	Metropolitan	17193	High	0.6710	HCMA	4
309071253	Hope Island	QLD	54.9	Metropolitan	11061	High	0.6619	HCMA	4
309071254	Jacobs Well - Alberton	QLD	153.7	Metropolitan	3603	Moderate	0.6284	MCMA	4
309071255	Ormeau - Yatala	QLD	72.1	Metropolitan	19225	Moderate	0.5765	MCMA	5
309071256	Oxenford - Maudsland	QLD	27.0	Metropolitan	15549	Moderate	0.6062	MCMA	5
309071257	Pimpama	QLD	40.5	Metropolitan	7096	Moderate	0.5646	MCMA	5

Appendix E (cont.) Data table

SA2 code	SA2 name	State	Area (km2)	Remoteness	Estimated resident population (2015)	ANDRI Quartile	ANDRI	Coping and adaptive capacity	Typology group
309071258	Upper Coomera - Willow Vale	QLD	126.0	Metropolitan	31059	Moderate	0.4967	MCMA	5
309081259	Clear Island Waters	QLD	4.4	Metropolitan	4234	High	0.7140	HCMA	5
309081260	Merrimac	QLD	8.3	Metropolitan	7171	Moderate	0.6183	HCMA	5
309081261	Robina	QLD	15.0	Metropolitan	23770	High	0.6794	HCMA	5
309081262	Varsity Lakes	QLD	6.0	Metropolitan	15539	Moderate	0.6313	HCMA	5
309091263	Ashmore	QLD	6.8	Metropolitan	12268	High	0.6777	HCMA	4
309091264	Molendinar	QLD	7.7	Metropolitan	6576	Moderate	0.6495	HCMA	5
309091265	Parkwood	QLD	6.2	Metropolitan	8959	High	0.6875	HCMA	4
309091266	Southport	QLD	14.3	Metropolitan	32279	Moderate	0.5312	MCMA	5
309101267	Benowa	QLD	6.6	Metropolitan	8932	High	0.7034	HCMA	4
309101268	Bundall	QLD	3.9	Metropolitan	4626	Moderate	0.6441	HCMA	4
309101269	Main Beach	QLD	3.2	Metropolitan	4064	Moderate	0.6169	HCMA	4
309101270	Surfers Paradise	QLD	5.8	Metropolitan	23967	Moderate	0.4946	MCMA	5
310011271	Darra - Sumner	QLD	8.0	Metropolitan	5092	Moderate	0.6127	HCMA	5
310011272	Durack	QLD	4.5	Metropolitan	8038	Moderate	0.5364	MCMA	1
310011273	Forest Lake - Doolandella	QLD	15.1	Metropolitan	28336	High	0.6705	HCMA	5
310011274	Inala - Richlands	QLD	10.9	Metropolitan	17908	Low	0.4086	MCLA	1
310011275	Oxley (Qld)	QLD	6.9	Metropolitan	7986	High	0.6650	HCMA	4
310011276	Wacol	QLD	18.5	Metropolitan	5803	Low	0.3779	MCLA	1
310021277	Boonah	QLD	2095.4	Inner regional	11962	Low	0.4029	LCLA	3
310021278	Esk	QLD	1890.0	Inner regional	5155	Low	0.2904	LCLA	3
310021280	Lockyer Valley - East	QLD	741.3	Inner regional	19902	Low	0.3524	LCLA	3
310021281	Lowood	QLD	617.8	Inner regional	14084	Low	0.3027	MCLA	3
310021282	Rosewood	QLD	678.4	Inner regional	11750	Moderate	0.4573	LCMA	3
310031283	Brassall	QLD	8.2	Metropolitan	10930	Moderate	0.5372	MCMA	1
310031284	Bundamba	QLD	17.2	Metropolitan	8992	Moderate	0.5135	MCMA	1
310031285	Churchill - Yamanto	QLD	9.4	Metropolitan	6900	Moderate	0.5503	HCMA	4
310031286	Ipswich - Central	QLD	7.8	Metropolitan	6804	Moderate	0.5033	MCLA	1
310031287	Ipswich - East	QLD	11.5	Metropolitan	18234	Moderate	0.5353	MCMA	1
310031288	Ipswich - North	QLD	64.9	Metropolitan	4700	Moderate	0.6031	MCMA	4
310031289	Karalee - Barellan Point	QLD	19.4	Metropolitan	5468	High	0.7228	HCMA	4
310031290	Karana Downs	QLD	62.8	Metropolitan	6250	High	0.6952	HCMA	4
310031291	Leichhardt - One Mile	QLD	20.2	Metropolitan	7670	Low	0.4329	MCLA	1
310031292	North Ipswich - Tivoli	QLD	9.6	Metropolitan	6556	Moderate	0.5191	MCMA	1
310031293	Raceview	QLD	9.1	Metropolitan	15467	Moderate	0.5926	HCMA	5
310031294	Ripley	QLD	130.4	Metropolitan	4305	Moderate	0.6081	MCMA	4
310031295	Riverview	QLD	7.8	Metropolitan	3282	Low	0.3519	LCLA	1
310041296	Bellbird Park - Brookwater	QLD	15.6	Metropolitan	13165	Moderate	0.5627	HCMA	5
310041297	Camira - Gailes	QLD	9.4	Metropolitan	9467	Moderate	0.5678	MCMA	5
310041299	Collingwood Park - Redbank	QLD	15.4	Metropolitan	8642	Moderate	0.5309	MCMA	5
310041300	Goodna	QLD	7.9	Metropolitan	10911	Low	0.4246	MCLA	5
310041302	Redbank Plains	QLD	19.5	Metropolitan	19264	Moderate	0.4636	MCLA	5
310041303	Springfield	QLD	6.7	Metropolitan	6989	Moderate	0.5671	HCMA	5
310041304	Springfield Lakes	QLD	19.0	Metropolitan	14900	Moderate	0.5257	MCMA	5
311011305	Beaudesert	QLD	1628.5	Inner regional	13953	Low	0.3672	LCLA	3

Appendix E (cont.) Data table

SA2 code	SA2 name	State	Area (km2)	Remoteness	Estimated resident population (2015)	ANDRI Quartile	ANDRI	Coping and adaptive capacity	Typology group
311021306	Beenleigh	QLD	7.7	Metropolitan	8515	Low	0.4311	MCLA	5
311021307	Eagleby	QLD	13.8	Metropolitan	13596	Low	0.4250	MCLA	5
311021308	Edens Landing - Holmview	QLD	6.6	Metropolitan	7535	Moderate	0.5083	MCMA	5
311021309	Mount Warren Park	QLD	4.3	Metropolitan	5936	Moderate	0.5508	MCMA	5
311021310	Wolffdene - Bahrs Scrub	QLD	27.9	Metropolitan	6195	Moderate	0.5610	MCMA	5
311031311	Boronia Heights - Park Ridge	QLD	31.9	Metropolitan	12680	Moderate	0.5352	MCMA	5
311031312	Browns Plains	QLD	7.3	Metropolitan	7601	Moderate	0.5120	MCLA	5
311031313	Chambers Flat - Logan Reserve	QLD	36.3	Metropolitan	4893	Moderate	0.4972	MCMA	4
311031314	Crestmead	QLD	7.0	Metropolitan	12187	Moderate	0.4490	MCLA	5
311031316	Hillcrest	QLD	9.3	Metropolitan	8444	Moderate	0.5781	HCMA	5
311031317	Marsden	QLD	6.9	Metropolitan	14378	Low	0.4204	MCLA	5
311031318	Munruben - Park Ridge South	QLD	20.7	Metropolitan	4752	Moderate	0.5549	MCMA	4
311031319	Regents Park - Heritage Park	QLD	9.4	Metropolitan	16466	Moderate	0.5585	HCMA	5
311041320	Greenbank	QLD	258.5	Metropolitan	13162	Moderate	0.4525	LCMA	5
311041321	Jimboomba	QLD	249.7	Inner regional	24967	Moderate	0.5463	MCMA	5
311041322	Logan Village	QLD	74.3	Metropolitan	6890	Moderate	0.5612	MCMA	5
311051323	Bethania - Waterford	QLD	12.6	Metropolitan	10647	Moderate	0.5226	MCMA	5
311051324	Cornubia - Carbrook	QLD	37.6	Metropolitan	8675	High	0.6912	HCMA	4
311051325	Loganholme - Tanah Merah	QLD	13.3	Metropolitan	11452	Moderate	0.6009	HCMA	4
311051326	Loganlea	QLD	11.3	Metropolitan	10543	Moderate	0.5061	MCLA	5
311051327	Shailer Park	QLD	8.0	Metropolitan	12038	High	0.6745	HCMA	4
311051328	Waterford West	QLD	6.0	Metropolitan	7471	Moderate	0.4531	MCLA	5
311061329	Daisy Hill	QLD	9.0	Metropolitan	6934	Moderate	0.5398	MCMA	4
311061330	Kingston	QLD	6.9	Metropolitan	10799	Low	0.4053	MCLA	5
311061331	Logan Central	QLD	5.1	Metropolitan	6485	Low	0.3564	LCLA	1
311061332	Rochedale South - Priestdale	QLD	13.0	Metropolitan	15949	Moderate	0.6522	HCMA	4
311061333	Slacks Creek	QLD	8.3	Metropolitan	10887	Moderate	0.4685	MCLA	5
311061334	Springwood	QLD	6.2	Metropolitan	9472	Moderate	0.5643	HCMA	4
311061335	Underwood	QLD	4.2	Metropolitan	6616	Moderate	0.6199	HCMA	4
311061336	Woodridge	QLD	4.7	Metropolitan	13157	Low	0.3832	MCLA	5
312011337	Bowen	QLD	51.0	Outer regional	9338	Low	0.3527	MCLA	3
312011338	Broadsound - Nebo	QLD	27996.8	Outer regional	9302	Low	0.4108	LCLA	3
312011339	Clermont	QLD	27676.2	Remote	3821	Moderate	0.4527	MCMA	2
312011340	Collinsville	QLD	21078.9	Remote	3707	Low	0.2846	LCLA	3
312011341	Moranbah	QLD	3046.9	Outer regional	9050	Low	0.4084	LCLA	3
312021342	Andergrove - Beaconsfield	QLD	17.5	Inner regional	15222	Moderate	0.4550	HCLA	3
312021343	East Mackay	QLD	4.5	Inner regional	3637	Moderate	0.4462	HCLA	4
312021344	Eimeo - Rural View	QLD	21.9	Inner regional	12453	Low	0.4426	HCLA	3
312021346	Mackay	QLD	4.0	Inner regional	3820	Low	0.3537	MCLA	1
312021347	Mackay Harbour	QLD	9.1	Inner regional	544	Low	0.4301	MCLA	2
312021348	Mount Pleasant - Glenella	QLD	56.5	Inner regional	11037	Moderate	0.5140	HCLA	4
312021349	North Mackay	QLD	9.7	Inner regional	6412	Low	0.4053	MCLA	1
312021350	Ooralea - Bakers Creek	QLD	46.8	Inner regional	5044	Moderate	0.4506	HCLA	4
312021351	Pioneer Valley	QLD	1186.1	Outer regional	8311	Low	0.3979	MCLA	3
312021352	Sarina	QLD	1438.4	Outer regional	11850	Low	0.3950	MCLA	3

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SA2 code	SA2 name	State	Area (km2)	Remoteness	Estimated resident population (2015)	ANDRI Quartile	ANDRI	Coping and adaptive capacity	Typology group
312021353	Seaforth - Calen	QLD	2095.4	Outer regional	8396	Low	0.4141	MCLA	2
312021354	Shoal Point - Bucasia	QLD	16.6	Inner regional	5890	Low	0.4337	HCLA	3
312021355	Slade Point	QLD	8.9	Inner regional	3534	Low	0.4461	HCLA	4
312021356	South Mackay	QLD	6.9	Inner regional	7040	Low	0.3739	MCLA	3
312021357	Walkerston - Eton	QLD	624.5	Outer regional	8638	Low	0.4271	MCLA	2
312021358	West Mackay	QLD	5.8	Inner regional	6450	Low	0.4401	HCLA	4
312031359	Airlie - Whitsundays	QLD	304.0	Outer regional	12996	Low	0.3288	LCLA	3
312031361	Proserpine	QLD	2074.9	Outer regional	8468	Low	0.3633	MCLA	3
313011362	Beachmere - Sandstone Point	QLD	105.6	Metropolitan	15053	Moderate	0.5040	MCMA	3
313011363	Bribie Island	QLD	141.8	Inner regional	18344	Moderate	0.4649	LCMA	3
313021364	Burpengary - East	QLD	26.9	Metropolitan	4022	High	0.6721	HCMA	4
313021365	Caboolture	QLD	74.5	Metropolitan	26840	Moderate	0.4959	MCLA	1
313021366	Caboolture - South	QLD	13.7	Metropolitan	20501	Moderate	0.4916	MCLA	5
313021367	Elimbah	QLD	100.6	Metropolitan	4041	Moderate	0.6274	HCMA	4
313021368	Morayfield - East	QLD	8.5	Metropolitan	8528	Moderate	0.4730	MCLA	1
313021369	Wamuran	QLD	89.4	Metropolitan	3964	Moderate	0.5706	MCMA	4
313031370	Kilcoy	QLD	2862.8	Inner regional	5438	Low	0.2851	LCLA	3
313031371	Woodford - D'Aguilar	QLD	525.0	Inner regional	7922	Moderate	0.4953	MCMA	3
313041372	Burpengary	QLD	22.4	Metropolitan	14093	Moderate	0.6189	HCMA	4
313041373	Deception Bay	QLD	31.2	Metropolitan	22936	Moderate	0.5167	MCLA	5
313041374	Morayfield	QLD	24.9	Metropolitan	4967	High	0.6799	HCMA	4
313041375	Narangba	QLD	37.7	Metropolitan	18632	Moderate	0.6104	HCMA	4
313041376	Upper Caboolture	QLD	55.8	Metropolitan	3275	Moderate	0.5642	MCMA	2
313051377	Clontarf	QLD	6.2	Metropolitan	8407	Moderate	0.5350	MCMA	4
313051378	Margate - Woody Point	QLD	4.3	Metropolitan	11844	Moderate	0.4852	MCLA	1
313051379	Redcliffe	QLD	4.2	Metropolitan	10323	Moderate	0.5002	MCLA	1
313051380	Rothwell - Kippa-Ring	QLD	15.5	Metropolitan	17711	Moderate	0.5737	HCMA	5
313051381	Scarborough - Newport	QLD	8.0	Metropolitan	12265	Moderate	0.6006	HCMA	4
314011382	Albany Creek	QLD	9.9	Metropolitan	16259	High	0.7390	HCMA	4
314011383	Cashmere	QLD	45.2	Metropolitan	18772	Moderate	0.5941	MCMA	4
314011384	Dayboro	QLD	406.9	Inner regional	8481	Moderate	0.6100	MCMA	2
314011385	Eatons Hill	QLD	9.1	Metropolitan	8282	High	0.6902	HCMA	4
314011386	Hills District	QLD	31.7	Metropolitan	24058	High	0.7237	HCMA	4
314011387	Samford Valley	QLD	166.0	Metropolitan	11857	High	0.6889	HCHA	2
314021388	Dakabin - Kallangur	QLD	16.6	Metropolitan	23689	Moderate	0.5605	MCMA	5
314021389	Murrumba Downs - Griffin	QLD	22.4	Metropolitan	16718	Moderate	0.6192	HCMA	4
314021390	North Lakes - Mango Hill	QLD	27.2	Metropolitan	28996	Moderate	0.5713	MCMA	5
314031391	Bray Park	QLD	4.5	Metropolitan	10582	Moderate	0.5544	MCMA	4
314031392	Lawnton	QLD	9.3	Metropolitan	6274	Moderate	0.6047	HCMA	4
314031393	Petrie	QLD	6.7	Metropolitan	8979	High	0.6616	HCMA	4
314031394	Strathpine - Brendale	QLD	17.8	Metropolitan	12379	Moderate	0.6203	HCMA	4
315011395	Aurukun	QLD	7347.2	Very remote	1321	Low	0.0728	LCLA	3
315011396	Cape York	QLD	113022.7	Remote	7583	Low	0.2206	LCLA	3
315011397	Croydon - Etheridge	QLD	68688.1	Very remote	1115	Low	0.2741	LCLA	3
315011398	Kowanyama - Pormpuraaw	QLD	6972.0	Very remote	1760	Low	0.1215	LCLA	3

Appendix E (cont.) Data table

SA2 code	SA2 name	State	Area (km2)	Remoteness	Estimated resident population (2015)	ANDRI Quartile	ANDRI	Coping and adaptive capacity	Typology group
315011399	Northern Peninsula	QLD	1056.9	Very remote	2836	Low	0.1131	LCLA	3
315011400	Tablelands	QLD	52401.5	Outer regional	6030	Low	0.2242	LCLA	3
315011401	Torres	QLD	882.7	Very remote	3753	Low	0.1739	LCLA	3
315011402	Torres Strait Islands	QLD	489.2	Very remote	4731	Low	0.1029	LCLA	3
315011403	Weipa	QLD	16.2	Very remote	3962	Low	0.2690	MCLA	3
315021404	Carpentaria	QLD	114279.0	Very remote	5147	Low	0.1660	LCLA	3
315021405	Mount Isa	QLD	62.8	Remote	20178	Low	0.3127	LCLA	3
315021406	Mount Isa Region	QLD	84072.8	Remote	3584	Low	0.1617	LCLA	3
315021407	Northern Highlands	QLD	108506.6	Very remote	3339	Low	0.2649	LCLA	3
315031408	Barcaldine - Blackall	QLD	83909.7	Very remote	5117	Low	0.2719	LCLA	3
315031409	Charleville	QLD	40698.5	Very remote	4527	Low	0.3323	LCLA	3
315031410	Far Central West	QLD	271262.1	Very remote	2278	Low	0.2885	LCLA	3
315031411	Far South West	QLD	188802.5	Very remote	2974	Low	0.2303	LCLA	3
315031412	Longreach	QLD	40571.7	Very remote	3812	Low	0.2934	MCLA	3
316011413	Buderim - North	QLD	24.0	Metropolitan	16743	High	0.6983	HCMA	4
316011414	Buderim - South	QLD	30.1	Metropolitan	16481	High	0.6937	HCMA	4
316011415	Mountain Creek	QLD	7.4	Metropolitan	10799	Moderate	0.6129	HCMA	4
316011416	Sippy Downs	QLD	14.7	Metropolitan	10329	Moderate	0.6002	HCMA	5
316021417	Aroona - Currimundi	QLD	5.5	Metropolitan	10171	High	0.6666	HCMA	4
316021418	Buddina - Minyama	QLD	4.0	Metropolitan	6670	Moderate	0.6067	HCMA	4
316021419	Caloundra - Kings Beach	QLD	4.0	Metropolitan	6757	Moderate	0.4887	MCLA	1
316021420	Caloundra - West	QLD	71.7	Metropolitan	19585	Moderate	0.6101	MCMA	4
316021421	Golden Beach - Pelican Waters	QLD	10.4	Metropolitan	11758	Moderate	0.6138	HCMA	4
316021422	Moffat Beach - Battery Hill	QLD	3.9	Metropolitan	8101	Moderate	0.5787	MCMA	4
316021423	Parrearra - Warana	QLD	6.9	Metropolitan	9749	Moderate	0.6236	HCMA	4
316021424	Wurtulla - Birtinya	QLD	6.6	Metropolitan	7758	Moderate	0.6388	HCMA	4
316031425	Coolum Beach	QLD	18.1	Metropolitan	14622	Moderate	0.6248	HCMA	4
316031426	Marcoola - Mudjimba	QLD	32.9	Metropolitan	11134	Moderate	0.6170	HCMA	4
316031427	Maroochydore - Kuluin	QLD	14.0	Metropolitan	19681	Moderate	0.5366	MCMA	1
316031428	Mooloolaba - Alexandra Headland	QLD	5.6	Metropolitan	12103	Moderate	0.5556	HCMA	4
316041429	Bli Bli	QLD	44.8	Metropolitan	8182	Moderate	0.6160	HCMA	4
316041430	Diddillibah - Rosemount	QLD	31.2	Inner regional	3817	Moderate	0.6469	HCMA	4
316041431	Eumundi - Yandina	QLD	215.7	Inner regional	10514	Moderate	0.5848	MCMA	2
316041432	Nambour	QLD	54.0	Metropolitan	20008	Moderate	0.6076	HCMA	4
316041433	Noosa Hinterland	QLD	820.1	Inner regional	22284	Moderate	0.4787	MCLA	2
316051434	Noosa Heads	QLD	12.9	Metropolitan	4683	Moderate	0.5144	HCLA	4
316051435	Noosaville	QLD	26.6	Metropolitan	8949	Moderate	0.4788	HCLA	1
316051436	Peregian	QLD	19.7	Metropolitan	10705	Moderate	0.6461	HCMA	4
316051437	Sunshine Beach	QLD	7.2	Metropolitan	6710	Moderate	0.5416	HCLA	4
316051438	Tewantin	QLD	25.7	Metropolitan	10547	Moderate	0.4993	HCLA	1
316061439	Beerwah	QLD	148.2	Inner regional	8152	Moderate	0.5658	MCMA	4
316061440	Caloundra Hinterland	QLD	458.8	Inner regional	8592	Moderate	0.5896	MCMA	2
316061441	Glass House Mountains	QLD	184.1	Inner regional	5853	Moderate	0.5481	MCMA	2
316061442	Landsborough	QLD	134.2	Inner regional	10206	Moderate	0.6439	HCMA	4

Appendix E (cont.) Data table

SA2 code	SA2 name	State	Area (km2)	Remoteness	Estimated resident population (2015)	ANDRI Quartile	ANDRI	Coping and adaptive capacity	Typology group
316061443	Maroochy Hinterland	QLD	526.4	Inner regional	6389	Moderate	0.5670	MCMA	2
316061444	Palmwoods	QLD	115.2	Metropolitan	10782	Moderate	0.6349	MCMA	4
317011445	Cambooya - Wyreema	QLD	227.3	Inner regional	6884	Moderate	0.5449	MCMA	2
317011446	Darling Heights	QLD	12.5	Inner regional	13865	Moderate	0.5485	HCMA	1
317011447	Drayton - Harristown	QLD	16.3	Inner regional	10502	Moderate	0.5258	MCMA	1
317011448	Gatton	QLD	49.9	Inner regional	7631	Low	0.3417	MCLA	1
317011449	Gowrie (Qld)	QLD	80.8	Inner regional	6418	Moderate	0.5675	MCMA	2
317011450	Highfields	QLD	149.4	Inner regional	12987	Moderate	0.6143	MCMA	2
317011451	Lockyer Valley - West	QLD	1480.2	Inner regional	11332	Low	0.4323	MCLA	2
317011452	Middle Ridge	QLD	8.7	Inner regional	7294	Moderate	0.6593	HCMA	4
317011453	Newtown (Qld)	QLD	5.5	Inner regional	9815	Moderate	0.5124	MCLA	1
317011454	North Toowoomba - Harlaxton	QLD	10.3	Inner regional	5938	Moderate	0.4791	MCLA	1
317011455	Rangeville	QLD	8.3	Inner regional	8442	High	0.6615	HCMA	4
317011456	Toowoomba - Central	QLD	9.5	Inner regional	13728	Moderate	0.5382	MCMA	4
317011457	Toowoomba - East	QLD	19.4	Inner regional	10157	Moderate	0.5772	MCMA	4
317011458	Toowoomba - West	QLD	161.3	Inner regional	13000	High	0.6721	HCMA	4
317011459	Wilsonton	QLD	19.0	Inner regional	13502	Moderate	0.5328	HCLA	5
318011460	Ayr	QLD	69.0	Outer regional	9397	Low	0.4225	MCLA	3
318011461	Burdekin	QLD	4879.6	Outer regional	8115	Low	0.3631	MCLA	3
318011462	Charters Towers	QLD	41.7	Outer regional	8391	Low	0.3665	MCLA	3
318011463	Dalrymple	QLD	68331.8	Remote	3844	Low	0.3072	MCLA	3
318011464	Ingham	QLD	41.6	Outer regional	4590	Low	0.3694	MCLA	1
318011465	Ingham Region	QLD	2759.7	Remote	6591	Low	0.3284	MCLA	3
318011466	Palm Island	QLD	70.6	Remote	2550	Low	0.1145	LCLA	3
318021467	Aitkenvale	QLD	3.3	Outer regional	4957	Moderate	0.5578	HCLA	1
318021468	Annandale	QLD	17.9	Outer regional	10238	Moderate	0.5519	MCMA	4
318021469	Belgian Gardens - Pallarenda	QLD	38.9	Outer regional	3421	Moderate	0.6030	HCMA	4
318021470	Bohle Plains	QLD	100.1	Outer regional	7157	Moderate	0.5208	MCMA	2
318021471	Condon - Rasmussen	QLD	46.3	Outer regional	10712	Moderate	0.4970	MCMA	1
318021472	Cranbrook	QLD	3.4	Outer regional	6066	Moderate	0.6301	HCMA	4
318021473	Deeragun	QLD	65.9	Outer regional	21630	Moderate	0.5695	HCMA	1
318021474	Douglas	QLD	79.0	Outer regional	8010	Moderate	0.4545	MCLA	3
318021475	Garbutt - West End	QLD	17.0	Outer regional	6866	Moderate	0.4724	MCLA	1
318021476	Gulliver - Currajong - Vincent	QLD	4.9	Outer regional	7994	Moderate	0.5518	HCLA	1
318021477	Heatley	QLD	2.0	Outer regional	4148	Moderate	0.5151	MCLA	1
318021478	Hermit Park - Rosslea	QLD	3.9	Outer regional	5324	Moderate	0.5450	HCLA	1
318021479	Hyde Park - Pimlico	QLD	3.2	Outer regional	4921	Moderate	0.5451	HCLA	1
318021480	Kelso	QLD	170.3	Outer regional	10791	Moderate	0.4818	MCMA	3
318021481	Kirwan - East	QLD	3.5	Outer regional	8120	Moderate	0.5587	HCLA	1
318021482	Kirwan - West	QLD	9.5	Outer regional	15922	Moderate	0.5820	HCLA	4
318021483	Magnetic Island	QLD	51.1	Outer regional	2408	Moderate	0.5460	MCMA	1
318021484	Mount Louisa	QLD	31.9	Outer regional	9332	Moderate	0.6044	HCMA	4
318021485	Mundingburra	QLD	2.6	Outer regional	3792	Moderate	0.5805	HCLA	4
318021486	Northern Beaches	QLD	1007.4	Outer regional	6412	Moderate	0.5324	MCMA	2

Appendix E (cont.) Data table

SA2 code	SA2 name	State	Area (km2)	Remoteness	Estimated resident population (2015)	ANDRI Quartile	ANDRI	Coping and adaptive capacity	Typology group
318021487	Oonoonba	QLD	9.1	Outer regional	6446	Moderate	0.5198	MCMA	1
318021488	South Townsville - Railway Estate	QLD	8.5	Outer regional	5380	Moderate	0.5261	HCLA	1
318021489	Townsville - South	QLD	2067.6	Outer regional	4327	Moderate	0.6061	MCMA	2
318021490	Townsville City - North Ward	QLD	6.6	Outer regional	9458	Moderate	0.5501	HCLA	1
318021491	Wulguru - Roseneath	QLD	68.3	Outer regional	6233	Moderate	0.4915	MCLA	1
319011492	Ashfield - Kepnock	QLD	8.1	Inner regional	5320	Low	0.3870	MCLA	1
319011493	Bargara - Burnett Heads	QLD	143.9	Inner regional	16787	Low	0.4454	MCLA	3
319011494	Branyan - Kensington	QLD	50.4	Inner regional	4627	Moderate	0.5073	HCLA	4
319011495	Bundaberg	QLD	6.1	Inner regional	6294	Low	0.2966	MCLA	1
319011496	Bundaberg East - Kalkie	QLD	13.7	Inner regional	5524	Low	0.4286	MCLA	1
319011497	Bundaberg North - Gooburrum	QLD	55.0	Inner regional	7352	Low	0.3991	MCLA	1
319011498	Bundaberg Region - North	QLD	1273.3	Inner regional	8860	Low	0.4010	MCLA	3
319011499	Bundaberg Region - South	QLD	2210.6	Inner regional	9784	Low	0.3743	LCLA	3
319011500	Millbank - Avoca	QLD	9.5	Inner regional	7605	Low	0.4410	MCLA	1
319011501	Svensson Heights - Norville	QLD	6.4	Inner regional	5769	Low	0.3926	MCLA	1
319011502	Walkervale - Avenell Heights	QLD	12.5	Inner regional	10879	Low	0.4043	MCLA	1
319021503	Gayndah - Mundubbera	QLD	8508.8	Outer regional	6756	Low	0.2778	LCLA	3
319021504	Gin Gin	QLD	2355.2	Outer regional	5219	Low	0.3064	LCLA	3
319021505	Kingaroy	QLD	70.2	Inner regional	10516	Low	0.4004	MCLA	3
319021506	Kingaroy Region - North	QLD	4333.4	Outer regional	9682	Low	0.2983	LCLA	3
319021507	Kingaroy Region - South	QLD	2369.7	Inner regional	3970	Low	0.3093	LCLA	3
319021508	Monto - Eidsvold	QLD	11158.0	Outer regional	3851	Low	0.2730	LCLA	3
319021509	Nanango	QLD	1648.8	Inner regional	9734	Low	0.3045	LCLA	3
319031511	Cooloola	QLD	1141.3	Inner regional	6237	Low	0.3267	LCLA	3
319031512	Gympie - North	QLD	42.6	Inner regional	14247	Low	0.4062	MCLA	1
319031513	Gympie - South	QLD	26.7	Inner regional	6769	Moderate	0.4832	HCLA	4
319031514	Gympie Region	QLD	2552.1	Inner regional	18480	Low	0.3871	LCLA	3
319031515	Kilkivan	QLD	3214.6	Outer regional	3735	Low	0.3259	LCLA	3
319041516	Booral - River Heads	QLD	158.3	Inner regional	4584	Low	0.3875	MCLA	3
319041517	Craignish - Dundowran Beach	QLD	35.6	Inner regional	4882	Moderate	0.4945	HCLA	4
319041518	Pialba - Eli Waters	QLD	18.7	Inner regional	14016	Low	0.4101	MCLA	1
319041519	Point Vernon	QLD	4.8	Inner regional	5775	Low	0.3584	MCLA	1
319041520	Torquay - Scarness - Kawungan	QLD	10.9	Inner regional	15162	Low	0.3912	MCLA	1
319041521	Urangan - Wondunna	QLD	23.1	Inner regional	12594	Low	0.4209	MCLA	1
319051522	Burrum - Fraser	QLD	2756.8	Inner regional	9647	Low	0.3295	LCLA	3
319051523	Granville	QLD	49.1	Inner regional	3292	Low	0.3123	LCLA	3
319051524	Maryborough (Qld)	QLD	84.2	Inner regional	18504	Low	0.3898	MCLA	1
319051525	Maryborough Region - South	QLD	3821.9	Inner regional	8313	Low	0.3794	LCLA	3
319051526	Tinana	QLD	37.4	Inner regional	5423	Moderate	0.4874	HCLA	3
401011001	Adelaide	SA	10.5	Metropolitan	15840	Moderate	0.5528	MCMA	1
401011002	North Adelaide	SA	5.1	Metropolitan	7245	High	0.6964	MCHA	1
401021003	Adelaide Hills	SA	364.4	Inner regional	6927	High	0.7279	HCHA	2
401021004	Aldgate - Stirling	SA	117.2	Metropolitan	17938	High	0.8219	HCHA	4

Appendix E (cont.) Data table

SA2 code	SA2 name	State	Area (km2)	Remoteness	Estimated resident population (2015)	ANDRI Quartile	ANDRI	Coping and adaptive capacity	Typology group
401021005	Hahndorf - Echunga	SA	110.2	Inner regional	4509	Moderate	0.6297	HCMA	2
401021006	Lobethal - Woodside	SA	202.5	Inner regional	9127	High	0.7458	HCHA	2
401021007	Mount Barker	SA	54.1	Inner regional	17203	Moderate	0.5901	HCMA	2
401021008	Mount Barker Region	SA	395.7	Inner regional	6255	Moderate	0.6184	HCMA	2
401021009	Nairne	SA	24.9	Inner regional	4982	Moderate	0.6312	HCMA	2
401021010	Uraidla - Summertown	SA	119.2	Metropolitan	5524	High	0.7379	HCHA	2
401031011	Burnside - Wattle Park	SA	11.3	Metropolitan	19040	High	0.7372	HCMA	4
401031012	Glenside - Beaumont	SA	9.5	Metropolitan	9746	High	0.7530	HCMA	4
401031013	Toorak Gardens	SA	6.7	Metropolitan	16152	High	0.7148	HCMA	4
401041014	Athelstone	SA	6.2	Metropolitan	9404	High	0.6706	HCMA	4
401041015	Paradise - Newton	SA	9.2	Metropolitan	19937	Moderate	0.6022	HCMA	1
401041016	Rostrevor - Magill	SA	9.9	Metropolitan	21948	Moderate	0.6025	MCMA	1
401051017	Norwood (SA)	SA	3.9	Metropolitan	10356	Moderate	0.6114	HCMA	1
401051018	Payneham - Felixstow	SA	5.2	Metropolitan	12620	Moderate	0.6447	MCMA	1
401051019	St Peters - Marden	SA	6.0	Metropolitan	13393	High	0.6812	HCMA	4
401061020	Nailsworth - Broadview	SA	2.3	Metropolitan	6246	High	0.6904	HCMA	4
401061021	Prospect	SA	5.5	Metropolitan	14850	Moderate	0.6483	HCMA	4
401061022	Walkerville	SA	3.5	Metropolitan	7732	High	0.6627	HCMA	4
401071023	Goodwood - Millswood	SA	7.2	Metropolitan	18090	High	0.7120	HCMA	4
401071024	Unley - Parkside	SA	7.1	Metropolitan	20733	High	0.6962	HCMA	4
402011025	Gawler - North	SA	145.5	Metropolitan	9267	Moderate	0.5959	HCMA	4
402011026	Gawler - South	SA	76.7	Metropolitan	19504	Moderate	0.4894	MCMA	1
402011027	Lewiston - Two Wells	SA	84.6	Inner regional	5612	Moderate	0.5087	MCLA	3
402021028	Craigmore - Blakeview	SA	11.9	Metropolitan	18179	Moderate	0.4736	MCLA	1
402021029	Davoren Park	SA	9.5	Metropolitan	17791	Low	0.3159	LCLA	1
402021030	Elizabeth	SA	9.3	Metropolitan	10411	Low	0.2981	LCLA	1
402021031	Elizabeth East	SA	8.2	Metropolitan	12918	Moderate	0.4462	MCLA	1
402021032	Munno Para West - Angle Vale	SA	44.4	Metropolitan	11409	Moderate	0.4667	MCLA	1
402021033	One Tree Hill	SA	130.2	Metropolitan	2525	Moderate	0.6131	MCMA	2
402021034	Smithfield - Elizabeth North	SA	8.0	Metropolitan	12340	Low	0.3237	LCLA	1
402021035	Virginia - Waterloo Corner	SA	135.1	Metropolitan	4230	Low	0.3683	LCLA	1
402031036	Enfield - Blair Athol	SA	15.2	Metropolitan	23481	Moderate	0.5248	MCMA	1
402031037	Northgate - Oakden - Gilles Plains	SA	11.2	Metropolitan	24242	Moderate	0.6449	MCMA	1
402031038	Windsor Gardens	SA	8.4	Metropolitan	20436	Moderate	0.6223	MCMA	1
402041040	Ingle Farm	SA	7.4	Metropolitan	15126	Moderate	0.5773	MCMA	1
402041041	Para Hills	SA	10.2	Metropolitan	14970	Moderate	0.6144	MCMA	1
402041043	Parafield Gardens	SA	7.0	Metropolitan	16833	Moderate	0.4788	MCLA	1
402041044	Paralowie	SA	8.3	Metropolitan	16773	Low	0.4330	MCLA	1
402041045	Pooraka	SA	17.2	Metropolitan	21099	Moderate	0.5856	MCMA	1
402041046	Salisbury	SA	10.8	Metropolitan	17533	Low	0.4261	MCLA	1
402041047	Salisbury East	SA	14.9	Metropolitan	17637	Moderate	0.5669	MCMA	1
402041048	Salisbury North	SA	31.3	Metropolitan	17211	Low	0.3829	MCLA	1
402051049	Golden Grove	SA	26.6	Metropolitan	10317	Moderate	0.6337	HCMA	2
402051050	Greenwith	SA	6.0	Metropolitan	9172	Moderate	0.5859	MCMA	4

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SA2 code	SA2 name	State	Area (km2)	Remoteness	Estimated resident population (2015)	ANDRI Quartile	ANDRI	Coping and adaptive capacity	Typology group
402051051	Highbury - Dernancourt	SA	12.0	Metropolitan	10650	Moderate	0.6529	HCMA	4
402051052	Hope Valley - Modbury	SA	10.3	Metropolitan	16618	Moderate	0.5959	HCMA	1
402051053	Modbury Heights	SA	9.9	Metropolitan	19292	High	0.6765	HCMA	4
402051054	Redwood Park	SA	14.1	Metropolitan	16216	Moderate	0.6100	MCMA	2
402051055	St Agnes - Ridgehaven	SA	12.3	Metropolitan	12542	High	0.6681	HCMA	4
403011056	Brighton (SA)	SA	5.9	Metropolitan	14152	High	0.6766	HCMA	4
403011057	Glenelg (SA)	SA	7.2	Metropolitan	20590	Moderate	0.6560	HCMA	4
403021058	Edwardstown	SA	5.5	Metropolitan	13672	High	0.6714	MCHA	1
403021059	Hallett Cove	SA	9.3	Metropolitan	12753	High	0.8432	HCHA	4
403021060	Marino - Seaview Downs	SA	12.2	Metropolitan	9493	High	0.7656	HCHA	4
403021061	Mitchell Park	SA	7.6	Metropolitan	15251	High	0.6751	MCHA	1
403021062	Morphettville	SA	6.2	Metropolitan	14756	High	0.6632	MCHA	1
403021063	Sheidow Park - Trott Park	SA	9.4	Metropolitan	10228	High	0.8136	HCHA	4
403021064	Warradale	SA	6.0	Metropolitan	14835	High	0.6612	MCHA	1
403031065	Belair	SA	24.8	Metropolitan	4689	High	0.7776	MCHA	2
403031066	Bellevue Heights	SA	8.7	Metropolitan	7555	High	0.7674	MCHA	4
403031067	Blackwood	SA	16.9	Metropolitan	12147	High	0.8694	HCHA	4
403031068	Colonel Light Gardens	SA	6.8	Metropolitan	15928	High	0.7988	HCHA	4
403031069	Mitcham (SA)	SA	11.4	Metropolitan	16335	High	0.8534	HCHA	4
403031070	Panorama	SA	5.7	Metropolitan	8274	High	0.7725	HCHA	4
403041071	Aberfoyle Park	SA	13.8	Metropolitan	11960	High	0.7391	HCMA	4
403041072	Aldinga	SA	35.3	Metropolitan	15455	Moderate	0.5354	MCMA	1
403041073	Christie Downs	SA	8.6	Metropolitan	9382	Low	0.4216	MCLA	1
403041074	Christies Beach	SA	7.2	Metropolitan	10348	Moderate	0.4872	MCLA	1
403041075	Clarendon	SA	123.4	Inner regional	2731	High	0.6611	MCMA	2
403041076	Coromandel Valley	SA	4.4	Metropolitan	4447	High	0.7251	HCMA	4
403041077	Flagstaff Hill	SA	9.8	Metropolitan	10786	High	0.6927	HCMA	4
403041078	Hackham - Onkaparinga Hills	SA	23.6	Metropolitan	6444	Moderate	0.6018	MCMA	4
403041079	Hackham West - Huntfield Heights	SA	4.4	Metropolitan	7664	Low	0.4215	MCLA	1
403041080	Happy Valley	SA	10.2	Metropolitan	13906	High	0.7042	HCMA	4
403041083	McLaren Vale	SA	119.6	Metropolitan	6071	Moderate	0.6142	MCMA	2
403041084	Morphett Vale - East	SA	7.7	Metropolitan	13742	Moderate	0.5735	MCMA	1
403041085	Morphett Vale - West	SA	5.1	Metropolitan	9539	Moderate	0.5020	MCLA	1
403041086	Reynella	SA	7.7	Metropolitan	10192	Moderate	0.6513	HCMA	4
403041087	Seaford (SA)	SA	23.6	Metropolitan	22074	Moderate	0.6045	MCMA	1
403041088	Willunga	SA	85.2	Inner regional	3448	High	0.7063	HCMA	4
403041089	Woodcroft	SA	13.5	Metropolitan	11519	Moderate	0.6337	MCMA	4
404011090	Beverley	SA	4.2	Metropolitan	7800	Moderate	0.6481	MCMA	1
404011091	Flinders Park	SA	6.4	Metropolitan	14853	High	0.6869	MCHA	1
404011092	Henley Beach	SA	6.0	Metropolitan	15152	High	0.7499	HCHA	4
404011093	Hindmarsh - Brompton	SA	7.9	Metropolitan	18087	Moderate	0.6584	HCMA	1
404011094	Royal Park - Hendon - Albert Park	SA	3.2	Metropolitan	5992	Moderate	0.6455	MCMA	1
404011095	Seaton - Grange	SA	8.3	Metropolitan	16699	High	0.6673	MCHA	1
404011096	West Lakes	SA	8.6	Metropolitan	14789	High	0.7720	HCHA	4

Appendix E (cont.) Data table

SA2 code	SA2 name	State	Area (km2)	Remoteness	Estimated resident population (2015)	ANDRI Quartile	ANDRI	Coping and adaptive capacity	Typology group
404011097	Woodville - Cheltenham	SA	8.8	Metropolitan	17633	Moderate	0.6163	MCMA	1
404021099	Largs Bay - Semaphore	SA	6.7	Metropolitan	14908	High	0.6645	MCHA	1
404021100	North Haven	SA	14.8	Metropolitan	14542	High	0.6855	MCHA	1
404021101	Port Adelaide	SA	13.0	Metropolitan	11016	Moderate	0.5392	MCMA	1
404021102	The Parks	SA	18.3	Metropolitan	18995	Moderate	0.4633	LCMA	1
404031105	Fulham	SA	1.3	Metropolitan	2723	High	0.7338	HCHA	4
404031106	Lockleys	SA	5.7	Metropolitan	13011	High	0.7232	HCHA	4
404031107	Plympton	SA	10.7	Metropolitan	24573	High	0.6964	HCHA	1
404031108	Richmond (SA)	SA	8.9	Metropolitan	16948	Moderate	0.6459	HCMA	1
404031109	West Beach	SA	4.5	Metropolitan	5058	High	0.7403	HCHA	4
405011110	Barossa - Angaston	SA	633.9	Inner regional	6199	Moderate	0.5425	MCMA	2
405011111	Light	SA	1111.7	Inner regional	9013	Moderate	0.5339	MCMA	2
405011112	Lyndoch	SA	175.8	Inner regional	6193	Moderate	0.6210	HCMA	2
405011113	Mallala	SA	847.8	Inner regional	3207	Low	0.4378	MCLA	3
405011114	Nuriootpa	SA	50.6	Inner regional	6567	Moderate	0.5606	HCMA	2
405011115	Tanunda	SA	17.3	Inner regional	4683	Moderate	0.5897	HCMA	2
405021116	Clare	SA	74.2	Outer regional	4157	Moderate	0.5508	MCMA	2
405021117	Gilbert Valley	SA	1675.4	Inner regional	4964	Moderate	0.5356	MCMA	2
405021118	Goyder	SA	6749.0	Outer regional	4274	Low	0.4148	LCLA	3
405021119	Wakefield - Barunga West	SA	5231.2	Inner regional	9583	Low	0.3913	MCLA	3
405031120	Jamestown	SA	3107.0	Outer regional	4655	Moderate	0.4461	MCLA	2
405031121	Peterborough - Mount Remarkable	SA	9643.8	Outer regional	5505	Low	0.3552	LCLA	3
405031122	Port Pirie	SA	75.3	Outer regional	14425	Low	0.4001	MCLA	1
405031123	Port Pirie Region	SA	1583.3	Outer regional	3347	Moderate	0.4578	MCLA	3
405041124	Kadina	SA	394.1	Outer regional	5398	Low	0.4405	MCLA	1
405041125	Moonta	SA	271.9	Outer regional	4826	Moderate	0.4587	MCLA	1
405041126	Wallaroo	SA	146.5	Outer regional	4047	Low	0.3819	MCLA	1
405041127	Yorke Peninsula - North	SA	3654.4	Outer regional	7235	Low	0.4023	LCLA	3
405041128	Yorke Peninsula - South	SA	2273.7	Remote	4032	Low	0.4186	LCLA	3
406011129	Ceduna	SA	413.3	Very remote	2691	Low	0.4097	LCLA	3
406011130	Eyre Peninsula	SA	7228.1	Remote	6643	Moderate	0.4464	LCMA	3
406011131	Kimba - Cleve - Franklin Harbour	SA	13728.3	Remote	4350	Low	0.4406	MCLA	2
406011132	Le Hunte - Elliston	SA	11443.0	Very remote	2318	Moderate	0.4918	MCMA	2
406011133	Port Lincoln	SA	136.3	Remote	16157	Moderate	0.5014	MCMA	1
406011134	West Coast (SA)	SA	31020.9	Very remote	3679	Low	0.3866	LCLA	3
406011135	Western	SA	168690.3	Very remote	86	Low	0.1643	LCLA	3
406011136	Whyalla	SA	40.9	Outer regional	22591	Low	0.4364	MCLA	1
406021138	APY Lands	SA	102331.5	Very remote	2568	Low	0.0684	LCLA	3
406021139	Coober Pedy	SA	77.7	Very remote	1822	Low	0.4228	MCLA	1
406021140	Flinders Ranges	SA	22511.9	Outer regional	2227	Moderate	0.4627	MCLA	3
406021141	Outback	SA	519520.0	Very remote	2912	Low	0.3089	LCLA	3
406021142	Port Augusta	SA	249.3	Outer regional	14130	Low	0.3914	MCLA	1
406021143	Roxby Downs	SA	281.2	Remote	4335	Moderate	0.5234	HCLA	4
407011144	Goolwa - Port Elliot	SA	180.6	Inner regional	11287	Moderate	0.5144	MCMA	3

Appendix E (cont.) Data table

SA2 code	SA2 name	State	Area (km2)	Remoteness	Estimated resident population (2015)	ANDRI Quartile	ANDRI	Coping and adaptive capacity	Typology group
407011145	Kangaroo Island	SA	4400.7	Remote	4761	Moderate	0.4897	MCMA	2
407011146	Strathalbyn	SA	155.8	Inner regional	7212	Moderate	0.5414	MCMA	2
407011147	Strathalbyn Region	SA	1518.6	Inner regional	7438	Moderate	0.5518	MCMA	2
407011148	Victor Harbor	SA	128.3	Inner regional	14564	Moderate	0.5614	MCMA	2
407011149	Yankalilla	SA	980.0	Inner regional	5683	Moderate	0.4777	LCMA	3
407021150	Grant	SA	1691.1	Outer regional	5846	Moderate	0.4885	MCMA	2
407021151	Kingston - Robe	SA	4431.4	Outer regional	3826	Moderate	0.4849	MCMA	2
407021152	Millicent	SA	177.4	Outer regional	5393	Low	0.4413	MCLA	3
407021153	Mount Gambier	SA	193.3	Outer regional	29405	Moderate	0.5656	MCMA	1
407021154	Naracoorte	SA	115.2	Outer regional	6209	Moderate	0.4649	MCLA	3
407021155	Naracoorte Region	SA	4404.9	Outer regional	2361	Moderate	0.5154	MCMA	2
407021156	Penola	SA	1514.5	Outer regional	3224	Moderate	0.4633	MCLA	3
407021157	Tatiara	SA	6527.2	Outer regional	6821	Moderate	0.4821	MCMA	3
407021158	Wattle Range	SA	2281.9	Outer regional	3355	Moderate	0.4847	MCMA	3
407031159	Barmera	SA	590.7	Outer regional	6692	Low	0.4116	MCLA	3
407031160	Berri	SA	12.1	Outer regional	4199	Low	0.4084	MCLA	1
407031161	Karoonda - Lameroo	SA	10548.6	Remote	3089	Low	0.3910	LCLA	3
407031162	Loxton	SA	146.1	Outer regional	5482	Moderate	0.4629	MCLA	3
407031163	Loxton Region	SA	4790.4	Outer regional	1738	Low	0.4189	MCLA	3
407031164	Mannum	SA	3287.9	Inner regional	6241	Low	0.4289	LCLA	3
407031165	Murray Bridge	SA	97.5	Inner regional	17963	Low	0.3935	MCLA	1
407031166	Murray Bridge Region	SA	1924.5	Inner regional	3653	Moderate	0.4542	MCLA	3
407031167	Renmark	SA	14.7	Outer regional	4765	Low	0.3871	MCLA	1
407031168	Renmark Region	SA	901.2	Outer regional	4957	Low	0.4217	MCLA	3
407031169	The Coorong	SA	8644.0	Outer regional	5558	Low	0.3979	LCLA	3
407031170	Waikerie	SA	5793.0	Outer regional	6708	Low	0.3947	LCLA	3
501011001	Augusta	WA	2106.6	Inner regional	5378	Moderate	0.4846	LCMA	2
501011002	Busselton	WA	196.2	Inner regional	26426	Moderate	0.5080	MCMA	2
501011003	Busselton Region	WA	1227.0	Inner regional	10440	Moderate	0.5051	LCMA	2
501011004	Margaret River	WA	134.4	Inner regional	9041	Moderate	0.4660	LCMA	2
501021005	Australind - Leschenault	WA	67.3	Inner regional	17559	Low	0.4453	MCLA	3
501021006	Bunbury	WA	19.3	Inner regional	17862	Moderate	0.5474	MCMA	4
501021007	Capel	WA	507.0	Inner regional	5231	Low	0.4438	LCMA	2
501021008	College Grove - Carey Park	WA	9.7	Inner regional	6968	Moderate	0.5209	MCMA	5
501021009	Collie	WA	1710.0	Inner regional	9132	Low	0.3253	LCMA	3
501021010	Dardanup	WA	517.2	Inner regional	3227	Low	0.4006	LCLA	2
501021012	Eaton - Pelican Point	WA	10.0	Inner regional	11855	Moderate	0.4626	MCLA	3
501021013	Gelorup - Dalyellup - Stratham	WA	81.6	Inner regional	12093	Moderate	0.4541	MCMA	2
501021014	Harvey	WA	1660.9	Inner regional	9097	Low	0.2843	LCLA	3
501021015	Koombana	WA	23.0	Inner regional	7139	Moderate	0.5283	MCMA	5
501021016	Waroona	WA	831.8	Inner regional	4133	Low	0.2654	LCLA	3
501031017	Bridgetown - Boyup Brook	WA	4165.9	Outer regional	6408	Low	0.3928	LCLA	2
501031018	Donnybrook - Balingup	WA	1560.0	Inner regional	5949	Moderate	0.4599	LCMA	2
501031019	Manjimup	WA	323.8	Outer regional	5623	Low	0.3011	LCLA	3
501031020	Pemberton	WA	9637.0	Outer regional	5131	Low	0.3828	LCLA	3

Appendix E (cont.) Data table

SA2 code	SA2 name	State	Area (km2)	Remoteness	Estimated resident population (2015)	ANDRI Quartile	ANDRI	Coping and adaptive capacity	Typology group
502011021	Dawesville - Bouvard	WA	97.9	Metropolitan	7034	Moderate	0.4607	MCMA	3
502011022	Falcon - Wannanup	WA	9.4	Metropolitan	8975	Moderate	0.5229	MCMA	3
502011023	Greenfields	WA	10.0	Metropolitan	10182	Moderate	0.5030	MCLA	5
502011024	Halls Head - Erskine	WA	13.8	Metropolitan	19092	Moderate	0.5958	HCMA	4
502011025	Mandurah	WA	8.4	Metropolitan	9502	Low	0.3236	LCLA	3
502011026	Mandurah - East	WA	40.1	Metropolitan	5868	Moderate	0.4588	MCLA	3
502011027	Mandurah - North	WA	31.8	Metropolitan	17556	Moderate	0.5134	MCMA	5
502011028	Mandurah - South	WA	11.7	Metropolitan	10394	Low	0.3812	LCLA	3
502011029	Pinjarra	WA	808.8	Inner regional	9688	Low	0.3550	LCLA	3
503011030	City Beach	WA	9.8	Metropolitan	6999	Moderate	0.6472	MCHA	2
503011031	Claremont (WA)	WA	3.9	Metropolitan	8583	Moderate	0.5479	MCMA	2
503011032	Cottesloe	WA	3.8	Metropolitan	8033	Moderate	0.5498	MCMA	2
503011033	Floreat	WA	4.4	Metropolitan	8233	Moderate	0.5500	MCMA	2
503011034	Mosman Park - Peppermint Grove	WA	5.4	Metropolitan	10897	Moderate	0.5146	LCMA	2
503011035	Nedlands - Dalkeith - Crawley	WA	9.8	Metropolitan	19638	Moderate	0.6365	LCHA	2
503011036	Swanbourne - Mount Claremont	WA	11.7	Metropolitan	9034	Moderate	0.6526	MCHA	2
503021038	Mount Hawthorn - Leederville	WA	3.9	Metropolitan	11260	Moderate	0.5106	LCMA	3
503021039	Mount Lawley - Inglewood	WA	7.1	Metropolitan	17353	Moderate	0.5514	LCHA	5
503021040	North Perth	WA	3.1	Metropolitan	9219	Moderate	0.4965	LCMA	3
503021041	Perth City	WA	10.9	Metropolitan	33122	Moderate	0.5108	LCHA	5
503021042	Subiaco - Shenton Park	WA	7.8	Metropolitan	17147	Moderate	0.5997	LCHA	5
503021043	Wembley - West Leederville - Glendalough	WA	6.6	Metropolitan	18710	Moderate	0.4731	LCMA	3
504011044	Bassendean - Eden Hill - Ashfield	WA	10.3	Metropolitan	15842	Moderate	0.4601	MCLA	4
504011045	Bayswater - Embleton - Bedford	WA	13.8	Metropolitan	23905	Moderate	0.5736	MCHA	4
504011046	Maylands	WA	5.0	Metropolitan	13332	Moderate	0.4919	LCMA	5
504011047	Morley	WA	10.6	Metropolitan	22665	Moderate	0.5700	LCHA	5
504011048	Noranda	WA	4.9	Metropolitan	8473	High	0.7374	HCHA	4
504021049	Chidlow	WA	167.7	Inner regional	4783	Low	0.3194	LCLA	3
504021050	Glen Forrest - Darlington	WA	56.8	Metropolitan	7446	Moderate	0.5994	MCHA	2
504021051	Helena Valley - Koongamia	WA	8.8	Metropolitan	5409	Moderate	0.6289	MCMA	2
504021053	Mundaring	WA	118.7	Metropolitan	13317	Moderate	0.6096	MCMA	2
504021054	Swan View - Greenmount - Midvale	WA	15.1	Metropolitan	12602	Moderate	0.4916	MCMA	2
504031056	Ballajura	WA	23.8	Metropolitan	19944	Moderate	0.6251	MCHA	5
504031057	Beechboro	WA	47.1	Metropolitan	18407	Moderate	0.5623	MCMA	5
504031058	Bullsbrook	WA	253.9	Inner regional	5094	Moderate	0.5594	MCMA	5
504031059	Ellenbrook	WA	37.8	Metropolitan	34068	Moderate	0.6450	MCMA	5
504031060	Gidgegannup	WA	304.9	Inner regional	2838	High	0.7204	MCHA	2
504031061	Hazelmere - South Guildford	WA	17.0	Metropolitan	4265	Moderate	0.6513	MCHA	4
504031062	Lockridge - Kiara	WA	14.6	Metropolitan	10455	Moderate	0.5753	MCMA	5
504031065	Middle Swan - Herne Hill	WA	32.2	Metropolitan	5618	Moderate	0.6198	MCMA	4
504031066	Midland - Guildford	WA	11.7	Metropolitan	10954	Moderate	0.4668	LCMA	5

Appendix E (cont.) Data table

SA2 code	SA2 name	State	Area (km2)	Remoteness	Estimated resident population (2015)	ANDRI Quartile	ANDRI	Coping and adaptive capacity	Typology group
504031067	Stratton - Jane Brook	WA	23.7	Metropolitan	7085	Moderate	0.6177	MCMA	5
504031068	The Vines	WA	66.8	Metropolitan	9349	Moderate	0.5668	LCHA	2
505011070	Craigie - Beldon	WA	7.1	Metropolitan	10247	High	0.7169	HCHA	4
505011071	Currambine - Kinross	WA	6.0	Metropolitan	14555	High	0.7677	HCHA	5
505011072	Duncraig	WA	7.6	Metropolitan	15951	High	0.7582	MCHA	4
505011073	Greenwood - Warwick	WA	8.6	Metropolitan	14068	High	0.6929	MCHA	4
505011074	Heathridge - Connolly	WA	6.6	Metropolitan	10980	High	0.7653	HCHA	4
505011075	Hillarys	WA	6.3	Metropolitan	11476	High	0.8694	HCHA	4
505011076	Iluka - Burns Beach	WA	5.8	Metropolitan	8873	Moderate	0.6123	MCHA	4
505011077	Joondalup - Edgewater	WA	15.6	Metropolitan	14530	High	0.7186	HCHA	5
505011078	Kingsley	WA	7.9	Metropolitan	13693	High	0.8440	HCHA	4
505011079	Mullaloo - Kallaroo	WA	5.9	Metropolitan	11781	High	0.8580	HCHA	4
505011080	Ocean Reef	WA	5.3	Metropolitan	8353	High	0.8517	HCHA	4
505011081	Padbury	WA	6.0	Metropolitan	8701	High	0.6862	MCHA	4
505011082	Sorrento - Marmion	WA	4.6	Metropolitan	10209	High	0.8403	HCHA	4
505011083	Woodvale	WA	7.2	Metropolitan	9725	High	0.9096	HCHA	4
505021084	Balcatta - Hamersley	WA	10.4	Metropolitan	16031	Moderate	0.6089	MCHA	4
505021085	Balga - Mirrabooka	WA	9.4	Metropolitan	20786	Moderate	0.4832	MCMA	5
505021086	Dianella	WA	11.5	Metropolitan	25213	High	0.7206	MCHA	4
505021088	Innaloo - Doubleview	WA	5.6	Metropolitan	17400	High	0.6891	MCHA	5
505021089	Karrinyup - Gwelup - Carine	WA	14.1	Metropolitan	21074	High	0.7656	HCHA	4
505021090	Nollamara - Westminster	WA	6.0	Metropolitan	18520	Moderate	0.5399	MCMA	5
505021092	Scarborough	WA	5.0	Metropolitan	16481	High	0.6671	MCMA	5
505021093	Stirling - Osborne Park	WA	6.5	Metropolitan	14432	Moderate	0.6010	MCHA	4
505021094	Trigg - North Beach - Watermans Bay	WA	5.8	Metropolitan	7967	High	0.6828	MCHA	4
505021095	Tuart Hill - Joondanna	WA	3.6	Metropolitan	12539	Moderate	0.5811	MCMA	5
505021096	Wembley Downs - Churchlands - Woodlands	WA	8.0	Metropolitan	14524	High	0.7348	MCHA	4
505021097	Yokine - Coolbinia - Menora	WA	6.9	Metropolitan	16454	Moderate	0.6115	MCHA	5
505031098	Alexander Heights - Koondoola	WA	6.7	Metropolitan	12387	Moderate	0.4920	MCMA	5
505031099	Butler - Merriwa - Ridgewood	WA	9.6	Metropolitan	23995	Moderate	0.4758	MCLA	5
505031100	Carramar	WA	30.0	Metropolitan	16376	Low	0.4241	LCMA	5
505031101	Clarkson	WA	10.8	Metropolitan	13461	Moderate	0.4552	MCLA	5
505031102	Girrawheen	WA	4.1	Metropolitan	9155	Low	0.3557	LCLA	5
505031103	Madeley - Darch - Landsdale	WA	20.4	Metropolitan	25569	Moderate	0.5518	MCMA	4
505031104	Marangaroo	WA	4.8	Metropolitan	11067	Moderate	0.4543	MCMA	5
505031105	Mindarie - Quinns Rocks - Jindalee	WA	12.6	Metropolitan	19511	Moderate	0.5456	MCMA	5
505031107	Tapping - Ashby - Sinagra	WA	47.8	Metropolitan	13775	Moderate	0.5693	MCMA	5
505031108	Wanneroo	WA	41.7	Metropolitan	26573	Moderate	0.5592	MCMA	3
505031109	Yanchep	WA	477.9	Inner regional	16192	Low	0.4023	LCMA	3
506011110	Armadale - Wungong - Brookdale	WA	25.4	Metropolitan	19407	Low	0.4230	LCMA	5
506011112	Camillo - Champion Lakes	WA	8.2	Metropolitan	5693	Moderate	0.4727	LCMA	5
506011113	Forrestdale - Harrisdale - Piara Waters	WA	44.2	Metropolitan	16973	Moderate	0.5906	MCMA	5

Appendix E (cont.) Data table

SA2 code	SA2 name	State	Area (km2)	Remoteness	Estimated resident population (2015)	ANDRI Quartile	ANDRI	Coping and adaptive capacity	Typology group
506011114	Kelmscott	WA	15.0	Metropolitan	10808	Moderate	0.5280	LCMA	4
506011115	Mount Nasura - Mount Richon - Bedfordale	WA	61.1	Metropolitan	8137	High	0.6927	MCHA	4
506011116	Roleystone	WA	74.8	Metropolitan	7240	Moderate	0.6298	MCHA	2
506011117	Seville Grove	WA	4.6	Metropolitan	10579	Moderate	0.5178	MCMA	5
506021118	Belmont - Ascot - Redcliffe	WA	10.8	Metropolitan	14897	Moderate	0.4772	MCMA	5
506021119	East Victoria Park - Carlisle	WA	6.3	Metropolitan	17282	Moderate	0.5666	MCMA	5
506021122	Rivervale - Kewdale - Cloverdale	WA	10.2	Metropolitan	26114	Low	0.4140	LCMA	5
506021123	Victoria Park - Lathlain - Burswood	WA	7.6	Metropolitan	15250	Moderate	0.5018	LCHA	5
506031124	Bentley - Wilson - St James	WA	11.1	Metropolitan	21091	Moderate	0.5591	MCMA	5
506031125	Canning Vale - West	WA	8.7	Metropolitan	10586	High	0.7445	HCHA	5
506031127	Cannington - Queens Park	WA	9.5	Metropolitan	18691	Moderate	0.5667	MCMA	5
506031128	Parkwood - Ferndale - Lynwood	WA	8.6	Metropolitan	14402	Moderate	0.5846	MCHA	4
506031129	Riverton - Shelley - Rossmoyne	WA	6.4	Metropolitan	13996	Moderate	0.6565	MCHA	4
506031131	Willetton	WA	8.8	Metropolitan	18784	High	0.7946	HCHA	4
506041132	Beckenham - Kenwick - Langford	WA	18.9	Metropolitan	19532	Moderate	0.4655	MCMA	5
506041133	Canning Vale - East	WA	9.9	Metropolitan	23921	Moderate	0.5826	MCMA	5
506041134	Gosnells	WA	15.5	Metropolitan	20857	Low	0.3788	LCLA	3
506041135	Huntingdale - Southern River	WA	18.0	Metropolitan	19155	Moderate	0.5352	MCMA	5
506041136	Maddington - Orange Grove - Martin	WA	53.3	Metropolitan	13906	Low	0.3271	LCLA	3
506041137	Thornlie	WA	11.6	Metropolitan	24349	Moderate	0.4757	LCMA	4
506051138	Forrestfield - Wattle Grove	WA	26.9	Metropolitan	19187	Moderate	0.4859	MCMA	3
506051139	High Wycombe	WA	8.7	Metropolitan	12658	Moderate	0.5604	MCMA	4
506051140	Kalamunda - Maida Vale - Gooseberry Hill	WA	28.1	Metropolitan	15444	Moderate	0.6164	MCHA	2
506051141	Lesmurdie - Bickley - Carmel	WA	220.0	Metropolitan	12009	Moderate	0.5183	LCHA	2
506061142	Byford	WA	29.4	Metropolitan	14565	Moderate	0.4877	MCLA	3
506061143	Mundijong	WA	286.6	Metropolitan	6465	Moderate	0.4567	LCMA	2
506061144	Serpentine - Jarrahdale	WA	591.7	Inner regional	4511	Moderate	0.4548	LCMA	2
506071145	Como	WA	6.4	Metropolitan	14671	Moderate	0.5698	MCHA	4
506071146	Manning - Waterford	WA	6.2	Metropolitan	11914	High	0.7031	MCHA	5
506071147	South Perth - Kensington	WA	7.8	Metropolitan	17567	Moderate	0.5808	LCHA	4
507011148	Banjup	WA	29.7	Metropolitan	17662	Moderate	0.6581	MCHA	5
507011149	Beeliar	WA	12.3	Metropolitan	7610	Moderate	0.5177	MCMA	5
507011152	Coogee	WA	10.4	Metropolitan	9086	Moderate	0.5842	MCHA	4
507011153	Coolbellup	WA	4.5	Metropolitan	8377	Moderate	0.6148	MCHA	5
507011154	Hamilton Hill	WA	6.6	Metropolitan	10936	Moderate	0.4900	LCMA	5
507011156	Jandakot	WA	8.2	Metropolitan	2631	High	0.7849	HCHA	4
507011158	North Coogee	WA	2.8	Metropolitan	2103	Moderate	0.5684	HCMA	4
507011159	South Lake - Cockburn Central	WA	8.9	Metropolitan	11882	High	0.6838	HCMA	5
507011160	Spearwood	WA	6.5	Metropolitan	10407	Moderate	0.5017	LCMA	5
507011161	Success - Hammond Park	WA	8.9	Metropolitan	14935	Moderate	0.5780	MCMA	5
507011162	Wattleup	WA	16.4	Metropolitan	688	Moderate	0.5259	MCMA	5

Appendix E (cont.) Data table

SA2 code	SA2 name	State	Area (km2)	Remoteness	Estimated resident population (2015)	ANDRI Quartile	ANDRI	Coping and adaptive capacity	Typology group
507011163	Yangebup	WA	6.0	Metropolitan	7772	Moderate	0.6477	MCMA	5
507021164	East Fremantle	WA	3.1	Metropolitan	7731	Moderate	0.5564	MCMA	2
507021165	Fremantle	WA	29.2	Metropolitan	15615	Moderate	0.4950	MCMA	3
507021166	Fremantle - South	WA	7.3	Metropolitan	15081	Moderate	0.5165	MCMA	3
507031168	Anketell - Wandi	WA	26.1	Metropolitan	2853	Moderate	0.4953	MCMA	3
507031169	Bertram - Wellard (West)	WA	12.4	Metropolitan	13139	Low	0.3953	MCLA	5
507031170	Calista	WA	15.1	Metropolitan	7850	Low	0.3158	LCLA	1
507031171	Casuarina - Wellard (East)	WA	17.0	Metropolitan	2857	Low	0.3966	MCLA	3
507031174	Parmelia - Orelia	WA	7.8	Metropolitan	11358	Low	0.3856	MCLA	5
507041175	Applecross - Ardross	WA	5.4	Metropolitan	11633	High	0.7877	HCHA	4
507041176	Bateman	WA	2.0	Metropolitan	3932	High	0.7010	MCHA	2
507041177	Bicton - Palmyra	WA	6.3	Metropolitan	14366	High	0.7699	HCHA	4
507041178	Booragoon	WA	6.8	Metropolitan	15214	High	0.7033	MCHA	4
507041179	Bull Creek	WA	4.2	Metropolitan	8160	High	0.6947	MCHA	4
507041180	Leeming	WA	6.7	Metropolitan	11408	High	0.8615	HCHA	4
507041181	Melville	WA	7.9	Metropolitan	17034	High	0.6785	MCHA	4
507041182	Murdoch - Kardinya	WA	8.6	Metropolitan	12994	High	0.7902	HCHA	4
507041183	Willagee	WA	2.1	Metropolitan	5128	Moderate	0.4876	LCMA	5
507041184	Winthrop	WA	3.5	Metropolitan	6394	High	0.8904	HCHA	4
507051185	Baldivis	WA	141.0	Metropolitan	30591	Moderate	0.4793	MCLA	3
507051186	Cooloongup	WA	5.0	Metropolitan	9047	Moderate	0.4552	MCLA	5
507051187	Port Kennedy	WA	21.2	Metropolitan	14541	Moderate	0.4894	MCLA	5
507051188	Rockingham	WA	35.7	Metropolitan	16028	Low	0.4366	MCLA	3
507051190	Safety Bay - Shoalwater	WA	7.2	Metropolitan	11978	Moderate	0.4742	MCMA	3
507051191	Singleton - Golden Bay - Secret Harbour	WA	14.5	Metropolitan	19606	Moderate	0.5319	MCMA	5
507051192	Waikiki	WA	5.8	Metropolitan	12833	Moderate	0.5031	MCLA	5
507051193	Warnbro	WA	5.6	Metropolitan	11377	Moderate	0.4981	MCLA	5
508011194	Esperance	WA	479.9	Remote	12519	Low	0.4156	LCLA	2
508011195	Esperance Region	WA	55408.3	Very remote	4122	Low	0.3377	LCLA	3
508021196	Carnarvon	WA	78.2	Remote	5448	Low	0.2894	LCLA	3
508021197	Exmouth	WA	134986.0	Very remote	4388	Low	0.3683	LCMA	3
508031198	Boulder	WA	13.1	Outer regional	7705	Low	0.2989	LCLA	3
508031199	Kalgoorlie	WA	23.5	Outer regional	14526	Low	0.3954	MCLA	3
508031200	Kalgoorlie - North	WA	31.1	Outer regional	9283	Low	0.4287	MCLA	3
508031202	Kambalda - Coolgardie - Norseman	WA	217989.9	Remote	5027	Low	0.1814	LCLA	3
508031203	Leinster - Leonora	WA	496740.6	Very remote	5334	Low	0.1424	LCLA	3
508041205	Broome	WA	50.0	Remote	14613	Low	0.4195	LCLA	3
508041206	Derby - West Kimberley	WA	110883.6	Very remote	8543	Low	0.1501	LCLA	3
508041207	Halls Creek	WA	135357.6	Very remote	3663	Low	0.1510	LCLA	3
508041208	Kununurra	WA	117663.8	Remote	7783	Low	0.3204	LCLA	3
508041209	Roebuck	WA	55602.9	Very remote	2464	Low	0.1748	LCLA	3
508051210	Geraldton	WA	21.2	Outer regional	12476	Low	0.3620	MCLA	3
508051211	Geraldton - East	WA	80.8	Outer regional	8200	Low	0.3096	MCLA	3
508051212	Geraldton - North	WA	142.8	Outer regional	7766	Low	0.3390	LCLA	3

Appendix E (cont.) Data table

SA2 code	SA2 name	State	Area (km2)	Remoteness	Estimated resident population (2015)	ANDRI Quartile	ANDRI	Coping and adaptive capacity	Typology group
508051213	Geraldton - South	WA	25.9	Outer regional	10263	Low	0.3581	LCLA	3
508051214	Irwin	WA	2372.0	Outer regional	3662	Low	0.4001	LCMA	3
508051215	Meekatharra	WA	414506.0	Very remote	3540	Low	0.2195	LCLA	3
508051216	Morawa	WA	23462.5	Remote	4234	Low	0.2914	LCLA	3
508051217	Northampton - Mullewa - Greenough	WA	26218.7	Remote	6023	Low	0.3463	LCLA	3
508061218	Ashburton (WA)	WA	100970.1	Very remote	13002	Low	0.2390	LCLA	3
508061219	East Pilbara	WA	389540.9	Very remote	7505	Low	0.1853	LCLA	3
508061220	Karratha	WA	134.2	Remote	17073	Low	0.3775	MCLA	3
508061221	Newman	WA	17.0	Very remote	4824	Low	0.2833	LCLA	3
508061222	Port Hedland	WA	94.2	Remote	4656	Low	0.4106	MCLA	3
508061223	Roebourne	WA	15101.3	Remote	6030	Low	0.2231	LCLA	3
508061224	South Hedland	WA	22.3	Remote	9931	Low	0.2716	LCLA	3
509011225	Albany	WA	30.5	Outer regional	14663	Low	0.4109	LCLA	3
509011226	Albany Region	WA	4010.1	Outer regional	3439	Moderate	0.4609	LCMA	2
509011227	Bayonet Head - Lower King	WA	24.9	Outer regional	4897	Moderate	0.4721	MCLA	2
509011228	Denmark	WA	1859.9	Outer regional	5957	Moderate	0.5105	LCMA	2
509011229	Gnowangerup	WA	15018.9	Remote	2940	Low	0.3146	LCLA	3
509011230	Katanning	WA	2646.9	Outer regional	4731	Low	0.2623	LCLA	3
509011231	Kojonup	WA	8555.4	Outer regional	4326	Low	0.3556	LCLA	3
509011232	Little Grove - Elleker	WA	140.7	Outer regional	3662	Moderate	0.4840	MCMA	2
509011233	McKail - Willyung	WA	101.2	Outer regional	10545	Low	0.4093	LCLA	3
509011234	Plantagenet	WA	4383.7	Outer regional	5130	Low	0.3027	LCLA	3
509021236	Chittering	WA	1219.9	Inner regional	5500	Low	0.4107	LCMA	2
509021237	Cunderdin	WA	6896.6	Outer regional	4154	Low	0.2790	LCLA	3
509021238	Dowerin	WA	11490.3	Outer regional	4119	Low	0.2686	LCLA	3
509021239	Gingin - Dandaragan	WA	9919.9	Outer regional	8649	Low	0.3489	LCLA	3
509021240	Merredin	WA	9852.4	Outer regional	5160	Low	0.2748	LCLA	3
509021241	Moora	WA	13541.1	Outer regional	4871	Low	0.3193	LCLA	3
509021242	Mukinbudin	WA	50125.2	Remote	3319	Low	0.3265	LCLA	3
509021243	Northam	WA	1431.2	Inner regional	11420	Low	0.2936	LCLA	3
509021244	Toodyay	WA	1691.6	Inner regional	4535	Low	0.4052	LCMA	2
509021245	York - Beverley	WA	4502.1	Inner regional	5331	Low	0.3951	LCMA	3
509031246	Brookton	WA	7475.4	Outer regional	3837	Low	0.2695	LCLA	3
509031247	Kulin	WA	28605.9	Remote	4422	Low	0.2838	LCLA	3
509031248	Murray	WA	2748.1	Inner regional	2809	Low	0.3747	LCLA	3
509031249	Narrogin	WA	509.6	Outer regional	4899	Low	0.2840	LCLA	3
509031250	Wagin	WA	9399.5	Outer regional	5109	Low	0.3219	LCLA	3
601011001	Bridgewater - Gagebrook	TAS	55.8	Inner regional	7413	Low	0.2118	LCLA	3
601011002	Brighton - Pontville	TAS	88.8	Inner regional	5345	Low	0.4126	LCLA	3
601011003	Old Beach - Otago	TAS	31.6	Inner regional	4235	Moderate	0.5003	MCMA	2
601021004	Bellerive - Rosny	TAS	4.7	Inner regional	5995	Moderate	0.5899	MCMA	2
601021005	Cambridge	TAS	101.7	Inner regional	7683	High	0.7029	HCMA	2
601021006	Geilston Bay - Risdon	TAS	8.7	Inner regional	3253	Moderate	0.4908	LCMA	2
601021007	Howrah - Tranmere	TAS	9.4	Inner regional	10454	Moderate	0.5887	MCMA	2
601021008	Lindisfarne - Rose Bay	TAS	8.0	Inner regional	7225	Moderate	0.6032	MCMA	2

Appendix E (cont.) Data table

SA2 code	SA2 name	State	Area (km2)	Remoteness	Estimated resident population (2015)	ANDRI Quartile	ANDRI	Coping and adaptive capacity	Typology group
601021009	Mornington - Warrane	TAS	8.2	Inner regional	4707	Low	0.3090	LCLA	3
601021010	Risdon Vale	TAS	35.5	Inner regional	3086	Low	0.2353	LCLA	3
601021011	Rokeby	TAS	15.4	Inner regional	5945	Low	0.3634	MCLA	1
601021012	South Arm	TAS	74.3	Inner regional	4279	High	0.6884	HCMA	2
601031013	Austins Ferry - Granton	TAS	27.4	Inner regional	3948	Moderate	0.5675	HCMA	2
601031014	Berriedale - Chigwell	TAS	34.0	Inner regional	5533	Low	0.4251	MCLA	1
601031015	Claremont (Tas.)	TAS	17.9	Inner regional	7792	Moderate	0.4762	MCLA	1
601031016	Derwent Park - Lutana	TAS	4.9	Inner regional	4200	Low	0.3831	MCLA	1
601031017	Glenorchy	TAS	10.5	Inner regional	11030	Low	0.4215	MCLA	1
601031018	Montrose - Rosetta	TAS	5.7	Inner regional	4795	Moderate	0.5373	HCLA	4
601031019	Moonah	TAS	2.8	Inner regional	5327	Moderate	0.4515	MCLA	1
601031020	New Norfolk	TAS	63.3	Inner regional	6591	Low	0.3184	LCLA	3
601031021	West Moonah	TAS	1.8	Inner regional	3967	Low	0.4454	MCLA	1
601041022	Kingston - Huntingfield	TAS	61.8	Inner regional	11341	Moderate	0.5746	MCMA	2
601041023	Kingston Beach - Blackmans Bay	TAS	22.3	Inner regional	10363	High	0.7084	HCMA	2
601041024	Margate - Snug	TAS	146.2	Inner regional	7767	Moderate	0.5654	MCMA	2
601041026	Taroona - Bonnet Hill	TAS	8.0	Inner regional	3650	Moderate	0.6404	MCHA	2
601051027	Hobart	TAS	6.6	Inner regional	8013	Moderate	0.6383	MCHA	4
601051028	Lenah Valley - Mount Stuart	TAS	9.8	Inner regional	8481	High	0.7614	HCHA	2
601051029	Mount Nelson - Dynnyrne	TAS	7.9	Inner regional	4714	High	0.7727	MCHA	2
601051030	New Town	TAS	3.8	Inner regional	6088	High	0.6620	MCHA	4
601051031	Sandy Bay	TAS	6.9	Inner regional	12194	High	0.7563	MCHA	4
601051032	South Hobart - Fern Tree	TAS	23.5	Inner regional	6190	High	0.6810	MCHA	2
601051033	West Hobart	TAS	3.6	Inner regional	6032	High	0.6701	MCHA	2
601061034	Dodges Ferry - Lewisham	TAS	318.4	Inner regional	7461	Low	0.4409	LCMA	2
601061035	Sorell - Richmond	TAS	375.9	Inner regional	8405	Moderate	0.4517	LCMA	2
602011036	Invermay	TAS	4.0	Inner regional	3138	Low	0.4456	MCLA	1
602011037	Kings Meadows - Punchbowl	TAS	5.3	Inner regional	3976	Moderate	0.5696	MCMA	1
602011038	Launceston	TAS	5.3	Inner regional	5313	Moderate	0.5972	MCMA	4
602011039	Legana	TAS	33.7	Inner regional	4071	Moderate	0.5467	HCLA	2
602011040	Mowbray	TAS	9.3	Inner regional	3820	Low	0.4020	LCMA	1
602011041	Newnham - Mayfield	TAS	23.6	Inner regional	9083	Moderate	0.4597	LCMA	1
602011042	Newstead	TAS	3.7	Inner regional	5290	Moderate	0.6277	MCHA	4
602011043	Norwood (Tas.)	TAS	4.0	Inner regional	3959	High	0.7429	HCHA	4
602011044	Prospect Vale - Blackstone	TAS	17.7	Inner regional	6550	Moderate	0.5581	HCMA	2
602011045	Ravenswood	TAS	10.0	Inner regional	3768	Low	0.3061	LCLA	1
602011046	Riverside	TAS	48.3	Inner regional	6525	Moderate	0.4807	MCLA	2
602011047	South Launceston	TAS	2.8	Inner regional	4715	Moderate	0.5833	MCMA	1
602011048	Summerhill - Prospect	TAS	9.3	Inner regional	4956	Moderate	0.6238	MCMA	4
602011049	Trevallyn	TAS	9.7	Inner regional	4702	Moderate	0.5002	MCLA	2
602011050	Waverley - St Leonards	TAS	55.1	Inner regional	3554	Low	0.4455	LCMA	1
602011051	West Launceston	TAS	4.0	Inner regional	4198	High	0.6860	MCHA	4
602011052	Youngtown - Relbia	TAS	14.9	Inner regional	4730	High	0.6656	MCMA	4
602021053	Beauty Point - Beaconsfield	TAS	259.2	Outer regional	3809	Low	0.3506	LCLA	3
602021054	Deloraine	TAS	2520.7	Outer regional	5802	Low	0.3610	LCLA	3

Appendix E (cont.) Data table

SA2 code	SA2 name	State	Area (km2)	Remoteness	Estimated resident population (2015)	ANDRI Quartile	ANDRI	Coping and adaptive capacity	Typology group
602021055	Grindelwald - Lanena	TAS	344.8	Outer regional	5771	Moderate	0.4593	MCLA	2
602021056	Hadspen - Carrick	TAS	174.7	Inner regional	3209	Moderate	0.4809	MCMA	2
602021057	Westbury	TAS	679.1	Outer regional	4060	Low	0.4157	LCMA	2
602031058	Dilston - Lilydale	TAS	1274.0	Outer regional	4039	Moderate	0.5998	LCHA	2
602031059	George Town	TAS	747.2	Outer regional	6944	Low	0.3197	LCLA	3
602031060	Longford	TAS	222.5	Inner regional	3996	Moderate	0.4495	MCLA	3
602031061	Northern Midlands	TAS	4764.9	Outer regional	3691	Low	0.2997	LCLA	3
602031062	Perth - Evandale	TAS	226.8	Inner regional	5077	Moderate	0.4573	MCMA	2
602031063	Scottsdale - Bridport	TAS	5200.2	Outer regional	7721	Low	0.3601	LCMA	3
602031064	St Helens - Scamander	TAS	3300.3	Outer regional	6234	Low	0.3047	LCLA	3
603011065	Central Highlands	TAS	7185.5	Outer regional	2111	Low	0.3437	LCLA	3
603011066	Derwent Valley	TAS	1289.9	Inner regional	3155	Low	0.3885	LCMA	3
603011067	Southern Midlands	TAS	2600.2	Outer regional	6112	Low	0.3054	LCLA	3
603021069	Bruny Island - Kettering	TAS	443.5	Outer regional	2994	Moderate	0.5635	MCMA	2
603021070	Cygnet	TAS	239.5	Outer regional	4228	Low	0.3911	LCMA	3
603021071	Geeveston - Dover	TAS	827.8	Outer regional	3697	Low	0.3456	LCMA	3
603021072	Huonville - Franklin	TAS	682.0	Outer regional	8436	Low	0.3987	LCMA	2
603031073	Forestier - Tasman	TAS	660.4	Outer regional	2391	Low	0.3059	LCLA	3
603031074	Triabunna - Bicheno	TAS	2542.0	Remote	4406	Low	0.3173	LCLA	3
604011075	Acton - Upper Burnie	TAS	2.1	Outer regional	3264	Low	0.3058	LCLA	1
604011076	Burnie - Ulverstone Region	TAS	1364.2	Outer regional	5104	Moderate	0.5012	LCHA	2
604011077	Burnie - Wivenhoe	TAS	11.4	Outer regional	3752	Low	0.3319	MCLA	1
604011078	Parklands - Camdale	TAS	19.5	Outer regional	6461	Low	0.4139	MCLA	1
604011079	Penguin - Sulphur Creek	TAS	64.2	Outer regional	5127	Moderate	0.6059	MCHA	2
604011080	Romaine - Havenview	TAS	11.9	Outer regional	3488	Low	0.4328	MCLA	1
604011081	Somerset	TAS	26.9	Outer regional	4000	Low	0.3826	LCLA	3
604011082	Ulverstone	TAS	27.5	Outer regional	7010	Moderate	0.6021	MCHA	4
604011083	West Ulverstone	TAS	18.1	Outer regional	4268	Moderate	0.5358	MCMA	3
604011084	Wynyard	TAS	58.6	Outer regional	6205	Moderate	0.4611	MCLA	3
604021085	Devonport	TAS	10.3	Inner regional	14121	Moderate	0.5463	MCMA	1
604021086	East Devonport	TAS	13.2	Inner regional	4842	Moderate	0.4973	MCMA	1
604021087	Latrobe	TAS	215.3	Outer regional	4533	Low	0.4163	LCMA	2
604021088	Miandetta - Don	TAS	23.0	Inner regional	3444	Moderate	0.6527	MCHA	2
604021089	Port Sorell	TAS	363.0	Outer regional	5608	Moderate	0.5299	MCMA	2
604021090	Quoiba - Spreyton	TAS	28.6	Inner regional	2931	High	0.6635	MCMA	2
604021091	Sheffield - Railton	TAS	1156.3	Outer regional	6294	Low	0.3747	LCLA	3
604021092	Turners Beach - Forth	TAS	84.5	Outer regional	3179	Moderate	0.6465	MCHA	2
604031093	King Island	TAS	1095.8	Very remote	1599	Low	0.3010	LCLA	3
604031094	North West	TAS	4765.9	Outer regional	4145	Low	0.3437	LCLA	2
604031095	Smithton	TAS	91.3	Outer regional	3995	Low	0.3991	MCLA	3
604031096	Waratah	TAS	3484.6	Outer regional	3700	Low	0.4230	LCMA	2
604031097	West Coast (Tas.)	TAS	3938.9	Remote	4299	Low	0.2492	LCLA	3
701011002	Darwin City	NT	3.1	Outer regional	7056	Low	0.2530	LCLA	1
701011004	Fannie Bay - The Gardens	NT	3.9	Outer regional	3667	Low	0.3065	LCLA	1
701011005	Larrakeyah	NT	1.9	Outer regional	3954	Low	0.2854	LCLA	1

Appendix E (cont.) Data table

SA2 code	SA2 name	State	Area (km2)	Remoteness	Estimated resident population (2015)	ANDRI Quartile	ANDRI	Coping and adaptive capacity	Typology group
701011006	Ludmilla - The Narrows	NT	5.4	Outer regional	2837	Low	0.2830	LCLA	1
701011007	Parap	NT	1.1	Outer regional	2844	Low	0.3097	LCLA	1
701011008	Stuart Park	NT	1.6	Outer regional	4495	Low	0.2997	LCLA	1
701011009	Woolner - Bayview - Winnellie	NT	6.8	Outer regional	3020	Low	0.2834	LCLA	3
701021010	Alawa	NT	1.2	Outer regional	2311	Low	0.3091	LCLA	1
701021011	Anula	NT	1.3	Outer regional	2545	Low	0.3399	LCLA	1
701021012	Berrimah	NT	30.3	Outer regional	1512	Low	0.3170	LCLA	1
701021013	Brinkin - Nakara	NT	2.7	Outer regional	3789	Low	0.3458	LCLA	1
701021016	Coconut Grove	NT	1.4	Outer regional	3292	Low	0.2743	LCLA	1
701021018	Jingili	NT	1.3	Outer regional	1900	Low	0.3536	LCLA	1
701021019	Karama	NT	2.1	Outer regional	5328	Low	0.3014	LCLA	1
701021020	Leanyer	NT	2.5	Outer regional	4960	Low	0.3413	LCLA	1
701021021	Lyons (NT)	NT	7.0	Outer regional	4516	Low	0.2661	LCLA	1
701021022	Malak - Marrara	NT	4.8	Outer regional	4971	Low	0.3142	LCLA	1
701021023	Millner	NT	1.5	Outer regional	2748	Low	0.3217	LCLA	1
701021024	Moil	NT	1.0	Outer regional	2155	Low	0.3348	LCLA	1
701021025	Nightcliff	NT	1.5	Outer regional	4141	Low	0.3037	LCLA	1
701021026	Rapid Creek	NT	1.9	Outer regional	3534	Low	0.3223	LCLA	1
701021027	Tiwi	NT	3.1	Outer regional	2760	Low	0.2974	LCLA	1
701021028	Wagaman	NT	0.8	Outer regional	2361	Low	0.3070	LCLA	1
701021029	Wanguri	NT	0.9	Outer regional	2010	Low	0.3548	LCLA	1
701021030	Wulagi	NT	1.3	Outer regional	2648	Low	0.3197	LCLA	1
701031031	Howard Springs	NT	118.0	Outer regional	7160	Low	0.2284	LCLA	3
701031032	Humpty Doo	NT	157.4	Outer regional	9083	Low	0.2649	MCLA	3
701031034	Virginia	NT	54.7	Outer regional	3408	Low	0.2643	MCLA	3
701031035	Weddell	NT	1409.6	Outer regional	4706	Low	0.1905	LCLA	3
701041036	Bakewell	NT	1.3	Outer regional	3275	Low	0.2997	LCLA	1
701041037	Driver	NT	1.7	Outer regional	3114	Low	0.2705	LCLA	1
701041038	Durack - Marlow Lagoon	NT	11.7	Outer regional	4470	Low	0.3207	MCLA	1
701041039	Gray	NT	1.5	Outer regional	3519	Low	0.2669	LCLA	1
701041040	Moulden	NT	1.7	Outer regional	3309	Low	0.2661	LCLA	1
701041041	Palmerston - North	NT	4.8	Outer regional	4515	Low	0.3340	MCLA	1
701041043	Rosebery - Bellamack	NT	3.2	Outer regional	6763	Low	0.2848	LCLA	1
701041044	Woodroffe	NT	1.6	Outer regional	3543	Low	0.2909	LCLA	1
702011045	Charles	NT	16.7	Remote	4589	Low	0.2880	LCLA	1
702011046	East Side	NT	25.8	Remote	5489	Low	0.2271	LCLA	3
702011047	Flynn (NT)	NT	17.0	Remote	4775	Low	0.2809	LCLA	1
702011048	Larapinta	NT	58.6	Remote	5339	Low	0.2768	LCLA	1
702011049	Mount Johns	NT	19.0	Remote	4044	Low	0.2754	LCLA	1
702011050	Petermann - Simpson	NT	175251.0	Very remote	2701	Low	0.0323	LCLA	3
702011051	Ross	NT	190.5	Remote	2607	Low	0.2610	LCLA	1
702011052	Sandover - Plenty	NT	129514.9	Remote	4594	Low	0.0000	LCLA	3
702011053	Tanami	NT	192631.2	Very remote	3202	Low	0.0020	LCLA	3
702011054	Yuendumu - Anmatjere	NT	71841.5	Very remote	2408	Low	0.0561	LCLA	3
702021055	Barkly	NT	303252.5	Very remote	2934	Low	0.0517	LCLA	3

Appendix E (cont.) Data table

SA2 code	SA2 name	State	Area (km2)	Remoteness	Estimated resident population (2015)	ANDRI Quartile	ANDRI	Coping and adaptive capacity	Typology group
702021056	Tennant Creek	NT	42.1	Very remote	3342	Low	0.1318	LCLA	3
702031057	Alligator	NT	33091.3	Remote	4895	Low	0.1140	LCLA	3
702031058	Daly	NT	34793.8	Very remote	2096	Low	0.0434	LCLA	3
702031059	Thamarrurr	NT	3374.1	Very remote	2806	Low	0.0275	LCLA	3
702031060	Tiwi Islands	NT	7462.6	Remote	2848	Low	0.0730	LCLA	3
702031061	West Arnhem	NT	33529.5	Very remote	5488	Low	0.0255	LCLA	3
702041062	Anindilyakwa	NT	2601.5	Very remote	2816	Low	0.0680	LCLA	3
702041063	East Arnhem	NT	30987.1	Very remote	8582	Low	0.0364	LCLA	3
702041064	Nhulunbuy	NT	7.6	Very remote	3366	Low	0.1952	LCLA	3
702051065	Elsey	NT	92949.5	Very remote	2540	Low	0.0858	LCLA	3
702051066	Gulf	NT	92351.7	Very remote	4735	Low	0.0620	LCLA	3
702051067	Katherine	NT	7416.9	Remote	10731	Low	0.0973	LCLA	3
702051068	Victoria River	NT	133608.5	Very remote	2851	Low	0.0457	LCLA	3
801011001	Aranda	ACT	1.6	Metropolitan	2460	Moderate	0.5372	MCMA	2
801011002	Belconnen	ACT	4.4	Metropolitan	6529	Low	0.3864	LCLA	5
801011003	Bruce	ACT	5.8	Metropolitan	7071	Moderate	0.4943	MCMA	3
801011004	Charnwood	ACT	1.9	Metropolitan	3039	Moderate	0.4614	LCMA	3
801011005	Cook	ACT	1.7	Metropolitan	2922	Low	0.4433	LCMA	2
801011006	Dunlop	ACT	3.6	Metropolitan	7258	Moderate	0.4547	LCMA	3
801011007	Evatt	ACT	3.1	Metropolitan	5354	Moderate	0.4872	LCMA	2
801011008	Florey	ACT	2.8	Metropolitan	4971	Moderate	0.5207	MCMA	3
801011009	Flynn (ACT)	ACT	2.1	Metropolitan	3467	Moderate	0.4850	LCMA	2
801011010	Fraser	ACT	2.5	Metropolitan	2074	Moderate	0.4876	LCMA	2
801011011	Giralang	ACT	2.4	Metropolitan	3348	Moderate	0.4657	LCMA	2
801011013	Hawker	ACT	1.9	Metropolitan	2953	Moderate	0.5186	LCMA	2
801011014	Higgins	ACT	1.7	Metropolitan	3107	Low	0.4446	LCMA	3
801011015	Holt	ACT	3.3	Metropolitan	4645	Moderate	0.4597	LCMA	3
801011016	Kaleen	ACT	6.0	Metropolitan	7399	Moderate	0.5265	LCMA	2
801011017	Latham	ACT	2.7	Metropolitan	3634	Moderate	0.4564	LCMA	2
801011019	Macgregor (ACT)	ACT	4.3	Metropolitan	6701	Low	0.4355	LCMA	3
801011020	Macquarie	ACT	1.7	Metropolitan	2755	Low	0.4183	LCMA	3
801011021	McKellar	ACT	1.4	Metropolitan	2818	Moderate	0.6205	MCMA	2
801011022	Melba	ACT	2.3	Metropolitan	3182	Moderate	0.5467	MCMA	2
801011023	Page	ACT	1.3	Metropolitan	3040	Low	0.3750	LCMA	3
801011024	Scullin	ACT	1.4	Metropolitan	2943	Low	0.4126	LCMA	3
801011025	Spence	ACT	1.5	Metropolitan	2590	Moderate	0.4943	LCMA	2
801011026	Weetangera	ACT	1.6	Metropolitan	2649	Moderate	0.5037	LCHA	2
801021027	ACT - South West	ACT	485.3	Inner regional	3681	Low	0.4108	LCMA	2
801031030	ACT - East	ACT	40.8	Metropolitan	867	Low	0.3125	LCLA	3
801041034	Amaroo	ACT	2.6	Metropolitan	5687	Moderate	0.4692	MCMA	3
801041035	Bonner	ACT	2.8	Metropolitan	6223	Low	0.3251	LCLA	3
801041036	Casey	ACT	2.6	Metropolitan	5405	Low	0.3489	LCLA	3
801041037	Crace	ACT	1.7	Metropolitan	3962	Low	0.3376	LCLA	3
801041038	Forde	ACT	1.9	Metropolitan	4087	Low	0.3684	LCMA	3
801041039	Franklin	ACT	2.3	Metropolitan	6045	Low	0.3659	LCMA	3

Appendix E (cont.) Data table

SA2 code	SA2 name	State	Area (km2)	Remoteness	Estimated resident population (2015)	ANDRI Quartile	ANDRI	Coping and adaptive capacity	Typology group
801041040	Gungahlin	ACT	4.6	Metropolitan	6176	Low	0.4140	LCMA	3
801041043	Hall	ACT	1.8	Metropolitan	298	Moderate	0.5489	MCMA	2
801041044	Harrison	ACT	3.0	Metropolitan	7272	Low	0.4342	LCMA	3
801041046	Ngunnawal	ACT	4.2	Metropolitan	10176	Moderate	0.4868	MCMA	3
801041047	Nicholls	ACT	6.7	Metropolitan	6946	Moderate	0.5147	MCMA	2
801041048	Palmerston	ACT	1.9	Metropolitan	5666	Moderate	0.4717	MCMA	3
801051050	Ainslie	ACT	3.5	Metropolitan	5255	Low	0.4348	LCMA	3
801051051	Braddon	ACT	1.4	Metropolitan	5565	Low	0.3396	LCMA	3
801051052	Campbell	ACT	6.4	Metropolitan	5098	Low	0.4159	LCMA	3
801051053	Civic	ACT	1.5	Metropolitan	4039	Low	0.3468	LCMA	3
801051054	Dickson	ACT	1.6	Metropolitan	2245	Low	0.3709	LCMA	3
801051055	Downer	ACT	1.6	Metropolitan	3643	Low	0.3827	LCMA	3
801051056	Hackett	ACT	1.9	Metropolitan	2981	Moderate	0.4528	LCMA	2
801051057	Lyneham	ACT	5.5	Metropolitan	5155	Moderate	0.4496	LCMA	3
801051058	O'Connor (ACT)	ACT	4.9	Metropolitan	5621	Low	0.4131	LCMA	3
801051059	Reid	ACT	1.7	Metropolitan	1710	Low	0.3042	LCMA	3
801051060	Turner	ACT	1.5	Metropolitan	4067	Low	0.3859	LCMA	3
801051061	Watson	ACT	3.7	Metropolitan	5888	Low	0.4217	LCMA	3
801061062	Deakin	ACT	3.6	Metropolitan	2903	Moderate	0.4959	MCMA	2
801061063	Forrest	ACT	1.6	Metropolitan	1676	Low	0.4349	LCMA	2
801061064	Griffith (ACT)	ACT	2.8	Metropolitan	4467	Low	0.4254	LCMA	3
801061065	Kingston - Barton	ACT	2.6	Metropolitan	5727	Moderate	0.4567	LCMA	3
801061067	Narrabundah	ACT	4.1	Metropolitan	5918	Low	0.4081	LCMA	3
801061069	Red Hill (ACT)	ACT	4.8	Metropolitan	3258	Low	0.4079	LCMA	3
801061070	Yarralumla	ACT	7.2	Metropolitan	2999	Moderate	0.4664	LCMA	2
801071071	Banks	ACT	2.3	Metropolitan	5024	Low	0.4149	LCMA	3
801071072	Bonython	ACT	2.9	Metropolitan	3891	Low	0.4151	LCMA	3
801071073	Calwell	ACT	3.9	Metropolitan	5858	Moderate	0.5644	MCMA	2
801071074	Chisholm	ACT	3.1	Metropolitan	5207	Moderate	0.5122	MCMA	2
801071075	Conder	ACT	4.5	Metropolitan	5141	Moderate	0.5271	MCMA	2
801071076	Fadden	ACT	3.1	Metropolitan	2993	Moderate	0.4907	MCMA	2
801071077	Gilmore	ACT	2.0	Metropolitan	2798	Low	0.3682	LCLA	3
801071078	Gordon (ACT)	ACT	4.4	Metropolitan	7690	Moderate	0.5384	MCMA	2
801071079	Gowrie (ACT)	ACT	1.9	Metropolitan	3084	Moderate	0.4539	LCMA	2
801071080	Greenway	ACT	5.3	Metropolitan	1865	Low	0.4400	MCLA	3
801071081	Isabella Plains	ACT	2.5	Metropolitan	4411	Moderate	0.5461	MCMA	2
801071082	Kambah	ACT	11.3	Metropolitan	15133	Moderate	0.5106	MCMA	2
801071083	Macarthur	ACT	1.3	Metropolitan	1462	Low	0.4329	MCLA	2
801071084	Monash	ACT	3.4	Metropolitan	5471	Moderate	0.5554	MCMA	2
801071086	Oxley (ACT)	ACT	1.1	Metropolitan	1734	Low	0.4354	LCMA	2
801071087	Richardson	ACT	2.2	Metropolitan	3078	Low	0.4015	LCMA	3
801071088	Theodore	ACT	3.1	Metropolitan	3870	Moderate	0.5540	MCMA	2
801071090	Wanniassa	ACT	5.4	Metropolitan	7630	Moderate	0.4978	MCMA	2
801081091	Chapman	ACT	1.9	Metropolitan	2753	Moderate	0.5398	LCHA	2
801081092	Duffy	ACT	2.8	Metropolitan	3225	Moderate	0.4680	LCMA	2

Appendix E (cont.) Data table

SA2 code	SA2 name	State	Area (km2)	Remoteness	Estimated resident population (2015)	ANDRI Quartile	ANDRI	Coping and adaptive capacity	Typology group
801081093	Fisher	ACT	1.6	Metropolitan	3059	Moderate	0.4535	LCMA	2
801081094	Holder	ACT	1.9	Metropolitan	2679	Moderate	0.4873	LCMA	2
801081095	Rivett	ACT	1.6	Metropolitan	3179	Moderate	0.4518	LCMA	2
801081096	Stirling	ACT	1.3	Metropolitan	2157	Moderate	0.5751	MCMA	2
801081097	Waramanga	ACT	1.7	Metropolitan	2682	Moderate	0.4902	LCMA	2
801081098	Weston	ACT	3.1	Metropolitan	3602	Moderate	0.4826	LCMA	2
801091099	Chifley	ACT	1.6	Metropolitan	2538	Low	0.3827	LCMA	3
801091100	Curtin	ACT	4.8	Metropolitan	5330	Moderate	0.4663	LCMA	2
801091101	Farrer	ACT	2.1	Metropolitan	3333	Moderate	0.4651	LCMA	2
801091102	Garran	ACT	2.7	Metropolitan	3500	Low	0.4440	LCMA	2
801091103	Hughes	ACT	1.8	Metropolitan	3048	Moderate	0.4810	LCMA	2
801091104	Isaacs	ACT	3.1	Metropolitan	2398	Moderate	0.6377	MCMA	2
801091105	Lyons (ACT)	ACT	2.3	Metropolitan	3071	Low	0.3568	LCMA	3
801091106	Mawson	ACT	2.1	Metropolitan	3263	Moderate	0.4609	LCMA	3
801091107	O'Malley	ACT	2.6	Metropolitan	1009	Moderate	0.4739	LCMA	2
801091108	Pearce	ACT	1.7	Metropolitan	2614	Moderate	0.4465	LCMA	2
801091109	Phillip	ACT	2.6	Metropolitan	2766	Low	0.4191	LCMA	3
801091110	Torrens	ACT	1.3	Metropolitan	2242	Moderate	0.4584	LCMA	2