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# THE AUSTRALIAN NATURAL DISASTER RESILIENCE INDEX VOLUME II – INDEX DESIGN AND COMPUTATION

**Melissa Parsons<sup>1</sup>, Ian Reeve<sup>1</sup>, James McGregor<sup>2</sup>, Phil Morley<sup>1</sup>, Graham Marshall<sup>3</sup>,  
Richard Stayner<sup>1</sup>, Judith McNeill<sup>1</sup>, Sonya Glavac<sup>2</sup> and Peter Hastings<sup>1</sup>.**

1. Institute for Rural Futures, University of New England
2. Geography and Planning, University of New England
3. School of Environmental and Rural Science, University of New England





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## ABOUT THIS VOLUME

The Australian Natural Disaster Resilience Index project comprises two volumes.

### Volume I – State of Disaster Resilience Report

Volume I 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 (this volume) 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:

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

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# THE AUSTRALIAN NATURAL DISASTER RESILIENCE INDEX VOLUME II – INDEX DESIGN AND COMPUTATION

## Chapter 1 – Design of the Index





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## CHAPTER 1 – DESIGN OF THE AUSTRALIAN NATURAL DISASTER RESILIENCE INDEX

### In this chapter

- Section 1.1      Presents the conceptual basis of the Australian Natural Disaster Resilience Index.
- Section 1.2      Describes the structure of the index, including its hierarchical structure, and the themes of disaster resilience.
- Section 1.3      Outlines the spatial resolution and areas of Australia included in the index.







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# THE AUSTRALIAN NATURAL DISASTER RESILIENCE INDEX VOLUME II – INDEX DESIGN AND COMPUTATION

## Chapter 2 – Indicators





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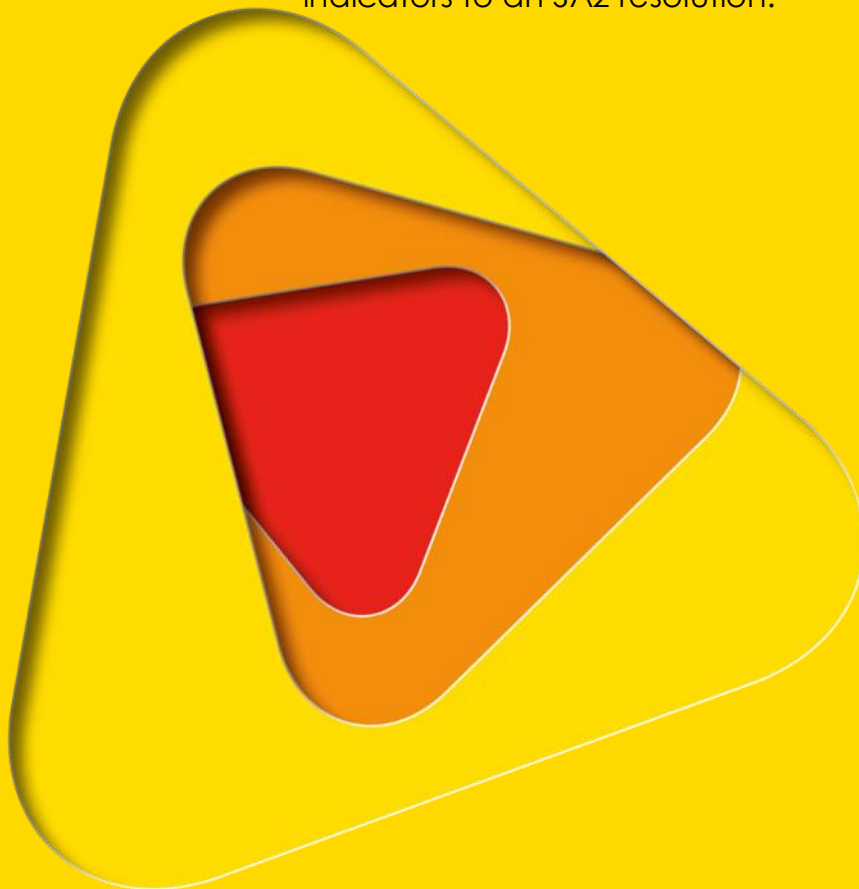
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## CHAPTER 2 INDICATORS

### In this chapter

- Section 2.1 Describes the method used to identify and select indicators for the Australian Natural Disaster Resilience Index.
- Section 2.2 Lists the indicators used in the index themes, including the source of each indicator and how it was calculated.
- Section 2.3 Justifies the relationships between indicators and disaster resilience for each theme in the index, using a literature review.
- Section 2.4 Describes the method used to disaggregate the indicators to an SA2 resolution.





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# THE AUSTRALIAN NATURAL DISASTER RESILIENCE INDEX VOLUME II – INDEX DESIGN AND COMPUTATION

## Chapter 3 – Computation of the Australian Natural Disaster Resilience Index





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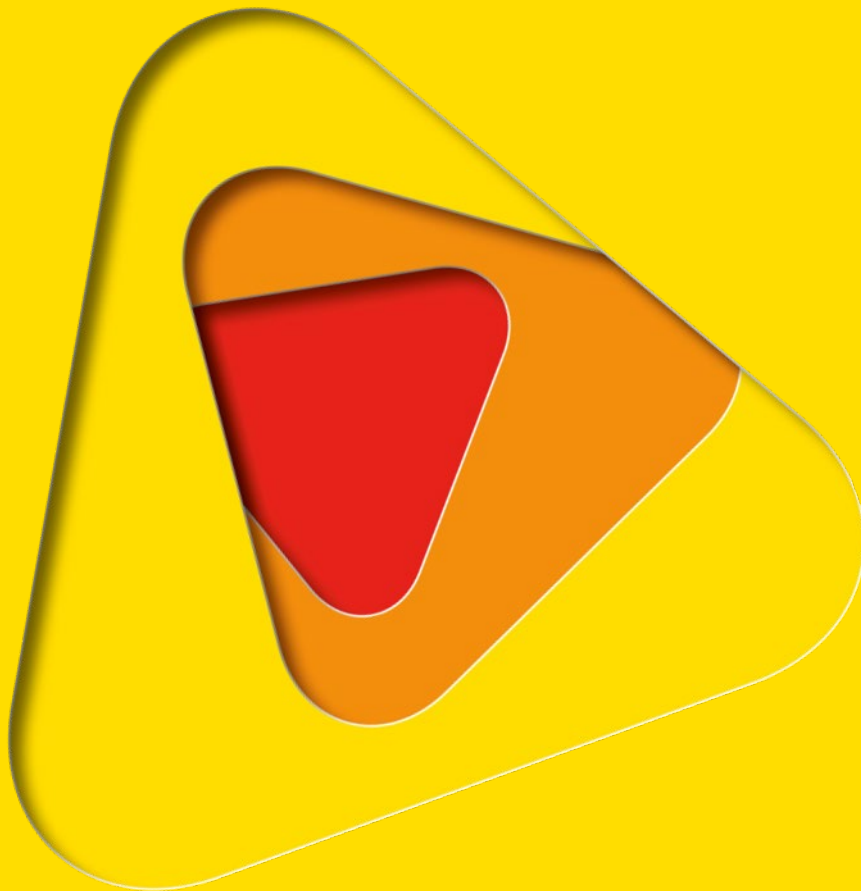




## CHAPTER 3 – COMPUTATION OF THE AUSTRALIAN NATURAL DISASTER RESILIENCE INDEX

### In this chapter

- Section 3.1      Reviews the development and use of composite indexes and methods for computing composite indexes.
- Section 3.2      Describes the rationale for, and the statistical computation of, the Australian Natural Disaster Resilience Index.
- Section 3.3      Describes the methods used to compute the typology of groups of SA2s with similar disaster resilience profiles.





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# THE AUSTRALIAN NATURAL DISASTER RESILIENCE INDEX VOLUME II – INDEX DESIGN AND COMPUTATION

Chapter 4 – Statistical outputs: ANDRI, coping capacity  
and adaptive capacity





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## CHAPTER 4 – STATISTICAL OUTPUTS: ANDRI, COPING CAPACITY AND ADAPTIVE CAPACITY

### In this chapter

- Section 4.1      Presents the statistical outputs and results for the overall Australian Natural Disaster Resilience Index.
- Section 4.2      Presents the statistical outputs and results for the coping capacity index.
- Section 4.3      Presents the statistical outputs and results for the adaptive capacity index.





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# THE AUSTRALIAN NATURAL DISASTER RESILIENCE INDEX VOLUME II – INDEX DESIGN AND COMPUTATION

Chapter 5 – Statistical outputs: disaster resilience themes





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## CHAPTER 5 – STATISTICAL OUTPUTS: DISASTER RESILIENCE THEMES

### In this chapter

Each section presents the statistical outputs and results of one disaster resilience theme.

- Section 5.1            Social character.
- Section 5.2            Economic capital.
- Section 5.3            Emergency services.
- Section 5.4            Planning and the built environment.
- Section 5.5            Community capital.
- Section 5.6            Information access.
- Section 5.7            Social and community engagement.
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# THE AUSTRALIAN NATURAL DISASTER RESILIENCE INDEX VOLUME II – INDEX DESIGN AND COMPUTATION

Chapter 6 – Uncertainty and sensitivity analysis





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## CHAPTER 6 – UNCERTAINTY AND SENSITIVITY ANALYSIS

### In this chapter

- Section 6.1 Explains the role of uncertainty and sensitivity analysis in composite index construction.
- Section 6.2 Describes the uncertainty analysis applied to the Australian Natural Disaster Resilience Index.
- Section 6.2 Describes the sensitivity analysis applied to the Australian Natural Disaster Resilience Index.





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