

How rural communities take action to develop sustainable and healthy communities

By

Joanne Walker

A dissertation submitted in partial fulfilment of the requirements for the Degree of Doctor of Public Health in the Discipline of Public Health, School of Health Sciences, Faculty of Medicine, Nursing and Health Sciences, Flinders University, Adelaide.

August 2016

TABLE OF CONTENTS

Table of Contents	2
List of Tables	11
List of Figures	13
Declaration	14
Abstract	15
Acknowledgements	17
Preamble	18
Chapter 1 – Introduction	19
1.1 Introduction to this study	19
1.2 Why this study?	20
1.3 Why the rural setting?	20
1.4 What is rural?	21
1.5 Research question and approach	24
1.5 Structure of the dissertation	25
Chapter 2 Literature Review – Sustainable Development and Ecological Public Health	27
2.1 Part 1 Introduction	27
2.2 Literature Search Strategy Method	27
2.3 Part 2 Definitions and meanings of sustainable development	29
2.3.1 Introduction	29
2.3.2 The History of Sustainable Development and general definitions of the term	30
2.3.3 An overview of definitions in Australian national and local government policy documents	33
2.3.5 Economic Sustainable Development	36

2.3.6 Ecological / Environmental Sustainable Development	42
2.3.7 Social Sustainability	45
2.3.8 Part 2 Summary	48
2.4 Part 3 Ecological Public Health	50
2.4.1 Introduction	50
2.4.2. Ecological Public Health Search Strategy Results	50
2.4.3 Old / New, Conventional and Ecological Public Health	50
2.4.4 Definitions and Principles	51
2.4.5 Ecological Public Health Theoretical Underpinnings	53
2.4.6 Ecological Public Health and Sustainability Models	61
2.4.7. Ecological Public Health Transitions	65
2.4.8 Ecological Public Health and Just Sustainabilities Conceptual Model	68
2.4.8.1 Introduction to the Ecological Public Health and Just Sustainabilities Conceptual Model	68
2.4.8.2 Underlying principles of the model	68
2.4.8.3 Explanation of each level of the model	68
2.4.9 Where do rural people fit?	72
2.4.10 Part 3 Summary	73
2.5 Part 4- How does the literature review inform my research study and what are the implications for knowledge exchange and transfer?	74
2.5.1. Introduction	74
2.5.2 What is Knowledge Exchange, Translation and Transfer?	74
2.5.3 How does the literature review inform this research study?	75
2.5.4 Implications for knowledge exchange and research transfer	77
2.5.6 Part 4 Summary	77
2.6 Chapter Conclusion	77
Chapter 3 – Research Design	78
3.1 Introduction	78

3.2. The Setting	78
3.3. Theoretical Perspective	79
3.4 Methodology	80
3.5 Study aims and objectives	81
3.6 Method	82
3.6.1 Case Study Rationale	82
3.6.2 Case study limitations and strengths	82
3.6. 3 Case Study Design	83
3.6.3 Choice of methods	87
3.6.4 Case selection	88
3.6.5 Rigor- Credibility, transferability, dependability, and confirmability	89
3.7 Ethical Considerations	91
3.8 My place as the researcher	91
3.9. Chapter Conclusion	92
Chapter 4 – An Introduction to the Case Study Boundaries and Population Health Profiles	93
4.1 Introduction	93
4.2. Case study boundaries and geographical location	93
4.2.1 Historical background	93
4.2.2 Geographical location	94
4.2.3 Australian Geographical Classification	96
4.2.3 South Coast Climate	96
4.3.4 Water Catchment	97
4.2.5 South Coast Biodiversity	97
4.2.6 South Coast Main Towns	98
4.2.7 South Coast Population Profile	98
4.2.8 South Coast Indigenous Culture and Language Groups	99

4.2. 9 South Coast Population Age Profile	100
4.2.10 Projected population	100
4.2.11 Section Summary	101
4.3 Social characteristics	102
4.3.1 Introduction	102
4.3.2 Socioeconomic Index For Areas (SEIFA), incomes and welfare dependency	102
4.3.3 Education	103
4.3.4 Economic indicators, occupations and industries	105
4.3.5 Housing, affordability, density and homelessness	108
4.4 Population Health Profile Introduction	109
4.5 Births and Deaths	109
4.6 Health Risk Factors	110
4.7 Disease burden, rates of chronic illness, psychological distress and disability	111
4.8 Health Care Services, Access and usage	111
4.9 Chapter Conclusion	113
Chapter 5 – Rural Communities Perception and understanding of Sustainable and Healthy Communities	115
5.1 Introduction	115
5.2. Participant characteristics	115
5.3 What does ‘sustainable’ mean to interview participants?	117
5.4 Participant’s understanding of a sustainable community	122
5.5 Participant’s understanding of health	128
5.6 Participant’s understanding of a healthy community	131
5.9 How does this knowledge inform research exchange and transfer strategies?	136
5.9 Chapter Conclusion	138

Chapter 6 - A Scoping Study of Actions for Sustainable Development and Health as reported in Online Media	139
6.1. Introduction	139
6.2 Scoping Study Research Questions and Method	140
6.2.1 The aim and rationale for the scoping review	140
6.2.2 Identifying studies and study selection	140
6.2.3 Study selection: Search strategy and inclusion criteria	141
6.3 Scoping Review Results – Charting the data, collating summarizing and reporting	142
6.3.1. Study selection: screening	142
6.3.2 Limitations of the Hancock et al. 1999 framework and the need for the rural voice	143
6.3.3 Charting the data	146
6.3.3 Evidence used	148
6.3.4 Assumptions and key messages	150
6.4 How does this knowledge inform research exchange and transfer strategies?	153
6.5 Chapter Conclusion	155
Chapter 7 Community Actions	157
7.1 Introduction	157
7.2 Case study selection	157
7.3 Actions for Sustainability–Community Energy	158
7.3.1 Introduction	158
7.3.2 Overview of Repower Shoalhaven, IMAGINE and Solar Savers	159
7.4.3 Cross case report	161
7.4. Actions for Conviviality- bringing the community together	163
7.4.1 Introduction	163
7.4.2. Overview of ‘Serendipity’, SAGE and the Collective Community –	

Cobargo, Quaama and Brogo	163
7.4.6 Cross Case Report	167
7.5 Action for Prosperity – youth engagement, town and regional economic development	169
7.5.1 Introduction	169
7.5.2 Overview of South Coast Youth Leadership Forums, Narooma Next and South Coast Tourism	169
7.5.3 Cross Case Report	170
7.6 Cross Case Summary	171
7.7. How does this knowledge inform research exchange and transfer strategies?	174
7.8. Chapter Conclusion	176
Chapter 8 discussion of findings in light of ecological public health transitions and equity	177
8.1 Introduction	177
8.2 Ecological Public Health Transitions and the South Coast Rural Communities	178
8.2.1 Introduction	178
8.2.2 Planetary Boundaries	178
8.2.3 Current Social-Cultural Transitions – demographic, urban, economic and democratic	182
8.2.4 Material transitions – Nutrition and Energy	185
8.2.5 Biological transition- epidemiological and ecological	188
8.2.6 Section summary	190
8.3 Population and consumption, and equity	191
8.3.1 Introduction	191
8.3.2 Population and consumption	191
8.3.3 Equity - Intergenerational Intragenerational Environmental Cultural	193

8.3.4 Section summary	197
8.4 Chapter Conclusion	198
Chapter 9 Knowledge Exchange and Transfer Theories and Strategies – Advocating for Ecological Public Health	200
9.1 Introduction	200
9.2 Limitations of the case study findings	202
9.3 Knowledge exchange theoretical perspectives	205
9.3.1. Introduction	205
9.3.2 Complex adaptive systems thinking	205
9.3.3 Diffusion of innovation and advocacy	208
9.3.4 Deliberative dialogues	211
9.3.5 Section summary	213
9.4. Key points from case study analysis to inform knowledge exchange and transfer strategies	213
9.4.1 Introduction	213
9.4.2 ‘The what’ - A recap of knowledge gained from this case study to inform knowledge exchange and transfer strategies	214
9.5 Advocating for ecological public health ‘The Who’	216
9. 5.1 Introduction	216
9.5.2 Rationale for the Who	216
9.5.3 The Who	217
9.5.4 Section summary	220
9.6 ‘The How and Impact’ using deliberative dialogue as a strategy for implementing knowledge exchange and transfer	220
9.6.1 Introduction	220
9.6.2 Advocacy strategy for ecological public health	221
9.6.2 Knowledge exchange strategy for ecological public health	223
9.7 Chapter Conclusion	227

Chapter 10 Conclusion	228
Appendices	233
Appendix 1 Literature search strategy search terms	233
Appendix 2 Literature Search Process and Strategy Results for sustainable development	234
Appendix 3 Literature Search Process and Strategy Results for Ecological Public Health	235
Appendix 4 History of Sustainable Development 1972-2015	236
Appendix 5 List of United Nations Sustainable Development Goals	238
Appendix 6 Definitions of sustainable development in Australian National and NSW State policy documents	239
Appendix 7 Definitions of Sustainable Development	241
Appendix 8 Definitions of economic Sustainable development	242
Appendix 9 – Definitions for social sustainability	243
Appendix 10 Definitions of Ecological Public Health	244
Appendix 11 Ecological Public Health Included Literature	245
Appendix 12 Models and frameworks underpinning Ecological Public Health	248
Appendix 13 Phases of research design	250
Appendix 14 Flinders University Social and Behavioural Research Ethics Committee approval email	251
Appendix 15 Advert for Local Papers	254
Appendix 16 Participant Consent Form	255
Appendix 17 Participant Information Sheet	256
Appendix 18 Letter of Introduction	259
Appendix 19 Map of Shoalhaven Local Government Area	260
Appendix 20 Map of Eurobodalla Local Government Area	261
Appendix 21 Map of Bega Valley Local Government Area	262

Appendix 22 South Coast Geographical and Bioregional information	263
Appendix 23 Snapshot of Case Study Population Social Characteristics	265
Appendix 24 South Coast SEIFA Scores	266
Appendix 25 South Coast Employment, workforce participation and main industries	267
Appendix 26 Estimated number of Births 2014 and Avoidable deaths 2009-2012	268
Appendix 27 Case Study burden of chronic conditions 2011-2013	269
Appendix 28 Admissions to South Coast Public hospitals 2011-2012 by principal diagnosis	270
Appendix 29 Interview and focus group participant's locations and SEIFA Scores	271
Appendix 30 Summary of participant current / past employment and occupations	272
Appendix 31 In-Depth Interviews / Focus Group Question Guide	273
Appendix 32 Scoping Review Results with adapted Hancock et al. (1999) analysis.	274
Appendix 33 Community level actions for a sustainable and healthy community categorised by adapted Hancock et al. 1999 framework	333
Appendix 34 Case Reports - Actions for Sustainability (Community Energy)	344
Appendix 35 Case Reports- Actions for Conviviality- bringing the community together	350
Appendix 36 Case Reports- Actions for Prosperity – youth engagement, town and regional economic development	360
References	370

LIST OF TABLES

<i>Table 1 Jabareen's Seven concepts of sustainable development (Jabareen 2008)</i>	33
<i>Table 2 Models of Public Health</i>	51
<i>Table 3 Four dimensions of existence (Rayner & Lang 2012)</i>	53
<i>Table 4 Bronfenbrenner and Stanger's (2011) definitions of Nano, micro, meso, exo, macro and chronosystems</i>	58
<i>Table 5 Summary of dimensions in Health and the community ecosystem model Hancock 1993</i>	61
<i>Table 6 Indicator Categories for eco-social determinants at each system level (Hancock et al. 1999)</i>	64
<i>Table 7 Ecological Public Health Transitions</i>	67
<i>Table 8 Case selection criteria</i>	84
<i>Table 9 Case study research questions</i>	85
<i>Table 10 Case study qualification levels, school and higher education participation</i>	104
<i>Table 11 Case study comparison for the Australian Early Development Index (AEDI) measures five key domains of early childhood development</i>	105
<i>Table 12 Shoalhaven estimates of major risk factors 2007-2008</i>	110
<i>Table 13 GP enhanced primary health care services and GP Mental Health Care Plans</i>	112
<i>Table 14 Interview methods and number of participants</i>	116
<i>Table 15 Number of years the participants have been living on the South Coast</i>	117
<i>Table 16 Participants alignment with sustainable development pillars</i>	118
<i>Table 17 Participants definitions of sustainable</i>	121
<i>Table 18 Participants definitions of a sustainable community</i>	126
<i>Table 19 Participant's definitions of 'health'</i>	130
<i>Table 20 Participant definitions of a healthy community</i>	132
<i>Table 21 Case study perceptions and understanding comparison to Hancock et al's (1999) indicators</i>	135
<i>Table 22 Case study Online newspapers</i>	141
<i>Table 23 Online Media Scoping Review Results- Initial data sorting numbers of</i>	

<i>articles for the three Sustainable development pillars and health.</i>	142
<i>Table 24 Adpatations made to Hancock et al.1999 framework</i>	145
<i>Table 25 Online media scoping review results- The number of articles as per adapted Hancock et al. (1999) indicators.</i>	146
<i>Table 26 Online media articles and data source used</i>	149
<i>Table 27 Theoretically replicated cases: Sustainability, Conviviality and Economic development</i>	158
<i>Table 28 Repower Shoalhaven model summary</i>	159
<i>Table 29 Basin View Village project</i>	165
<i>Table 30 A summary of the planetary boundaries, potential health impact and the South Coast</i>	180
<i>Table 31 A summary of the current social-cultural transitions and South Coast</i>	184
<i>Table 32 Summary of nutrition and energy related transitions on the South Coast</i>	187
<i>Table 33 Ecological, biological transitions and the South Coast</i>	189
<i>Table 34 Example from the literature for linkages to complex adaptive systems and ecological public health transitions and ecosocial levels.</i>	207
<i>Table 35 Diffusion of Innovation -How to work with adopters</i>	209
<i>Table 36 Examples from the literature for linkages to diffusion of innovation and ecological public health transitions and ecosocial levels</i>	210
<i>Table 37 Examples from the literature for linkages to deliberative dialogues and ecological public health transitions and ecosocial levels</i>	212
<i>Table 38 Steps to guide advocacy for ecological public health</i>	222
<i>Table 39 Deliberative dialogue knowledge exchange strategy</i>	225
<i>Table 40 Cross case report community energy</i>	348
<i>Table 41 Cross Case Report- convivial communities.</i>	358
<i>Table 42 Cross case report economic development</i>	368

LIST OF FIGURES

<i>Figure 1 Bronfenbrenner’s Ecology of Human Development Theory 1993 Adapted from Stanger 2011</i>	55
<i>Figure 2 Dahlgren and Whitehead, 1993; reproduced by Public Health Warwickshire</i>	55
<i>Figure 3 Barton and Grant, Health Map 2006. Source: Barton and Grant 2006</i>	56
<i>Figure 4 Stanger 2011’s Reworked ecologically based social –ecological model adapted from Bronfenbrenner, 1986.</i>	57
<i>Figure 5 ‘The Doughnut’ of social and planetary boundaries for development</i>	60
<i>Figure 6 Health and the community ecosystem model (Hancock 1993)</i>	62
<i>Figure 7 Basic Framework of indicators by Hancock et al. (1999)</i>	63
<i>Figure 8 Author’s Ecological Public Health and Just Sustainabilities Model</i>	71
<i>Figure 9 Research design schematic adapted from Rosenberg & Yates (2007) Schematic</i>	86
<i>Figure 10 Map of the NSW South Coast.</i>	95
<i>Figure 14 Repower Shoalhaven “How our model works’</i>	160
<i>Figure 15 IMAGINE – Tathra Community Solar Farm</i>	161
<i>Figure 16 Royal Freemasons ‘Benevolent Institution Basin View Aquaponics garden in July 2013</i>	164
<i>Figure 17 Illustration of SAGE, Moruya</i>	166
<i>Figure 18 Cobargo main street (Princes Highway)</i>	167

DECLARATION

I certify that this work does not incorporate without acknowledgement any material previously submitted for a degree or diploma in any university; and that to the best of my knowledge and belief it does not contain any material previously published or written by another person except where due reference is made in the text.

Signed: Joanne Walker

Date: 24 / 8 / 2016

ABSTRACT

How rural communities take action to develop sustainable and healthy communities

Background: There is growing awareness of how ecological and social determinants of health both relate to emerging public health issues that have no precedent in human history. Effects of climate change, ozone layer destruction, contamination of water through fertilizers and pesticides, are coinciding with increases in social and economic inequalities, all of which have adverse effects on health and wellbeing. Addressing these issues requires building on public health traditions and implementing a mix of new interventions that incorporate biological, material, social and cultural dimensions of public health.

Aim: The aim of this dissertation was to explore the concept of ecological public health and investigate how it relates to the concept of sustainability and health of rural Australian communities. The guiding question for this research was: How are rural communities taking action to develop sustainable and healthy communities the South Coast of New South Wales?

Design: Perceptions and understandings of sustainable and healthy communities, and actions rural people are taking to contribute to this were examined using a mixed method multiple case study design, grounded in a constructivist ontology. The case study focused on three neighbouring local government areas along the South Coast of New South Wales, Australia. Methods included a narrative review of the literature, which led to the development of the Ecological Public Health and Just Sustainabilities Model. Other methods included interviews and focus groups, a scoping review of online media; and an analysis of social and health statistics. A cross case analysis focused on actions for community energy, ways to bring the community together and economic activities for young adults, a town and a coastal region. Case study analysis was guided by the population health and sustainability indicators developed by Hancock et al. (1999). Knowledge exchange and research transfer approaches were integrated into each chapter analysis and used to summarise key findings from the case study.

Findings: The case study and the literature review analysis showed that the concept of sustainability and health share the same determinants. The focus groups and interviews showed that sustainability is a contentious issue, but the concept of health is not. The analysis also showed that actions to develop social sustainability (promoting conviviality, sense of place and support networks) are the foundation for any sustainability and health action in these communities. Actions are diverse, but there are silences for activities that include children and young adults, and Indigenous Australians. Some actions focused on ecological sustainability in terms of providing food and promoting the aesthetics of the natural settings, but the ‘other than human’ living systems were not central to this and absent from the discussion. The issues of population and consumption and the impact of ecological transitions (such as climate change, sea level rise, ocean acidification and biodiversity loss) are also absent. The concept of equality is implied throughout the case study analysis, however the notion of equity (intergenerational, intragenerational, social and environmental justice) was not evident. Finally, the South Coast of New South Wales is a popular region for people moving from larger urban centres as part of the seachange and treechange phenomena. It is also a region that is popular with older working adults and retirees. These demographic and urban transitions are influencing the social and cultural dynamics in rural coastal towns. In effect, these population changes are transitioning rural Australian coastal community culture, and this influences what is considered to be a sustainable and healthy by the rural community, and actions undertaken to address these issues. In this case study there is a strong emphasis on social sustainability, (particularly in creating a convivial community) and maintaining aesthetics of the landscape.

This study will be useful to public health policy makers, researchers and practitioners in gaining an understanding of the interconnections between sustainability and ecological public health; the current issues facing rural coastal communities; and ways to work with and share knowledge within the public health discipline and rural Australian communities.

ACKNOWLEDGEMENTS

I would like to thank my supervisors, Professor Colin MacDougall and Dr Michael Bentley for their support and encouragement, and for taking this journey with me for the past three years.

Along the way I have received support and positive comments from many people and I would like to acknowledge my appreciation to them for giving up time and sharing their experiences and wisdom with me. I would like to especially acknowledge Julian Agyeman, Colin Butler, and Nick Stanger.

I would also like to acknowledge my examiners. I sincerely thank them for the detailed comments and feedback they gave me. I think their suggestions and recommendations have strengthened my thesis.

Thanks to my Mum and Dad who have been cheering me on from the Lincolnshire Coast in England.

A special thanks to my friends Di, Bertie, Jane, Jen and Rosalie, for making sure I got outside and away from the computer once in a while. Extra special thanks to my lovely friend Trena, for making me laugh, for sharing books and watching movies together (that had absolutely nothing to do with ecological public health or sustainability...).

Special thanks also to my fellow partner in crime, Sheila, who is always there, always supportive, and always willing to give time to me and my boys, thank you.

Undertaking this research study has been a joint family venture and my husband Max, our son James, and (sadly no longer with us) our four-legged friend Ollie-dog, have walked beside me the whole way. Thanks to my boys.

Last words- the last few weeks prior to submitting the dissertation were particularly hard going, at one point I had technological breakdowns almost daily. If it wasn't for my technical advisor, Maxy, I literally would not have been able to finish this dissertation. Thanks doesn't cover it, but thanks Mou.

PREAMBLE

I would like to acknowledge and pay my respects to the traditional owners and custodians of the land and waters on which this research study has taken place, the Dharawal people and the Yuin people.

As I live in the land of the Yuin and walk along the beaches and amongst the ancient midden sites and symbolic landscapes, I am reminded of the ancient cultural heritage on a daily basis. I acknowledge and respect their spiritual connection to their ancestral country and understand that it remains as important to the Dharawal people and Yuin people today.

CHAPTER 1 – INTRODUCTION

1.1 Introduction to this study

This dissertation is a study exploring the concepts of sustainability and ecological public health, and focuses on three neighbouring rural local government areas (LGAs) along the far south coast of New South Wales (NSW) in Australia.

Public health incorporates the prevention of disease, prolonging of life and promoting and protecting health through organised efforts in society (Acheson, 1988). There is growing recognition that human health is linked to ecosystems and planetary level changes (Whitmee et al. 2015) and at the same time there is growing awareness of how socioeconomic and health inequalities within and across nations are contributing to social and environmental health burdens (CSDH 2008). There is a pattern that connects these issues (Bateson 1979). For example, ecological determinants of health such as: clean air and water, food supply, materials, fuels, recycling and detoxification of wastes, and of course climate stability, are essential for human health and are influenced by social, cultural and economic determinants (Canadian Public Health Association 2015).

To address these emerging and interconnected public health issues requires revisiting the ‘ecological’ in public health, building on public health traditions, and implementing a mix of new interventions that address biological, material, social and cultural dimensions of public health (Rayner & Lang 2012).

The terms sustainable development and sustainability are often interchanged. This dissertation begins by exploring the concepts from the definition of sustainable development outlined in the World Commission on Environment (WCED) in 1987. The Commission defines sustainable development as ‘... development that meets the needs of the present without compromising the ability of future generations to meet their own needs’ (WCED 1987). Sustainable development is understood to have three interdependent pillars; environmental, economic and social (United Nations [UN]1993). Linkages between sustainable development and health have been articulated by public health researchers and commentators (examples include Labonté 1991a & 1991b, McMichael 1993, Hancock 1993, Dooris 1999, and Brown et al. 2005) but it is not a common topic in public health

literature. In September 2015, the UN agreed to the implementation of seventeen global sustainable development goals amalgamating the Sustainable Development Agenda and the Millennium Development Goals (UN 2015). Developing supportive environments and implementing environmentally and socially just practices (Dooris, 1999) align both sustainable development and health development aims. It is at this interface that opportunities may exist to align sustainable development and ecological public health. The purpose of this study is to explore what is meant by ecological public health, investigate how it relates to the concept of sustainability and what this means for 21st century public health policy, research and practice.

1.2 Why this study?

To give the dissertation a focus I have chosen to explore a rural perspective of this phenomena; and by examining the actions rural people are taking, explore how these co-joined concepts may contribute to sustainable and healthy rural places in Australia.

The ecological transitions that are occurring at the global scale are creating health challenges that will require new ways to conceptualise and put into practice public health policy and interventions (Rayner & Lang 2012). How they may impact on rural communities will be explored in this dissertation. I acknowledge that there is a role for the health care sector (e.g. green hospitals) and government policy and services (from all levels of government), that contribute to ecological public health. However, the focus of this dissertation is not the health care sector or government policies and interventions. This dissertation is explicitly focusing on community level actions.

1.3 Why the rural setting?

Why might understanding how the concepts and actions of sustainable development and healthy communities be of significance? When compared to other countries, Australia performs well on many measures of health and wellbeing and for average life expectancy, such as the Organisation for Economic Co-operation and Development's (OECD) Better Life Index 2014, the UN's World Happiness Report 2015. However, these health and wellbeing

developments have been not been shared equally (McMichael 2014).

Australian social, health, economic and environmental statistics show that multiple inequalities exist within Australia, particularly for those who live in rural areas. This is particularly so for Indigenous Australians, who have a 20-year difference in average life expectancy compared to non-indigenous Australians (Australian Institute of Health and Welfare [AIHW] 2008).

For Australians, health status declines the further away you travel from a metropolitan centre. For example, there is a higher prevalence of cardiovascular diseases, cancers, transport accidents, mental health disorders and chronic disease risk factors (smoking, risky alcohol consumption, obesity and psychological distress) in rural populations (Australian Bureau of Statistics [ABS] 2011).

Rural places have older populations and higher numbers of other vulnerable groups such as Indigenous Australians and farmers with high health care needs (Larson 2011). Many environmental problems associated with agriculture and human built environments; environmental changes to land and seascapes; and vulnerability to repercussions of economic policy at local, state, national and global levels add to rural health determinants (Cocklin & Dibden 2005). Population growth and population decline in rural Australian communities also contributes to the challenges (Luck et al.2011).

As social and health inequalities persist meeting the unique needs and characteristics of rural and remote people remains a consistent challenge in Australian public health policy (National Strategic Framework for Rural and Remote Health 2012). Aligning the concepts of sustainability and health in a rural setting is one way to understand and meet this challenge.

1.4 What is rural?

Australia is a highly urbanised country, with 70% of the population living in capital or major cities. However, there are 6.7 million Australians living in rural and remote areas (ABS 2011).

The term “rural” and “rurality” can be interpreted as material or physical space measured by ‘demographic or social differences, population density or distinct

economic activities such as agriculture, mining or forestry' (Gorman-Murray et al. 2008, p.37). The term is also a socially constructed phenomenon with distinct characteristics, lifestyles, idyllic landscapes, social, moral and cultural values and symbols that distinguish rural place from urban place (Brown & Schafft 2011).

Economically, (after European settlement) Australia has been said to have made its fortune 'off the sheep's back', and rural places are homes for the major contributors to economic prosperity (Brett 2011, p.35). Today, agriculture and mining contribute to ongoing economic growth, exporting products to Asian markets (ABS 2015).

The concept of the 'Australian Bush' is a dominant part of contemporary white Australian cultural identity. It brings together the physical constructs of distance and sparsely populated lands with the social construct of bush legends, the tough, hardworking, resilient rural person living in an idyllic but challenging landscape (Penn 2007; Hirst 1978). Added to this, rural people think of themselves as being rural (Brown & Schafft 2011) and the concept of countrymindness is embedded in everyday life (Botterill 2009). So too is a sense of place, (Eyles & Williams 2008) and a way of life rich with symbolism, such as the Driza-bones and Akubra hats, (Botterill 2009), music and art (Smith & Brett 1998), that is different from the urban city norm (Rickards 2011).

Before Australia was colonised in 1788, Australia's first peoples, the Aboriginal and Torres Strait Islanders, lived a hunter gatherer way of life, as they had done so for over 50,000 years. The land was divided into traditional lands, with over 700 language groups and was marked by geographical boundaries, such as lakes, rivers, and mountains (Australian Museum 2015). The concept of 'country' to Indigenous Australians differs from that of non-Indigenous Australians, in that the land holds deep spiritual and cultural meaning and is fundamental to their social and emotional wellbeing. 'Country' is a term used to identify the geographical location of their traditional land, language group, cultural heritage and ancestry. Aboriginal and Torres Strait Islander people see themselves as being connected to the spirit of their traditional land and living *with* the land rather than living *off* it (Australian Government 2015). In contrast to non-Indigenous cultures that seek to buy and own land, Aboriginal and Torres Strait islander people believe that the

land owns them (Creative Spirits 2016). Their connection to their traditional land also encompasses a whole of community view and is reflected in the holistic cyclical concept of life-death-life (National Aboriginal Health Strategy Working Party 1989). Today, over three quarters of Indigenous Australians (79% of the Indigenous Australian population) live in non-remote areas of Australia (AIHW 2015). The spiritual connection to ancestral country remains as important to Indigenous Australians today, as it did to their ancestors.

In terms of where the physical rural is located, there are several ways that rural, remote and metropolitan areas are classified in Australia. The ABS and the AIHW, for statistical analysis of Australia's population, use a six class geographical standard system to categorise remote areas (RA) depending on the distance from population centres: Major Cities of Australia, Inner Regional Australia, Outer Regional Australia, Remote Australia, Very Remote Australia and Migratory. These classifications are based on the Accessibility and Remoteness Index of Australia (ARIA). ARIA classifies non – metropolitan areas in five categories of remoteness highly accessible, accessible, moderately accessible, remote, and very remote (ABS, 2015). The Local Government Areas selected for this case study are classified as Inner Regional (Shoalhaven) and Outer Regional (Eurobodalla and Bega Valley Shires).

In terms of the rural place as a setting for health, there is increasing interest in understanding the spatial, economic, social, cultural differences and the connection with health and the rural place, and health inequities (Rickards 2011). Interest in rural places, as settings for sustainable development is framed in terms of regional development. The focus is primarily on economic aspects of employment and income from local industries (agriculture, forestry and mining) located in rural areas (Mosely 2003); reducing regional disparities by supporting employment and wealth generation through economic activities in regions (OECD 2015); and developing environmental solutions and social inclusion strategies (Regional Development Australia 2014).

In summary, a study that provides rural perspective on co-joined concepts of sustainability and ecological public health will contribute to public health knowledge by providing an understanding of how these 21st century public health

issues may affect rural people's wellbeing on the South Coast of New South Wales.

1.5 Research question and approach

The question guiding this study was: 'How are rural communities taking action to develop sustainable and healthy communities on the South Coast of New South Wales?'. To answer this question a mixed method multiple case study design, grounded in a constructivist ontology, and focusing on three neighbouring local government areas along the South Coast of New South Wales, Australia has been used. The research design is discussed further in Chapter 3.

The aims of this research study are:

***Aim 1.** To determine the range of terms being used in the literature to explain sustainable development and ecological public health; (1) establish what is known in the literature to describe the meanings of ecological, social and economic sustainable development; (2) to explore and establish theoretical underpinnings for ecological public health; and (3) examine their meanings in the context of rural community health.*

***Aim 2.** To examine in what ways rural communities, perceive of, understand and take action on ecological, social and economic sustainability by; 1: exploring rural communities' perceptions and understandings of ecological, social and economic sustainability and health, 2: investigating what actions rural communities are taking to address ecological, social and economic sustainability in their community; and 3: analysing in what ways these actions contribute to ecological public health.*

***Aim 3.** To explore how knowledge gained from the research findings can be useful, shared and put into public health policy, research and practice by (1) synthesising the findings from Aims 1 and 2 and establishing the knowledge to be shared; and (2) exploring potential knowledge exchange theories and identify the strategies to facilitate research transfer and translation.*

The approach to the study is grounded in a constructivist ontology i.e. that meaning of sustainability and health in a rural place, is not discovered through

objective reasoning alone but is constructed by humans as they engage with their world (Crotty 1998). The rural environment it is at once realist (that realities exist outside the mind because the world does exist) and relativist (the way things are and the sense we make of them) (Crotty 1998). For this study, the task is to understand the context of both concepts of sustainable development and health in a rural place.

To answer the research question I need to bring together the realist and relativist perspectives and to do this I chose a mixed method case study design as a framework to provide a description of, and gain an understanding of the phenomena of interest (Yin 2014). To bridge the social and ecological perspectives of rural place, I also draw on ecological public health theories to serve as an analytical filter for the case study methodology. A mixture of data has been sourced from maps, social epidemiology (including social, economic and population health statistics), a review of local media coverage and qualitative data (interviews and focus groups) to establish and understand the rural communities' perceptions, experience and understanding of sustainable and healthy communities.

1.5 Structure of the dissertation

This dissertation is an exploratory study looking at the conjoined concepts of ecological public health and sustainable development. To explore this phenomena, the dissertation is theoretically divided into three components. 1. A synthesis of the literature; 2. An exploration of the two concepts in a rural Australian setting, using case studies; and 3. Drawing on knowledge exchange and research transfer theory, a theoretical perspective on translating knowledge into public health policy, practice and research.

This chapter (Chapter 1), has introduced the concept of sustainable development and ecological public health, the rationale for the rural setting and the research aims and objectives. The literature review, in Chapter 2, is in four parts and outlines the theoretical background to inform the case study, and explores the ranges of definitions and understanding of sustainable development and sustainability; and theoretical underpinnings for ecological public health. This

chapter also introduces the concept of knowledge exchange and research transfer.

In Chapter 3, the research design, theoretical perspectives, the methodology, methods, and ethical and quality considerations are outlined. In Chapter 4, an introduction to the case study populations and social, economic and population health details are presented.

Chapter 5 and 6 contain an analysis of rural communities' perceptions and understandings of ecological, social and economic sustainability and health obtained through focus groups and interviews and online media. Chapter 7 contains further analysis focusing on multiple case studies.

In Chapter 8, provides discussion on ecological public health transitions and commentary on issue that were silent in the case study analysis, e.g. population and consumption, and equity is provided.

In Chapter 9, potential knowledge exchange theories and strategies to assist public health policy makers, researchers and practitioners with implementing an ecological public health approach is discussed. Finally, in Chapter 10 the conclusion for the study is provided.

CHAPTER 2 LITERATURE REVIEW – SUSTAINABLE DEVELOPMENT AND ECOLOGICAL PUBLIC HEALTH

2.1 Part 1 Introduction

This literature review comprises four parts. First, I explain the search strategy method. Next, I explore the concept of sustainable development and its range of contested meanings (Research Aim 1). Third, I examine what is known about ecological public health. As a way of bringing the two constructs together and visually consolidating the literature, I propose an ecological public health and sustainability theoretical model. Fourth, the chapter concludes with a discussion on how the literature review informs my study and introduces the concept of knowledge exchange and research transfer (Research Aim 3).

Aim 1 of this study is to consider the range of meanings for the term sustainable development in the literature and explore how this relates to health. Thus, the literature review serves as a method that provides contextual detail essential to the case study methodology. The process of systematically searching and synthesising the literature enables me as the researcher to begin the journey of understanding the phenomenon of sustainable development. Through this process, I critically reflect on public health models and theories and engage in theoretical debate. This analysis assists me to conceptualise how ecological public health aligns with sustainable development and serves as an appropriate framework to guide the research study.

2.2 Literature Search Strategy Method

This search strategy follows the steps outlined by Cresswell (2008). 1. Identify key search terms and focus of search; 2. Identify search engines and databases; 3. Devise method to evaluate literature to be included; 4. Organise included literature into headings; 5 Write review highlighting the research question to be answered.

Step 1- Search terms and focus of search: To meet the objectives of Aim 1 the literature review is divided into two systematic search strategies guided by the

following questions:

- Search 1- How is sustainable development defined and understood in the literature?
- Search 2- How is ecological public health described in the literature and what are its theoretical underpinnings?

Search terms for each strategy are outlined in Appendix 1.

Step 2: Databases and search engines: Databases and literature were searched extensively (see Appendix 1). A trial run with one database (ProQuest) revealed a large number of papers relating to sustainable development. Consequently, a pragmatic decision was made to include only literature with definitions.

Step 3: Method to evaluate literature: Assessment of study design, quality and rigor is not the aim of this narrative literature review (Cronin et al. 2008). Instead, the literature is evaluated against the extent to which it will answer the search strategy questions. This means including only literature that provides a definition for sustainable development. For ecological public health, literature that provides a definition and/ or explains the theoretical underpinnings was included.

Step 4: Organise included literature into headings: Search strategy results will be presented in sections, commencing with definitions of sustainable development, followed by ecological public health definitions and theoretical underpinnings.

Step 5: Presenting the Results of the search strategy: A total of 53 relevant papers were found for sustainable development definitions. There were 17 papers and books that referred directly to ecological public health in the abstract or title, or provided a definition, and 7 explaining theoretical underpinnings. See Appendix 2 and 3 for search strategy results.

In Part 2, the sustainable development literature is divided into seven categories including: history, an overview of national and local government policy documents; and definitions for economic, ecological / environmental and social sustainable development. The ecological public health section includes: definitions, comparison to other concepts of public health and theoretical

underpinnings which is discussed in Part 3. Part 4 discusses the relevance of the search strategy findings to this study and introduces the concept of knowledge exchange and transfer.

2.3 Part 2 Definitions and meanings of sustainable development

2.3.1 Introduction

This section relates to Step 5 of the literature review method: Write review highlighting the research question to be answered by the review (Cresswell 2008). The research question for this search strategy is, ‘How is sustainable development defined and understood in the literature?’

The search results show that the concept of sustainability is not new. For example, the Oxford English Dictionary traced the words ‘sustainable’ to the 1400s and ‘sustainability’ to the early 1600s (Verrinder 2012). Today, the words sustainable and sustainability are often interchanged. For example, the Oxford English Dictionary offers this definition, that sustainable is the ‘ability to be maintained at a certain level’ (Oxford English Dictionary 2015a) and sustainability is also, ‘the ability to be maintained at a certain rate or level’ (Oxford English Dictionary 2015b). Washington divides sustainability into ‘old’ (the lore of traditional cultures, a respect and reverence for nature and feeling part of an in harmony with the natural world, and ‘new’ sustainability, a term that is still evolving but broadly includes the interdependent economic, social and environmental dimensions (Washington 2013 p.9).

The term ‘sustainable development’ became popularised following the United Nations ‘Our Common Future’ report (commonly referred to as the Brundtland report) in 1987 (WCED 1987). Today, most sustainable development literature includes the Brundtland report definition that:

‘Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs’ (WCED 1987).

Understanding definitions is important to this research study because definitions can underpin the means, conditions and ways of thinking that will then underpin

actions and interventions (Elliott 2013, p.16). Gaining an understanding of how the term originated, was incorporated into government policy and discussed in peer reviewed and grey literature assists me as the researcher in constructing the theoretical background for the case study methodology.

The Brundtland definition has been criticised for being too vague and left open to criticism and co-option, and we now live in an age of ‘sustainababble’ (Engelman 2013, p.3). The lack of operative definitions can lead to disagreements over what should be sustained and for whom (Banerjee 2003; Jabareen 2008). The purpose of this review is to seek some clarity around the term ‘sustainability’ and ‘sustainable development’ as a foundation for constructing the case study.

2.3.2 The History of Sustainable Development and general definitions of the term

As stated, the term ‘sustainable development’ is commonly associated with the Brundtland report, ‘Our common future’ (WCED 1987). However, the term ‘sustainable’ has been applied to ecosystems and ‘sustainable development’ was used before the Commission’s report, by the International Union for Conservation of Nature (IUCN) and Natural Resources in 1980 in the statement:

‘...if the object of development is to provide for social and economic welfare, the object of conservation is to ensure Earth’s capacity to sustain development and to support all life’ (IUCN 1980, p I).

This portrayal of sustainable development focuses on conservation of ecological systems and natural resources as the *sine qua non* for social and economic sustainable development.

The Brundtland report is a signal of a move from ecological sustainable development to a societal and intergenerational focus with the statement:

‘the “environment” is where we all live; and “development” is what we all do in attempting to improve our lot within that abode’, [quotation marks in original] (WCED 1987).

The intergenerational concept is reiterated in the Earth Summit Rio Declaration in 1992, stating that sustainable development is aiming to address the ‘pressing

problems of today and also aims at preparing the world for the challenges of the next century' (Agenda 21 1992, 1.3).

The Earth Charter (2000) was developed at the same time as Agenda 21, but not published until the end of the decade. The charter broadens the IUCN 1980s approach and includes principles of nature and human justice, peace and the concept of participatory democratic societies (Earth Charter 2000).

By 2002, at the UN World Summit for Sustainable Development (WSSD), environmental protection and intergenerational needs remain but the emphasis is on the linking of economic development, social inclusion and environmental sustainability as the 'interdependent and mutually reinforcing pillars of sustainable development' (WSSD, 2002, p1). Here, we also see that 'development' is aligned with the economic and social pillars, whereas 'sustainable' is aligned with the environment and is now interchangeable with the word sustainability, to become environmental or ecological sustainability. Appendix 4 outlines a list of international documents that provide historical context from 1972 to 2015.

At the same time, the aim of the UN Millennium Development Goals (MDGs) was to eradicate poverty, achieve universal primary education, promote gender equality, reduce child mortality and improve maternal health, combat the human immunodeficiency virus (HIV) and malaria, ensure environmental sustainability and work in a global partnership to implement the MDGs (UN 2002). The goals concentrating on eradicating poverty and environmental sustainability had direct links to the sustainable development agenda. From here, we see the evolving dialogue that aligns the two agendas. For example, the UN Environmental Program (UNEP) began to align its programs with reducing environmental risks, economic development and social equity (UNEP 2002).

At the Rio+20 Summit in 2012, the UN General Assembly adopted 'The Future We Want' (UN General Assembly 2012). The three interdependent pillars are discussed in terms of people at the centre of sustainable development and eradication of poverty and hunger are to be addressed as a matter of urgency as these are barriers to human development. Economic development is seen as the

strategy to address this. In terms of ecological sustainability, the natural resource base of social and economic development is to be protected, managed, regenerated and resilient (UN General Assembly 2012 para 40).

In recognition that progress on sustainable development and the MDGs was variable and the need for just, equitable, inclusive sustainable development persists (Sachs 2015), the UN member states formally align the two agendas with the seventeen Sustainable Development Goals, (SDGs) (See Appendix 5 for the SDG list), (UN 2015).

There are many different interpretations of the term sustainable development or sustainability in the literature. The definitions range from one line, for example, ‘Sustainability is the capacity to endure’ (Osterweil, 2011), to lengthy papers theorising the concept (e.g. Jabareen 2008, Lélé 1991).

Lélé (1991) presented the words as an equation, ‘Sustainable development = development + sustainability’. ‘Development’ is defined by Lélé as the process and the objective to achieve economic and social change, whereas ‘sustainability’ is described as ‘the existence of the ecological conditions necessary to support human life at a specified level of wellbeing through future generations’. ‘Sustainable’ is then interchanged with sustainability and aligned with the ecological pillar and ‘development’ is aligned with the economic and social pillars (Lélé 1991).

Jabareen (2008) theorises sustainable development as seven concepts summarised in Table 1 and integrates equity (intergenerational and intragenerational) with concepts of ethics, resource limits, the quest for utopia; and global politics (Jabareen 2008). Jabareen’s interpretations and synthesis of the literature shows how ideologies influence sustainable development dimensions.

General definitions contain reference to the three pillars (also referred to as the triple bottom line (TBL) (Elkington 1997). Definitions refer to different scales and levels (from individual, community, government and global levels) and contexts, and tend to draw on the developed world interpretation with one exception. Shaharir (2012) offers a Middle Eastern perspective and integrates sustainability with religion and spirituality (see Appendix 7 for definitions of

sustainable development extracted from the literature).

Table 1 Jabareen's Seven concepts of sustainable development (Jabareen 2008)

Ethical Paradox	the tension between ecological sustainability and economic growth
Natural stock	natural assets as stock humans can modify vs limits and depreciation
Equity	Intergenerational and Intragenerational Equity (freedom, participation and interdependence of social dimensions and environmental limits).
Eco-form	the ecologically desired form and design of human habitats
Integrative management	Integrating social development, economic growth and environmental protection
Utopianism	the perfect society where justice prevails, people are content and flourishes, living in harmony with nature
Political global agenda	Outlines the political declarations to address as global agenda poverty, consumption and production patterns and the nature base for economic and social development

Spiritual relationships with the land and connections to the physical world are also embedded in Indigenous Australians law, culture and beliefs. For Indigenous Australians sustainability means, 'acknowledging an interrelated concept of civil society, social capital and spirituality within an integrated community based process' (Bradbery et al. 2001 p. 105). Indigenous Australians integrate preservation and sustainability of natural resources with spiritual and cultural traditions, and economic interests (Dodson 1997).

2.3.3 An overview of definitions in Australian national and local government policy documents

National: There are five Australian Government policy documents that provide a definition of sustainable development as outlined in Appendix 6. The National Strategy on Ecologically Sustainable Development (ESD) is the overarching Australian sustainable development policy and is integrated into state government

legislation for example in the Environment Protection and Biodiversity Conservation Act 1999 (Ecologically Sustainable Development Steering Committee [ESDSC] 1992).

ESD is defined as 'using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased' (ESDSC 1992). This is underpinned by the precautionary principle that:

‘...decision making processes should effectively integrate both long and short-term economic, environmental, social and equity considerations; where there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation’ (ESDSC 1992).

ESD as a topic was introduced into the Australian school curriculum in 2005. This national education policy supported the concept of stewardship of the environment, encouraging Australians to take responsibility of being a caretaker or custodian for the environment (Department of the Environment and Heritage 2005).

In 2010, the curriculum changed and moved from ‘Humans are not the only species that need to be considered. Beyond a utilitarian view of the natural environment as something for humans to use is recognition that the environment has intrinsic natural and cultural values to be fostered’ (Department of the Environment and Heritage 2005, p. 4) to the more anthropocentric view, ‘reducing our ecological footprint, while simultaneously improving the quality of life that we value—the ‘liveability’ of our society’ (Department of the Environment, Water, Heritage and the Arts 2010, p.4).

The ‘Sustainable Australia– Sustainable Communities– a Population Strategy for Australia’ (Department of Sustainability, Environment, Water, Population and Communities 2011) reinforced the concept in the 2010 curriculum and framed development as a positive for economic and population growth. A ‘Sustainable Australia’ is a place that:

‘...recognises that population change is not only about the growth and overall size of our population, it is also about the needs and skills of our population, how we live, and importantly, where we live’ (Australian Government, 2011 p.2)

Linking into the Sustainable Population Strategy is the ‘Sustainable Regional Development Program’ (Department of Sustainability, Environment, Water, Population and Communities 2011). The policy outlines investments for larger regional centres to improve economic development achieved through transport networks (roads, trains and aviation) and targeted industry developments.

New South Wales (NSW) – There are three NSW Government policies providing definitions of sustainable development (Appendix 6). One policy refers to planning and development legislation and protection of the environment, the ‘Protection of the Environment Administration Act 1991’. This policy legislation reflects the ESD definition and the intergenerational perspectives of the Brundtland report and Agenda 21. The other two policies refer to education curriculum, the NSW Government Environmental Education Plan 2007-2010 and the last is the Building Sustainable Communities Plan, 2011.

Local Government –The UN Local Agenda 21 (chapter 28) outlined the role of local governments in ‘educating, mobilising and responding to the public to promote sustainable development’ (Agenda 21 paragraph 28.1). The NSW Local Government Act 1993, outlines principles to underpin councils’ work and includes: the precautionary principle, intergenerational equity, conserving biological diversity and ecological integrity and improving the valuation and pricing of social and ecological resources.

Section Summary -Ecological perspectives originally influence sustainable development policy based on the premise that protection of ecosystems and natural resources is the *sine qua non* for any development, social or economic. In the 1990s, Australian national and state policies also began with ecological perspectives. However, following the UN Johannesburg declaration in 2002, the three pillars of sustainable development, economic, social and environment, have emerged. From here, the Australian governments begin to incorporate a more anthropocentric approach to sustainable development policy and people are firmly

seen at the centre of sustainable development. Ecological perspectives when referred to are discussed in terms of protecting the natural resource base for social and economic development.

More recently at the RIO+20 the concept of the ‘Green economy’ became part of sustainable development agenda and is promoted as a key strategy in the Sustainable Development Goals.

Current Australian government sustainability policies focus on population and economic growth and environments that are liveable and provide for human needs. Needs in this sense includes: freedom, justice and peace, eradication of poverty, food security, health care, education, clean water and sanitation, employment and urban infrastructure that facilitate social sustainability as outlined in the Sustainable Development Goals (UN 2015). Despite the shift at national and state policy level, NSW Local Government legislation still refer to the 1992 ESD definition.

2.3.5 Economic Sustainable Development

The word economy comes from the Greek word *oikonomos* which describes the management of the house (Labonté, 1991) and is defined in the Oxford English Dictionary as, “The state of a country or region in terms of the production and consumption of goods and services and the supply of money” (Oxford English Dictionary, 2015c). It is how we organise society, produce food, goods and material and how we distribute, trade or swap (Washington 2015).

Neoclassical economics vs Steady State

Neoclassical economics and the steady state economy are two current schools of thought influencing economic sustainable development. They are seen as opposing paradigms with different ethical and philosophical foundations (Hediger 2004). The neoclassical economical world view is that sustainable economic growth is ‘growth which can be maintained without creating other significant economic problems, especially for future generations’ (Economicsonline 2015). In this paradigm, a sustainable economy is dynamic and efficient and has ongoing potential to maximize social welfare (Gowdy 2005). It assumes the circular theory of production-consumption-production within a free market, relying on population

growth and increasing throughput of resources, which is measured as Gross Domestic Product (Washington 2015).

In this paradigm, the limits of a finite earth are not recognised, and Nature, is understood as natural capital, and a resource for people (Wijkman & Rockström 2012, p.17). Put another way, this economic theory assumes that economic systems are ‘independent of environmental restraints’ and therefore can be ignored’ (Beder 2011, p.140) and different forms of capital can be used to substitute each other. For example, human capital can be used as a substitute for natural capital (Simon 1998). Under this view, environmental degradation, pollution or damage are externalities. Externalities are defined as:

‘situations when the effect of production or consumption of goods and services imposes costs or benefits on others which are not reflected in the prices charged for the goods and services being provided’ (OECD 2002).

The neoclassical economic view dominates world economies (and world views), and under this view an externality is not worthy of attention, especially when different forms of capital can be substituted for each other. This lack of attention to environmental damage and degradation is partially the reason why the world is experiencing such global biodiversity losses (Washington 2015).

Another criticism of neoclassical economics is that it does not take into account the Second Law of Thermodynamics or the concept of ‘entropy’ (Daly 1991). Under this Law, we do not create or destroy anything, we transform or rearrange it, and this rearranging creates disorder elsewhere (Washington 2015). Entropy ‘is the measure of disorder in a closed system’ (Washington 2015, p. 53). The concept relates to finite amount of energy the earth has to ultimately sustain life a view that is not compatible with infinite economic growth (Washington 2015).

Dryzek (2005) discusses that the neoclassical economics world view aligns with a cornucopian ideology. Cornucopian ideologists deny environmental limits and believe that there is an abundant supply of natural resources, with an unlimited capacity to absorb pollution. Aligning with this school of thought is the promethean response, that humans have the ability to conquer problems through innovation and technology (Dryzek 2005). Both approaches see nature as ‘matter

that can be infinitely transformable given enough energy' and therefore given enough energy economic growth can also be seen as infinite (Dryzek 2005, p.57). In this ideology, the concept of ecosystems does not exist and it is essentially about people, markets, prices, energy and technology (Dryzek 2005, p.58). In terms of sustainable development, economic growth is portrayed as a human good and a way to alleviate poverty (Sachs 2015).

An alternative to the neoclassical economics view is the steady state economy (Hediger 2004). Based on ecological economics, this view incorporates physical laws (such as the *Second Law of thermodynamics*) and ecological limits with a constant population (at an ecologically sustainable level) and constant low level of throughput in materials and energy (Daly 1991). Fundamentally, the steady state economic view is based on the understanding that endless economic growth on a finite planet is not possible, and unlike the neoclassical view, the steady state does not see Nature as an externality and a human utility (Daly 1991). In this paradigm economic sustainability is achieved by ecosystem stock (ecological capital) and social welfare potential (total stock of human made and natural capital as per weak sustainability) being maintained over time (Hediger 2004).

Beder (2011) draws a comparison between environmental and ecological economics. Environmental economics aligns with a neoclassical economic view in that there is a reliance on the market allocating environmental resources efficiently, and that resources are appropriately priced, (to reflect the relative scarcity of a natural resource), and this is achieved in a socially optimal way (Beder 2011). Environmental economists interpret sustainable development as:

‘development that maintains capital for future generations where capital is the total of human capital (skills, knowledge and technology) and human-made capital (such as buildings and machinery), as well as natural capital (environmental goods)’, (Beder 2011 p.143).

Alternatively, ecological economists see the economy as ‘an open subsystem of a finite and non-growing ecosystem’ and is defined by its focus on nature, justice and time (Washington & 2016, p. 21). They seek to apply a transdisciplinary approach, drawing on philosophy and economic, social and ecological research

(Beder 2011). However, it is environmental economics discourse that is reflected in government policies (Beder 2011). An Australian example is the NSW Government's Local Land Service State Strategic plan 2016-2026. In this policy the concept of land management and natural resource management is discussed in terms of productive landscapes, performance measures, creating value for customers, investors and stakeholders, and customer satisfaction (NSW Government 2016).

Green Economy: This is an emerging economic sustainable development perspective that gained United Nations agreement at the Rio+20 in 2012. Greening economies aim to create wealth and employment to improve human well-being and social equity; and to reduce environmental risks and ecological scarcities. There are six main sectors; transport, water management, waste management, natural resource management, renewable energy and green buildings (UNEP 2011a).

Blue Economy: Aligning with the green economy is the 'Blue economy' which espouses the same principles as the green economy; but the focus here is on oceans and rivers, predominately in developing countries. These countries base their economic sustainability on future marine based resources and therefore this is particularly relevant for small island economic development (UN 2012).

Knowledge economy: In this perspective knowledge is seen as a form of capital or stock of capabilities essential for a sustainable economy, that will lead to higher economic growth with lower consumption of resources (Ngyuen 2010, p. 7). Information and technology and the digital age are part of our modern way of living that has enabled transformations on a global scale for business, education, health and environments (Ngyuen 2010 p.7). The knowledge economy is more than this, it encompasses creativity, innovation and skills and has the ability to store, share and analyse knowledge through networks to enable the stock to be utilised (Brinkley 2014).

Sharing economy: An alternative to the traditional economic models is the sharing economy. Since activities are broad and include the recirculation of goods, increased utilisation of durable assets, exchange of services and sharing

productive assets, a succinct definition is not possible (Schor 2014). The use of underutilised resources, flexible employment options, ‘bottom up’ self-regulation, lower overheads and tailored products are said to be some benefits of a sharing economy (Allen & Berg 2014).

Intergenerational and Intragenerational Equity: In terms of economic sustainability, equity is about fair distribution in gains and losses and the entitlement of everyone (present and future) to a quality standard of living (Beder 2000). Intergenerational equity enables future generations to meet their needs, and intragenerational equity, refers to the gains and losses ‘applied across communities and nations within one generation’ (Beder 2000). Equity is based on the understanding that present and future generations might gain from economic progress, but this may be at the expense of environmental deterioration caused by actions of present generations (Beder 2000). Intergenerational equity and ‘fiscal sustainability’ require ‘generational accounting’ which necessitates the balancing of population aging and policies that ensure fair distribution of tax burdens (Coombs & Dollery 2002). Stavins et al. (2003) combine the concepts of efficiency with intergenerational equity as a way to describe a sustainable economy. They define a sustainable economy as one that, ‘is sustainable if and only if it is dynamically efficient and the resulting stream of total welfare functions is non-declining over time’ (Stavins et al. 2003). However, as Washington points out, achieving efficiency does not guarantee equity (Washington 2015). In a neoclassical economic paradigm that relies on as market led assumptions, these assumptions can lead to outcomes that can be socially or environmentally unfair (Washington 2015). Therefore, in terms of equity, the steady state economic perspective would seem to take into account the concept of fairness and justice.

A sample of descriptions and definitions for economic sustainable development are provided in Appendix 8.

Alternative measures of progress and prosperity

GDP measures ‘the market value of total production within in a country in a given time period and as a measure of national wellbeing’, it correlates closely to

measures of life expectancy, levels of education, quality of infrastructure and personal spending (Sachs 2015, p. 14). However, using GDP as a measure of progress and prosperity has limitations. GDP is the total gross product per capita, which is divided by the population to give an average country level rate of economic prosperity. This means that it does not take into account inequalities such as differences in household income (Sachs 2015). GDP also does not take into account externalities such as depletion of natural resources or environmental damage or degradation (Washington 2015).

Alternative measures of economic progress have been proposed. For example, the Genuine Progress Indicator (GPI). This indicator does consider income distribution, annual income, environmental costs and benefits, and other social measures, such as, the value of volunteer work, the cost of divorce, crime and pollution (Talberth et al. 2007). Other subjective measures of wellbeing are also being used as ways to measure progress, and these include the World Values Survey (WVS), now in its 7th wave (World Values Survey n.d.). The WVS measures beliefs, values and motivations of people throughout the world.

Another subjective measure of wellbeing is the Gross National Happiness Index. The Index originated from Bhutan (Gross National Happiness n.d.). The Index measures are framed around four sustainable development pillars; good governance, sustainable socio-economic development, cultural preservation and environmental conservation (Gross National Happiness n.d.).

In Australia, the Australian National Development Index (ANDI) is currently being developed as a way of measuring human progress that goes beyond measuring economic growth as the measure of progress. The conceptual framework includes 12 dimensions of wellbeing that include a set of the 'key social, health, economic, and environmental factors contributing to overall quality of life' (ANDI n.d.).

Section Summary: Economic sustainable development has two dominant schools of thought. One values economic growth, capital accumulation and technical progress for human benefit (Hediger 2004). The other includes preserving environmental quality and ecosystem integrity for ecological capital gains and

environmental asset growth; and considers the dynamics of population growth and land use (Hediger 2004). Both require methods to account for capital gains and losses regardless of what is measured. The Green and Blue economies schools of thought, although framed around environmental protections and minimising risk, also ascribe to the neoclassical economic world view, and their focus is on economic growth and capital gain.

Within both of these paradigms sustainable development includes the concept of equity and the meeting of human needs for current and future generations. The discourses of the two perspectives are more than ideology. They demonstrate political power, most obviously reflected in the dominance of the neoclassical economic approach that underpins the majority of Australian government policies. The neoclassical discourse also sets conditions and shapes values and perceptions of those who ascribe to this ideology. As the dominant discourse it embodies power (Foucault 1980).

Other ways of thinking about economic sustainable development are emerging. For example, the new sharing and knowledge economies are developing new business models, regulation and consumer choices, that align with both the neoclassical growth and the steady state.

2.3.6 Ecological / Environmental Sustainable Development

The word ecology, like economy, is derived from an Ancient Greek term, *oikos logos*, the study of the home (and economy being the management of the home) as such the terms are closely linked. (Washington 2015 p47, Labonté, 1991). The Oxford English Dictionary defines the word ecology as, ‘The branch of biology that deals with the relations of organisms to one another and to their physical surroundings’ (Oxford English Dictionary 2016a) and ecological as, ‘Relating to or concerned with the relation of living organisms to one another and to their physical surroundings’ (Oxford English Dictionary 2016b).

In this search, of the three sustainable development pillars, ecological sustainable development has the least number of definitions, but it does have components that require explanation. The ecological perspective extends from small ecosystems to planetary scales, and includes the concept of ecological limits, ecological

footprint, ecosystems services and planetary boundaries; which are discussed below.

Ecological or Environmental? The words environmental and ecological are interchanged in the literature to describe this pillar of sustainable development. Environmental sustainability refers to ‘the rates of renewable resource harvest, pollution creation, and non-renewable resource depletion that can be continued indefinitely. If they cannot be continued indefinitely then they are not sustainable’ (Thwink.org 2015). Sutton (2004) defines it as, ‘the ability to maintain things or qualities that are valued in the physical environment’ (Sutton 2004, pi).

Ecological sustainable development has a broader scope and is defined as:

‘...using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased’ (NESD 1992)

Ecosystems services: The ecological processes upon which life depends starts with ecosystems and the benefits humans obtain from them are referred to as ecosystem services (Millennium Ecosystem Assessment [MEA] 2003, p.49).

Ecosystems are defined as:

‘A dynamic complex of plant, animal, and microorganism communities and the nonliving environment, interacting as a functional unit. Humans are an integral part of ecosystems’ (MEA 2003, p.49).

They maintain biodiversity and production of life supporting systems that include services for provisioning (food, fibre, water); regulating (climate, water flow, erosion and pollination); cultural (aesthetics, heritage values recreation and tourism) and supporting services (soil, photosynthesis, water and nutrient cycling) (The MEA 2003, p.56).

Ecological Limits: Ecological limits refer to the concept of a limit to the quality and capability of ecosystems to continue to provide services at a level necessary for support of human life on earth. The Club of Rome’s ‘Limits to growth’ central message is that the earth is finite and ecological limits include: population growth, resource use, industrial output, agricultural production and pollution

(Meadows et al. 1972). The MEA reported that over the past 50 years, human wellbeing and economic development had net gains. This has been at the cost of ecosystem degradation (60% of ecosystems are degraded or used unsustainably) and poses significant risks to food, fresh water, fibre and fuel (MEA 2005). Thus, humans are exceeding ecological limits.

Planetary boundaries: Steffen et al. (2011, 2015) discuss the concept of ecological limits to earth system services that provide nutrients from oceans, store water, provide fertile soils, store carbon and maintain the ozone layer (Steffen et al. 2011, 2015). These earth system services shape the planet's biosphere and create the conditions upon which life depends. Analysis by Steffen et al. shows that human actions are affecting the planet's biosphere and surpassing the earth's capacity to regenerate natural capital (Steffen et al. 2011, 2015).

Rockström et al. (2009) identified nine planetary boundaries described as essential for living systems. They include: climate change; rate of biodiversity loss; nitrogen cycle (phosphorous and nitrogen); stratospheric ozone depletion; ocean acidification; global freshwater use; change in land use; atmospheric aerosol loading and chemical pollution (Rockström et al. 2009); and novel entities (Steffen et al. 2015). It is estimated that four boundaries (climate change, biosphere integrity, biogeochemical flows, and land-system change) have exceeded the proposed safe operating system (Steffen et al. 2015).

Ecological footprint: The ecological footprint is 'an accounting tool that enables us to estimate the resource consumption and waste assimilation requirements of as defined human population or economy in terms of corresponding productive land area' (Rees & Wackernagel 1998, p.9). It provides a measure of the earth's ability to supply, replenish, absorb and stabilize the biophysical environment (Rees & Wackernagel, 1998). It can be conceptualised from individual to global scales (McMichael & Butler 2011).

Other ways of measuring human impact on the environment: The Living Planet Index, this Index analyses and compares datasets for biogeographic regions, eco-regional biomes, threat status and taxonomic groups to give an estimate of biodiversity integrity, species numbers and extinctions (Loh et al. 2005). The IPAT equation measures the Impact (I), Population (P), material

consumption (affluence, A) and technology (T) (Ehrlich & Holdren 1971).

Section Summary:-In this section I have presented explanations of ecological sustainable development concepts that occur frequently in the literature. The search strategy results show that the concept of ecological sustainability includes: humans living within ecological limits, understanding ecosystems services are essential for life support systems from micro ecosystems to planetary boundaries; and, like economic sustainable development, ecological sustainable development is measured and accounted for.

Definitions of ecological sustainable development or environmental sustainability encompass the natural world. However, they are constructed around the human ways of living and their impact on the earth and quality of life now and in the future. The concept of intergenerational and intragenerational equity is an underpinning principle.

2.3.7 Social Sustainability

Murphy (2012) refers to social sustainability as the ‘missing pillar’, the least conceptualised and the most difficult to define (Murphy 2012, p.18). Definitions are summarised in Appendix 9 and include social sustainability as systems and structures (Barren & Gauntlett 2002) and processes (Woodcraft et al. 2011); for life enhancing conditions (McKenzie 2004), that produce and enable health and wellbeing (Dillard et al. 2009) in a culturally harmonious environment (Polese & Stren 2000). Cuthill (2009) describes social sustainability in terms of four components: social capital (provides the starting point for social sustainability); social infrastructure (provides the operating environment); social justice and equity (ethical imperative); and engaged governance (a methodology for working together) (Cuthill 2009).

Hancock (1999) also describes other forms of capital that contribute to social wellbeing. These include human capital (education, skills and innovation within the community); natural capital (quality and health of ecosystems, sustainable resources and conservation); and economic capital (economic prosperity that is sufficient to feed, clothe and house the community) (Hancock 1999). The last form of capital, social capital, Hancock describes as ‘the glue that holds our

communities together' (Hancock 1999, p. 276). Social capital can be informal, such as our day to day social networks and connections (Putnam 1993). It can also be formal, for example, the social systems that are in place to support and provide social care assistance or pensions (Hancock 2009). Social capital can also be 'invisible' and hidden to us, or we may not be conscious of them as they are embedded in constitutions, or legal and political systems, attitudes and beliefs (Hancock 2009).

This idea of capitals as a form of wellbeing and community wealth also aligns with the three sustainable development pillars. Hancock's (1999) informal, formal and invisible social capital also shows how social capital can operate at different levels. For example, from individuals, family and friends (the micro level), government social and health policies and institutions (the meso level) and attitudes and beliefs (at the macro level). The concept of micro, meso and macro levels is explored further in section 2.4.5.

Social sustainability as a process: Dillard, Dujon and King (2009) describe social sustainability as a process for a community to become socially sustainable and as an outcome, and the process and outcome generates social health and wellbeing (Dillard et al. 2009). Processes include: 'development sustainability' to address poverty and inequity; 'bridge sustainability' to bring about changes in behaviours (transform); and 'maintenance sustainability' preserving socio-cultural practices (Vallance et al. 2011, p342). Social sustainability processes and outcomes result in meeting basic human needs and freedoms, opportunities for human development through inclusive and collaborative social, cultural, economic and political institutions (Magis 2009). The indicators that measure outcomes can also become community actions and vice versa (McKenzie 2004).

Life enhancing conditions, health equity and justice: Social sustainability includes the collective aspects of community life that come from networking, group participation, community stability, community pride and sense of place (Dempsey et al. 2009). The social infrastructure of institutions and places, the physical design of towns, the characteristics of the local neighbourhood and social interactions within them contribute to this. It entails accessibility to employment, to services, to safety and security (Murphy 2012).

For a community to be sustainable, the social system must ‘achieve fairness in distribution and opportunity, adequate provision of social services, including health and education, gender equity, and political accountability and participation’ (Harris & Goodwin 2001, p. xxxix).

Just ‘sustainabilities’: Agyeman (2005) refers to just ‘sustainabilities’, linking both social and environmental justice into the social sustainability dimensions. There are four essential conditions: improving quality of life; meeting needs of both present and future generations; justice and equity in terms of recognition, process, procedure and outcome; and living within ecosystem limits (Agyeman 2005). The just sustainabilities concept goes beyond the green or environmental concerns and includes strategies for dealing with intragenerational and intergenerational injustices.

Social sustainability and culture: Culture, like the social pillar, has also been referred to as a missing pillar, or the fourth pillar, and includes art and heritage; spiritual, material, intellectual and emotional dimensions (Burford et al. 2013, p.3036). Woodcraft et al. (2011) argue that ‘places become sustainable’ because of how people are engaged in social and cultural life in that space (Woodcraft et al. 2010, p16).

Section summary: My analysis of the literature disagrees with the concept that social sustainability is a missing pillar and the least defined. It has many dimensions but the concept clearly links social processes, systems and structures (cultural, political and economic); ways of living and creating liveable equitable communities; and collective action, democracy and fairness to provide a good quality of life (Western Australia Council of Social Services 2000).

In common with economic and ecological sustainable development, equity for current and future generations is an underpinning principle. However, unlike the other two pillars it includes both concepts of social and environmental justice as ‘just sustainabilities’ (Agyeman 2005), and the concept of spiritual and emotional connections to people and places. It is less about accounting for objective measures, pricing or predicting gains and losses (financial or ecological) and more about relationships and subjective meaning given to everyday life.

2.3.8 Part 2 Summary

In this section definitions for sustainable development and its three pillars were discussed. It is a vast topic and a limitation of this literature search is that what is presented here forms a small part of a complex field. Part 2 commenced with an overview of international, national and state policies tracing the origins of the term sustainable development. I found it was useful to examine policy documents first to gain a historical perspective and use it as a point of reference to trace how the concepts have been developed globally and translated into national and state initiatives (Kjærgård et al. 2014).

Ecological perspectives originally influenced how people thought about sustainable development, i.e. that protection of ecosystems and natural resources was the platform to start from for any kind of sustainable development. However, nearly thirty years after the Brundtland report the sustainable development discourse is now influenced by the political power embodied in neoliberalism and the neoclassical economic world view. As a result, ecological sustainable development and the conservation of natural resources are seen as natural assets that will support and provide for economic and social development and the implementation of the green economy agenda.

Of the three pillars, the economic literature shows the most contrasts in ideologies and ontologies that relate to the role and place of the natural world and economic growth. Neoclassical economics sees economic growth as infinite and nature as an externality that can be exchanged for other forms of capital. This is in contrast to the steady state economy, where natural capital is as an asset to be protected to avoid reaching ecological limits and decreasing stock. New economic business models are emerging as part of economic transitions and include the green, blue, knowledge and shared economies.

Ecological literature has the least number of definitions. The concept of ecological sustainable development attempts to be a holistic approach to include all biophysical systems and includes the concept of ecosystem integrity and ecological limits, such as the size of the human population. These concepts also underpin the ecological economics of a steady state economy. In contrast, the neoclassical economic and social pillar definitions do not refer to population size

or consumption as something that has limits. Economic growth is seen as an indicator of wealth and social progress and equity is about fairness of distribution to enable inclusion and opportunity.

Social sustainability, although seen as the missing pillar, in this literature search had the most detailed descriptions. Social sustainability can be a process and an outcome of health and wellbeing, cultural diversity and harmony, collaboration and collective action.

There is consensus in the economic and ecological literature in that descriptions are scientific, technical, objective and measurement focused, whereas social sustainability is about qualitative outcomes, people's relationships, quality of life and connections to people and places.

There is also consensus in the literature that each pillar considers the concept of equity. However, it must be noted that in the neoclassical economical paradigm, the concept of equity is more about equity in terms of allocating, distributing and sharing costs, such as intergenerational tax distribution and meeting basic needs. This is in contrast to the steady state and ecological economic view, and the social and environmental sustainability view. Equity in these paradigms is considered to be about fairness and incorporates the concept of social and environmental justice.

In summary, there are four areas of consensus between all three sustainable development pillars that: Sustainable development encompasses the interdependence and interaction of the social, ecological and economic pillars. Sustainability or sustainable development is about humans, survival, behaviour and quality of life. Each pillar can be understood as levels or scales from micro to macro, from individual to global. The concept of equity is present in each pillar and includes intergenerational and intragenerational equity.

2.4 Part 3 Ecological Public Health

2.4.1 Introduction

In this section, I begin by summarising the ecological public health (EPH) search strategy results and the key points from the literature. I introduce the concept of EPH, examine what is known about EPH, its definitions and principles; how it compares to other conceptions of public health (Old / New, conventional and Ecological Public Health); and explore its theoretical underpinnings. I also discuss the concept of eco-social approaches. As a way of bringing the two constructs of sustainable development and EPH together, I propose an EPH and Just Sustainabilities Model as a way to visually consolidate the literature.

2.4.2. Ecological Public Health Search Strategy Results

The search strategy found 17 papers that refer directly to EPH in the abstract or title or provide a definition and were sourced from peer reviewed journals, grey literature and books. An additional 8 references from key informants and hand search of reference lists are included that explain EPH theoretical underpinnings, (see Appendix 10,11 and 12).

2.4.3 Old / New, Conventional and Ecological Public Health

Authors make it explicit that the concept of EPH is not new and builds on ‘Old’ and ‘New’ public health knowledge (Rayner & Lang 2012, Bentley 2014). ‘Old’ Public Health refers to historical origins of public health and also the paradigms of sanitary-environment, germs and gene theories and how Public Health became a discipline and health system. The approaches focus on adapting environments (natural and built) to improve human health (Rayner & Lang 2012).

The ‘New’ Public Health signalled a shift from medically dominated disease and treatment, to focusing on broader determinants of health and inequities, social behaviours and political economies (Ashton & Seymour 1988).

EPH, integrates these approaches but its focus is on interactions and understanding interplays between human communities, habitats, cultures, ecosystems, microbial activity, climate and environmental conditions (McMichael et al. 2015, p.4). Five Public Health models are summarised in Table 2.

Table 2 Models of Public Health

Sanitary- Environmental	See the environment as a threat from dirt, poor hygiene unhealthy products. The focus on populations and physical conditions and environmental hazards. Concerned with health protection, public infrastructure e.g. town planning design, mechanism to monitor and maintain pollution control.
Biomedical	For health improvement an understanding of biological causation is required. Focus can be Individual and population (genetics, disease treatments and rebalancing bio-physiological processes), led by medical profession, epidemiology and pharmaceutical intervention.
Social behavioural	Focus is educating and protecting the public by influencing the social norms and everyday lifestyle habits through health education, psychological and social marketing interventions to influence cognitive determinants of health.
Techno- Economic	Economic and knowledge growth will improve health and raise living standards by spreading wealth and technological advancement.
Ecological	Health is dependent on successful coexistence of natural world and social relationships. Requires the coordination and collaboration of multiple actors

(Source: adapted from Rayner and Lang 2012 p. 102, Lang and Rayner, 2012)

2.4.4 Definitions and Principles

Definitions of EPH bring together notions of interdependence, connections and complexity. Kickbusch (1989) Chu (1994) and Bentley (2014) for example, describe the principles as conviviality, equity (environmental and social), sustainability and global responsibility. Nurse (2010) includes interconnections from a living systems lifecycle view that address environmental and social health determinants through diverse, innovative, creative and resilient networks and partnerships (Nurse, 2010). Chu (1994) describes ecological public health as an extension of the new public health, with health viewed holistically and its main focus is the integration of environment and health, through intersectoral action (Chu 1994).

Previous approaches to Public Health addressed issues of their time. EPH has evolved in response to new global societal and health issues that are

unprecedented in Public Health history (Kickbusch 1989). One explanation for the move from the previous models is the understanding that we are living in the Anthropocene, an era that recognises planetary changes are caused by human actions with myriad health impacts (Rockström et al. 2009). For humans these include obesity, the emergence of new infectious diseases and direct and indirect effects of climate change (McMichael 2001; McMichael et al. 2015). The term ‘actions’ relates to the way humans live and the overconsumption of natural resources and production methods of human made resources. It also relates to the expanding global human population, putting stress on the bio-capacity of the earth to provide essential ecosystem services (clean air, water soil, absorb and degenerate toxins) (McMichael 1993). McMichael (2015) refers to these human actions and climate change, a syndrome that is characterised by the excessive burning of fossil fuels releasing greenhouse gases into the atmosphere. These human actions have over the past 40 years increased global temperatures from 0.6 to 2°C in high northern latitudes (McMichael et al.2015).

Unlike previous public health models that look for direct cause and effect, EPH embraces complexity, understanding that there are multiple causes and effects that create the conditions for health (Rayner & Lang 2012, McMichael et al. 2015). The complex interactions are at once environmental and social (i.e. ‘eco-social’) and this combination makes these issues ecological (McMichael et al. 2015).

EPH goes beyond looking at patterns of relations as a quantitative outcome and seeks to create new natural and social sciences dialogue, to enable the search for explanations for both physical and social health processes (McLaren & Hawe, 2005). This holistic approach requires public health interventions to move from anthropocentric and individualistic approaches to focus on ecosystem health, sustainable resources, equity and social justice (Bentley 2014). A summary of EPH definitions is included in Appendix 10.

At the heart of the EPH thinking is the understanding that everything is connected. Patterns connect the interdependent and interacting material, biological, social and cultural dimensions of existence, summarised in Table 3 (Rayner & Lang 2012). EPH seeks to refocus the patterns that connect natural environments and humans, whilst recognising that ecosystems, at the most basic level of an ecological

system, constitute ‘essential life support foundations upon which humans and other species depend, and which are now endangered’ (McMichael et al. 2015, p.7). The key factor is that people are a part of but not central to EPH (Bentley 2014).

Table 3 Four dimensions of existence (Rayner & Lang 2012)

Dimension	Description
Material	The physical and energetic infrastructure of existence, (matter, energy, water)
Biological	Bio-physiological processes and elements for all living systems microorganisms, animal and plants.
Social	How the human world is organised, relationships and interaction between people, institutions and networks.
Cultural	Human values, ideas, consciousness of everyday meanings and collective understanding.

(Source: Adapted from Rayner and Lang 2012, p. 65)

2.4.5 Ecological Public Health Theoretical Underpinnings

This section discusses conceptual points referred to in the literature that craft EPH thinking (Bentley 2014) and demonstrate how EPH draws on and integrates public health models (Lang & Rayner 2012). EPH is also founded on very old ‘ecological thinking’ (Rayner & Lang 2012 p.93) dating back to the days of Hippocrates and Aristotle.

Ecology: Ancient Greek philosophers such as Hippocrates and Aristotle studied the relationships between biology, health and the environment. However, the term ecology was developed by Ernst Haeckel (1834-1919) in the 1860s (Odum & Barrett 2004 p.3). The term is derived from the Ancient Greek words *oikos* and *logos*, meaning the study of the home (Labonté 1991). Haeckel’s ecological thinking was informed by Charles Darwin’s economy of nature, as such the term also has its roots in evolutionary thinking.

Haeckel defined ecology as, ‘the study of the natural environment including the relations of organisms to one another and to their surroundings’ (Haeckel 1869). This definition continues to inform the study of natural and biological sciences today. Ecology looks at the functions, processes, organization and feedback loops

from cells, tissues, organs or organisms, populations, communities, ecosystems, landscapes, biomes and the ecosphere (Odum & Barrett 2004 p.1). However, the scope of ecological thinking has broadened beyond its original biological origins and now includes human and social ecology.

Human and social ecology: Human and social ecology, assumes that every person and organism is linked in a complex network of ecological, social-cultural, economic and governance systems (McLaren & Hawe 2005). This concept also has Ancient Greek origins. Hippocrates, for example, discussed the interdependence of human health, food and the environment (Price 1997). Human ecology is also concerned with ‘ethics, social-ecological systems, learning from experience, and dominant human-belief systems’ (Dyball 2015, p.9).

Last (1998) links the concepts of ecology and human ecology with public health by explaining that:

‘Ecology is concerned with the healthy interaction of living creatures in a closed system. Human ecology includes humans in this system. Humans interact with each other as well as with other living creatures and these interactions have important effects on the health of all partners in the complex closed ecosystems of our planet. We ignore this reality at our peril’, (Last 1998, p.ix).

The concept of systems and levels and relationships between them also has a long history. General Systems theory, for example, describes systems as integrated wholes, whose properties cannot be reduced to those of smaller units (Price 1997). Meadows (2008) discussed that systems are ‘A set of things- people, cells, molecules or whatever, interconnected in such a way that they produce their own pattern of behaviour over time’ (Meadows 2008, p.2). The concept of systems level thinking was related to the concept of human health in the 1970s by Howard Brody (Brody 1973).

For some, Bronfenbrenner’s social–ecological Micro, Meso, Exo, Macrosystems (Bronfenbrenner 1979), and the Chronosystem (Bronfenbrenner 1986), (see Figure 1), forms the basis of social-ecological thinking in public health models (Rayner & Lang 2012).

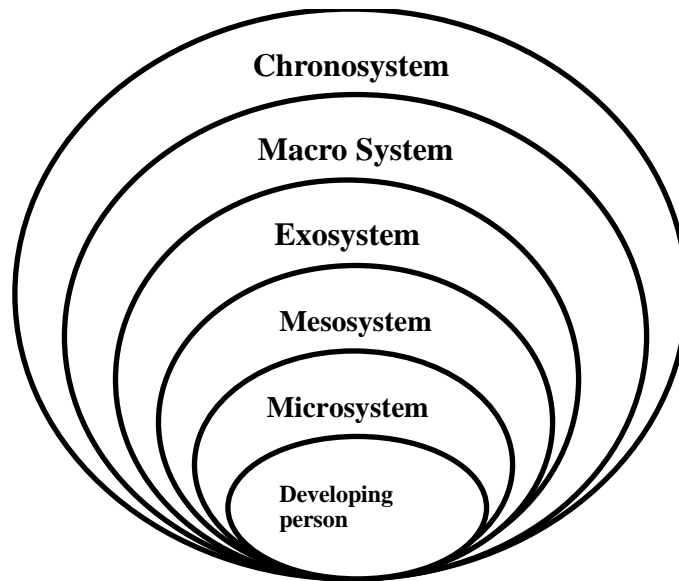


Figure 1 Bronfenbrenner's Ecology of Human Development Theory 1993 Adapted from Stanger 2011

Dahlgren and Whitehead's (1993) Determinants of Health rainbow (see Figure 2) depicts this concept of levels of influence, to demonstrate that individuals, in addition to their own health determinants, (age sex, gender, genetics) are surrounded by people, places, institutions, that shape conditions for health (Dahlgren & Whitehead 1993).

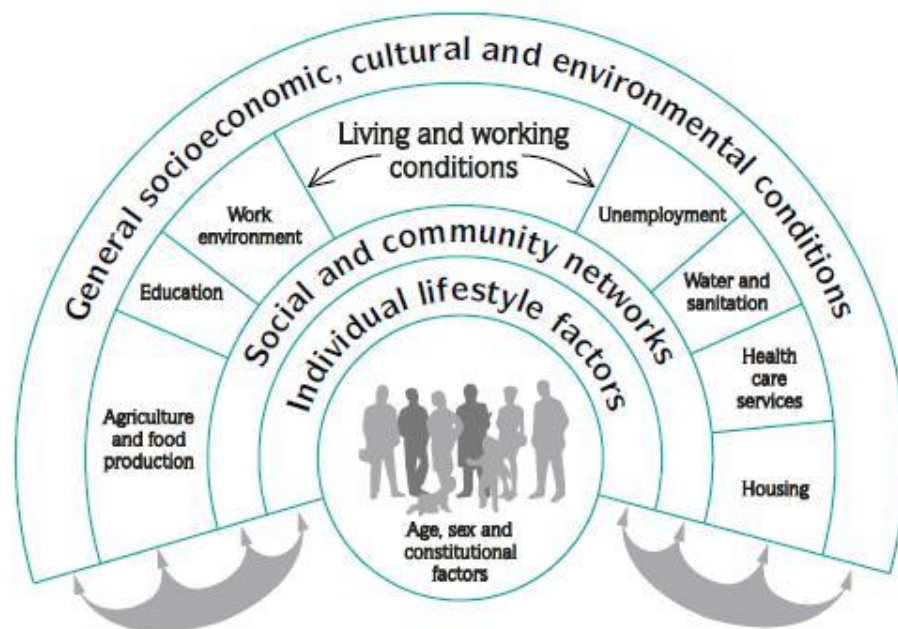


Figure 2 Dahlgren and Whitehead, 1993; reproduced by Public Health Warwickshire

However, in the Bronfenbrenner and Dahlgren and Whitehead models the natural environment is absent or depicted as the physical environment that surrounds the

human. With global impacts on water, biodiversity, soil structures, energy; and biological and social resilience and growing social inequalities, particularly problematic in the era of climate change; public health needs to develop ways of reconnecting human health to the ecological system, particularly ecosystems (McMichael et al. 2015).

Barton and Grant (2006), adapted Dahlgren and Whitehead’s model (1993). By drawing on ecosystem theory and sustainable development in urban settings, they incorporate relationships between climate change, biodiversity and global ecosystems (Figure 3). Despite introducing broader ecological concepts into a social-ecological model, Barton and Grant’s health map (as with the Bronfenbrenner and Dahlgren and Whitehead models) have their focus on people and their environment (Bentley 2014).

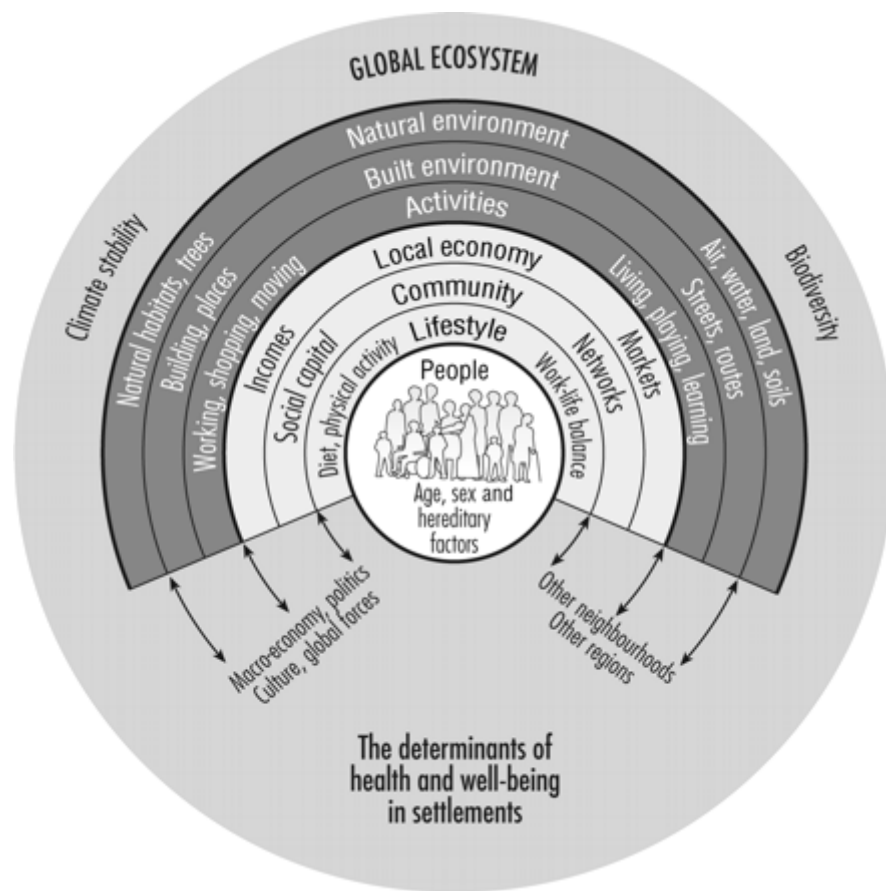


Figure 3 Barton and Grant, Health Map 2006. Source: Barton and Grant 2006

Eco-Social - Moving the ‘eco’ back into social ecological models, Stanger adapts Bronfenbrenner’s social-ecology model to reframe the anthro-dominant focus and

rebuilds the model as ‘eco-sociological’ (Stanger 2011). Stanger (informed by Odum’s 1993 ecosystem domain identification method) incorporates eco-social examples at each level as outlined in Table 4.

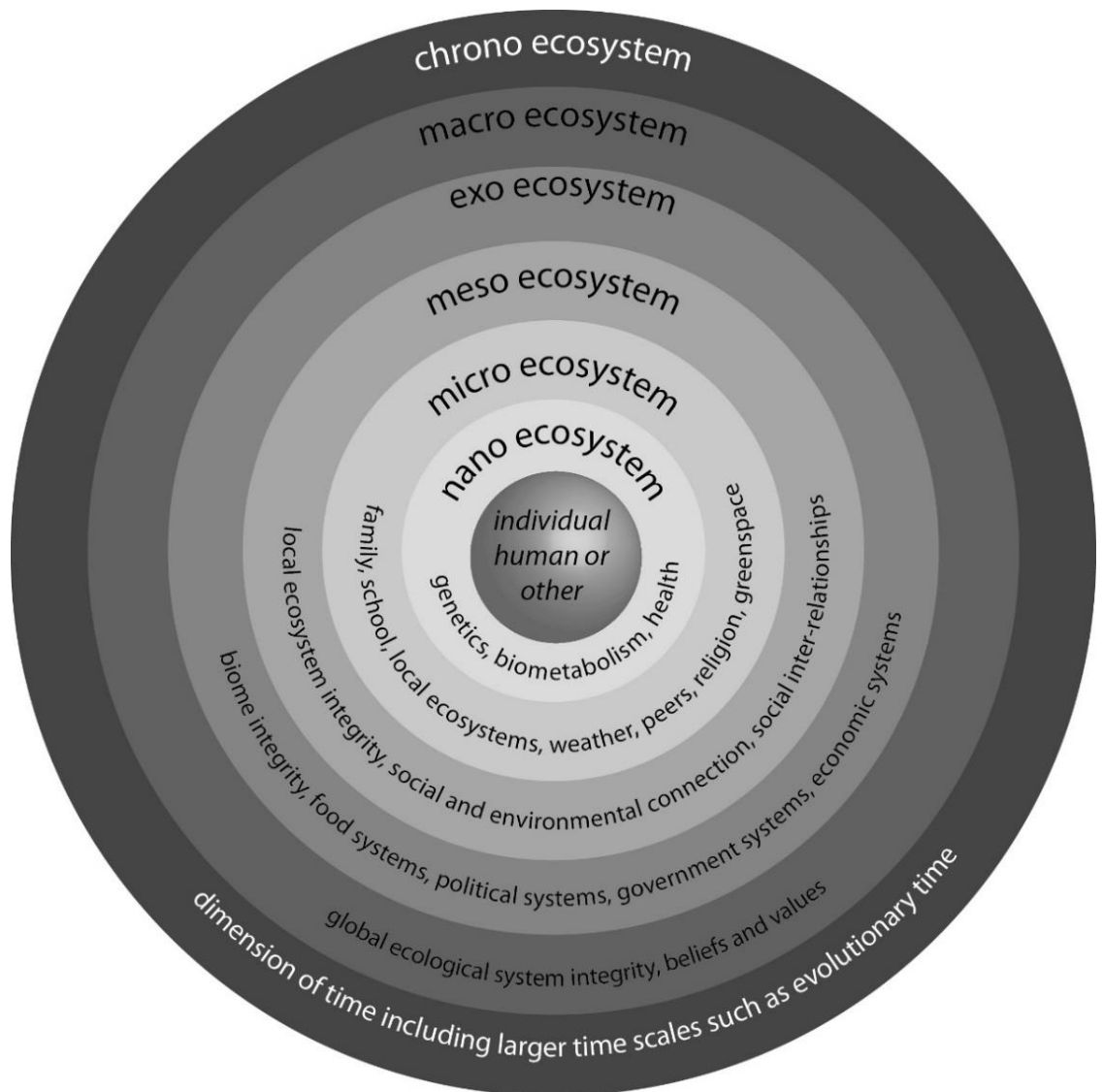


Figure 4 Stanger 2011’s Reworked ecologically based social –ecological model adapted from Bronfenbrenner, 1986¹.

Stanger is explicit that ‘eco’ refers to the ecological, and more specifically ecosystems. Reframing the model this way brings the focus on natural environmental factors and living systems as part of human development (Figure 4). Stanger goes further by introducing the Nano system level to ensure that systems of species and components that influence health from cell integrity,

¹ Sourced from Stanger 2011.

metabolism and biochemical interactions are introduced to the model (Stanger 2011). This level has particular resonance with the biomedical model of public health. It also brings back direct linkages to ecological thinking by including the cellular level of all living things. When inserted into the system model it is clear how this system level fits with the dimensions of EPH.

Table 4 Bronfenbrenner and Stanger's (2011) definitions of Nano, micro, meso, exo, macro and chronosystems

Level	Bronfenbrenner's Definitions (1979)	Stanger's (2011) Definitions	Eco-social Examples
Nanosystem	New level introduced by Stanger 2011.	Stanger describes this level as the smaller than visible systems of species and components that influence health such as; metabolism and other biochemical interactions. (Stanger 2011 p.171)	Cellular health, genetics, bio-metabolism
Microsystem	'A microsystem is a pattern of activities, roles, and interpersonal relations experienced by the developing person in a given setting with particular physical and material characteristics. (Bronfenbrenner 1979, p. 22)	Stanger describes this level refers as the immediate natural surroundings. This can include social networks as well the weather, aesthetics of the neighbourhood, local food systems. (Stanger 2011 p.171)	Components of green space, food quality and source, exposure toxins in the immediate environment, relations with family, friends and social norms.
Mesosystem	'A mesosystem comprises the interrelations among two or more settings in which the developing person actively participates e.g. a child at home, school, neighbourhood, an adult, family, work and social life' (Bronfenbrenner 1979, p. 25)	Stanger describes this levels as the integrity of local ecosystems as they interrelate to social systems e.g. access to community level greenspace, waste disposal, food production/ importing, integrity of water systems and biodiversity (Stanger 2011 p.171)	Local ecosystem integrity, social and environmental connections (e.g. food systems- locally grown toxin free food) and interrelationships social organisations.
Exosystem	'An ecosystem refers to one or more settings that do not involve the developing person as	This system includes the overarching governmental, political and	Biomes large ecological areas such as oceans, coral reefs, rivers

	an active participant, but in which events occur that affect, or are affected by, what happens in the setting containing the developing person'. (Bronfenbrenner 1979, p. 25)	economic systems and the ecological systems operating at the biome level. (Stanger 2011 p.171)	and streams, deserts, forests, grasslands. Influenced by their climate geology, soils and vegetation. Workplace conditions and regulations, environmental regulations, urban planning, trade, business and industries,
Macrosystem	'The macrosystem refers to consistencies, in the form and content of lower order systems (micro, meso, exo) that exist, or could exist at the level of subculture or the culture as a whole, along with any beliefs systems, ideology underlying such consistencies'. (Bronfenbrenner 1979, p. 26)	Stanger states that this level could be renamed 'earth' system and refers to the impact that this level has at a global scale e.g. on climate change, physical and mental health, habitat loss, unsustainable development and mass extinctions. (Stanger 2011 p.171)	Global ecological system integrity, Beliefs, values and ideology.
Chronosystem	'The chronosystem encompasses change or consistency over time not only in the characteristics of the person but also of the environment in which that person lives (e.g. changes over the life course in family structure, socioeconomic status, employment, place of residence'. (Bronfenbrenner 1994 p.40)	Stanger refers to the chronosystem as 'The interrelation of time and ecological components' Changes / transitions that happen over time e.g. 'nano ecosystem, microbiological interactions and synapses happen in microseconds' whereas Macrosystem level changes are evolutionary change that occur over millennia. (Stanger 2011 p.171)	Time - including larger time scales such as evolutionary time.

Raworth also sought to integrate the eco-social by integrating the planetary boundaries (from Rockström et al. 2009) with social dimensions for development, coming from a human rights perspective (Raworth 2013). 'The doughnut' is

designed to create conditions for an ‘environmentally safe and socially just space for humanity’ founded on human rights principles (Raworth 2013) Figure 5. This model however has the social dimensions in the middle of the model and the safe space is for inclusive and sustainable economic development, i.e. for humans.

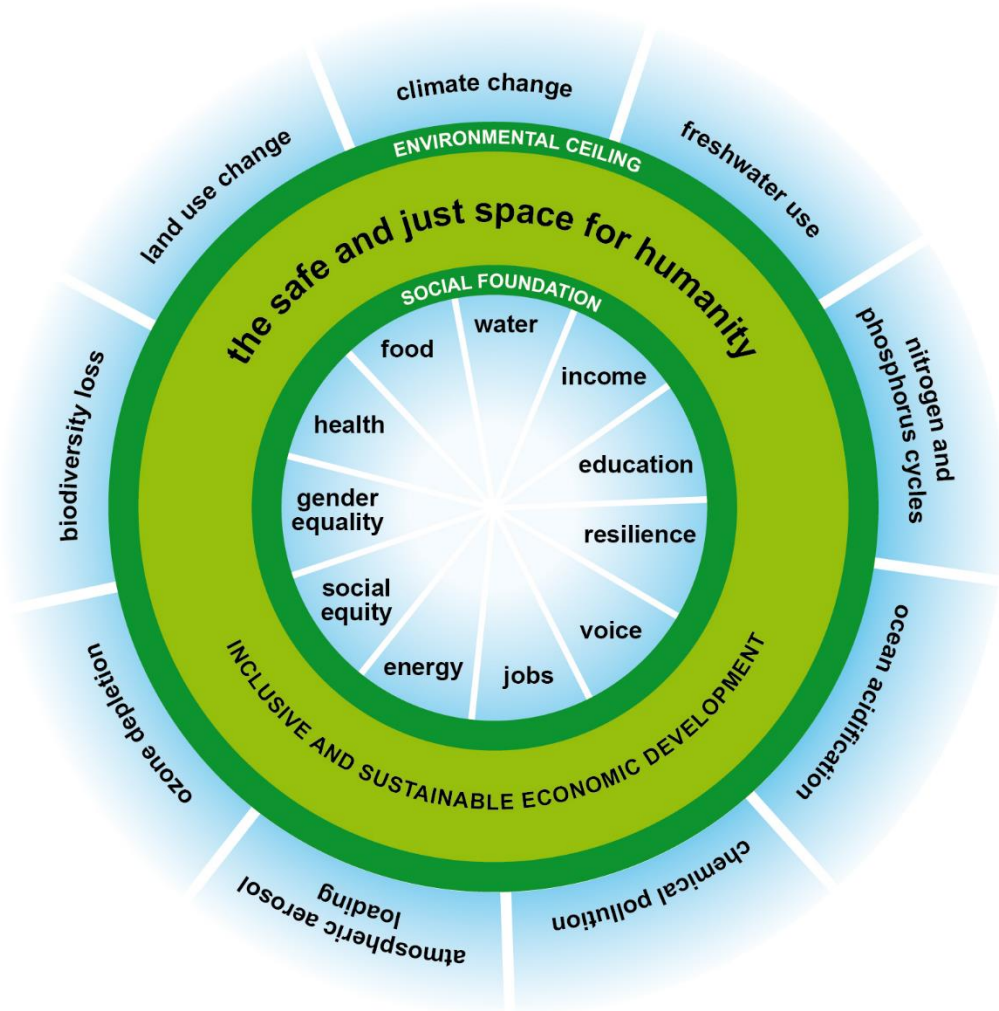


Figure 5 'The Doughnut' of social and planetary boundaries for development

Source: Raworth 2013 available at <http://www.kateraworth.com/>

2.4.6 Ecological Public Health and Sustainability Models

Hancock’s (1993) ecological model provide a holistic approach to health connecting the natural and social environments (Kickbusch 1989; Bentley 2014). The Mandala of health (Hancock 1985) for example, brings in the Gaia concept of the earth as a living planet interconnecting human culture with the biosphere and has humans at its centre. The human development model (Hancock 1989) and the health and community ecosystems model (Hancock 1993) have three intersecting circles conceptualising the interrelationship of health and sustainable development. The health and community ecosystems model focuses on community level interactions and aims to demonstrate interrelationships between community health and sustainable development and is of direct relevance to this research study (Figure 6). The components of the model are summarised in Table 5.

Table 5 Summary of dimensions in Health and the community ecosystem model Hancock 1993

Community	<ul style="list-style-type: none"> • The community needs to be convivial with supportive networks and harmony • Liveable -The built environment needs to be liveable with urban structures designed to promote conviviality • The community needs to be just, fair and equitable to meet the needs and provide equal opportunities for all citizens.
Environment	<p>The environment needs to be:</p> <ul style="list-style-type: none"> • Sustained over the long term to ensure rich diversity • Viable- such as having a stable temperature to provide conditions for clean, air, water and food • The “environment” is natural and built. These environments need to be liveable for the community.
Economy	<ul style="list-style-type: none"> • Needs to be environmental and socially sustainable • Underpinned by ethical principles for a just, fair and equitable community with an equitable distribution of wealth and resources. • Generates enough wealth to enable community to have satisfactory level of health.



Figure 6 Health and the community ecosystem model (Hancock 1993)

Building on the model, Hancock et al. (1999) developed a set of indicators to align determinants of health and sustainable development. The indicators assist in focusing attention on actions that will provide community / population health and sustainable development outcomes and provide a way to measure attributes of a well-functioning (and sustainable) community (see Table 6 and Figure 7). In this model, governance and education are seen as key drivers of human development and change. They include measures of participation in civic life, social cohesion, and the equitable distribution of power, adult literacy, early childhood development and education. The rationale for including the process indicators are that when these elements are in place and working well, individual and community health will be enhanced and are a good measure of a well-functioning (sustainable) community (Hancock et al. 1999).

The indicators as a whole cover the following elements: aggregates of mortality, morbidity and lifestyle behaviours; distribution of health inequalities, indicators of social, economic and environmental determinants of health; and a community's processes of governance (Hancock et al. 1999).

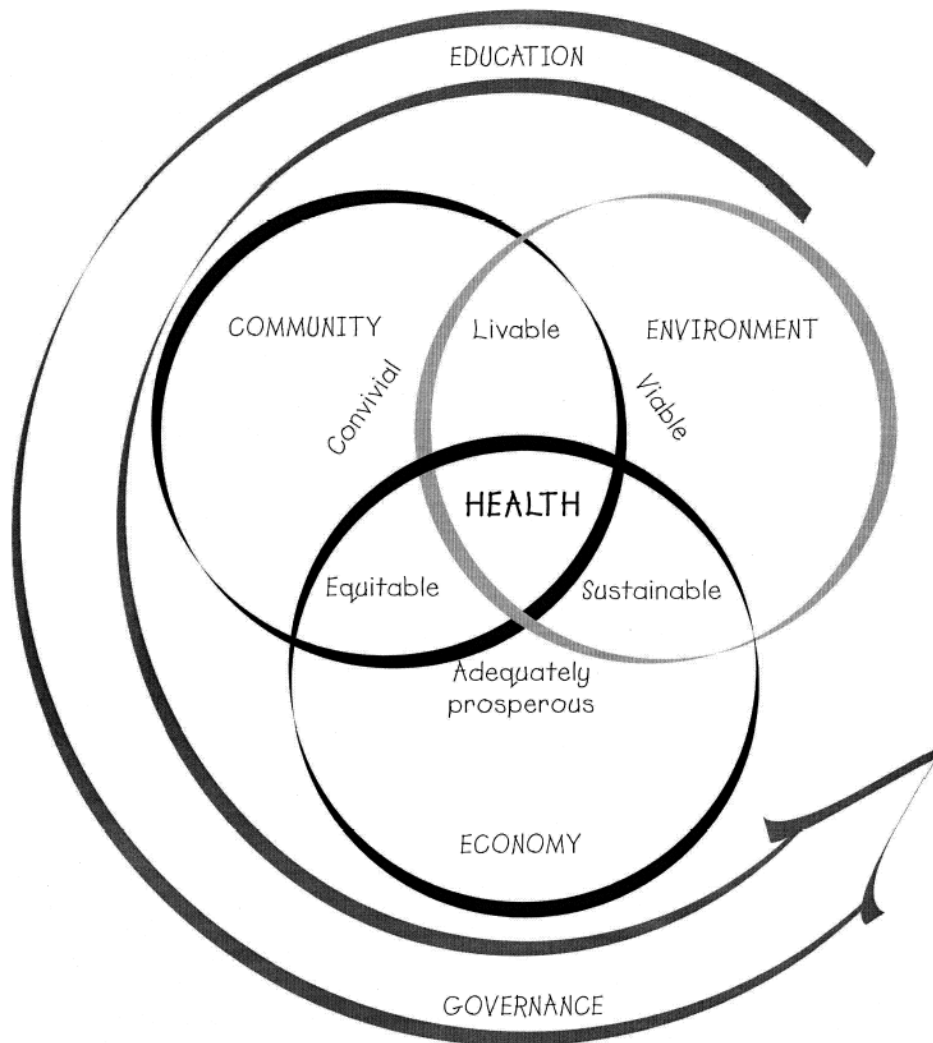


Figure 7 Basic Framework of indicators by Hancock et al. (1999)

The eco-social systems approach posed by Stanger (2011) aligns with the indicators for determinants of sustainability and health, and can be applied at each system level, as per Hancock (1993) and Hancock et al. (1999). For example, conviviality is relevant to Micro and Meso level systems in that it is a directly proximal effect of the social networks, but it is also relevant at the distal Exo and Macro levels because they shape conditions for cultural values, policies and institutions that foster and promote conviviality. They are relevant to the Chronosystem and as determinants follow a life course perspective, are all time bound by history, the present and the future.

Table 6 Indicator Categories for eco-social determinants at each system level (Hancock et al. 1999)

Eco-Social Sustainability and Health Determinants	
Sustainability	Energy, Water Consumption, Renewable resource consumption, Waste production and management, Land use, Local production, Ecosystem health / environmental health.
Viability	Air quality, Water quality Soil contamination, Toxic production and use, Food chain contamination.
Liveability	Housing Density Smoke Free Space, Noise Pollution. Community safety and security. Green open space, Walkability, Transportation.
Conviviality/ social cohesion	Family safety and security, Sense of neighbourhood Social support networks, Charitable donations Public services, Demographics,
Equity	Economic disparity, Housing affordability, Discrimination and exclusion, Access to power.
Economic activity / prosperity	Diverse economy, Local control, Employment / unemployment, Quality employment, Traditional economic indicators.
Education	Early childhood development Education /School quality Adult Literacy Lifelong learning.
Governance	Voluntarism, Citizen action, Human & civil rights, Voter turnout, Perception of government, Healthy public policy
Health Status	Quality of life – wellbeing, life satisfaction, Happiness Mastery / Self-esteem/coherence Disability /Morbidity- stress/ anxiety, other morbidity / disability measures/ health utility index Mortality – overall mortality rate, infant mortality rate suicide rate.

2.4.7. Ecological Public Health Transitions

EPH is dynamic, influenced by continual transitions of the biosphere and the social world and shapes modern life (Rayner & Lang 2012). The Oxford English Dictionary defines a transition as the ‘process or a period of changing from one state or condition to another’ (Oxford English Dictionary 2016c). In relation to EPH, these transitions are the interrelated; cultural, technological, social and economic transformations operating on a global scale; and are ecological in nature (Rayner & Lang 2012, McMichael et al. 2015).

McMichael (2001) describes two prehistorical human transitions that effected the way in which humans contracted infectious diseases. The first occurred when humans became tool users and meat eaters. The next occurred when humans began farming and herding. These transitions brought humans into closer and more frequent contact with animals and pests and exposure to ‘mutant strains of microbes’ (McMichael 2001, p.101). The building of permanent settlements also meant that humans no longer lived a nomadic lifestyle. Staying in one place with increasing numbers of people for longer timeframes also changed in living conditions and facilitated transmission of disease (McMichael 2001).

According to Giddens (2002) we are in the process of another historical transition, which is the result of developments in science, technology and the industrial culture that began in the 18th and 19th centuries (Giddens 2002). These cultural advances expanded human frontiers geographically, culturally, industrially and biologically, again resulting in changes to human ecology and living conditions, affecting patterns of health and disease (McMichael 2001). The social and cultural transitions allowed ‘humans to move to a higher plane of resource use and therefore, to maintain a much expanded population’ (McMichael 1993 p.82). This expanded population and the disruption of natural systems is ‘overloading the planet’s ‘metabolic’ capacity to absorb, replenish and restore’ (McMichael 1993 P.1). As a consequence, these historical transitions are shaping 21st century patterns of health, disease and death (McMichael 2001). Today humans face emerging public health issues associated with planetary level transitions and include: stratospheric ozone depletion, biodiversity loss, ocean acidification, disruption of global cycling of nitrogen, phosphorous and sulphur levels and

depletion of fertile soils, freshwater supplies and marine productivity (McMichael et al. 2015).

Bronfenbrenner also refers to 'ecological transitions' relating to human development, movement between settings and roles across a lifespan, which brings in the concept of changes that happen over time and place (Bronfenbrenner 1979). This notion of time and development aligns with the concepts of EPH transitions as these also evolve over time and place, from microorganisms to individuals, communities, countries and the planet, and bring about transformations. Transitions summarised in Table 7 reflect the dynamic changes past, present and future, that EPH will need to address. An ecological approach will look at transitions and consider the changes that need to be made to social and environment determinants at the population level for health, wellbeing, social justice and sustainable ecosystems (Bentley 2014).

In line with the constructivist approach, EPH thinking is about bringing together multiple world interpretations and the understanding that no one part is comprehensive enough to find solutions to the 21st century public health issues on its own (Rayner & Lang 2012, p. 51).

Table 7 Ecological Public Health Transitions

Transitions	Core Ideas
Demographic	Industrialisation and modernisation improved living standards. Increased longevity (the aging population phenomenon), decreasing birth rates (in Western countries) and increased world population.
Epidemiological	Moved from pestilence and famine to an age of non-communicable and degenerative diseases. Pattern follows economic development and living standards.
Urban	Move from rural to urban living. Migration concentrates populations and changes social dynamics.
Energy	High energy output underpins societal and economic development. Energy systems are transitioning from fossil fuels sources to renewable energy for a decarbonised society.
Economic	Economic development and growth focusing on higher production inputs and outputs globally driving world's economies.
Nutrition	Shift in society's food systems, availability and eating patterns, and reflected in changes to diets, physical activity, market prices and trade agreements.
Biological/ ecological	Humans are forcing transition of biological ecologic systems altering the microbiological and ecological life support systems
Cultural	Moved from traditional societies to global community and wide cultural possibilities.
Democratic	Systems of governance are changing.
Planetary Transitions	Earth Systems are transitioning and the global environment is effected from stratospheric ozone depletion, biodiversity loss, ocean acidification, disruption of global cycling of nitrogen, phosphorous and sulphur and depletion of fertile soils, freshwater supplies and marine productivity

(Source: adapted from Rayner and Lang 2012, p. 306-307 McMichael et al. 2015.)

2.4.8 Ecological Public Health and Just Sustainabilities Conceptual Model

2.4.8.1 Introduction to the Ecological Public Health and Just Sustainabilities Conceptual Model

As a way to bring the concepts of ecological public health and sustainable development together, I developed a conceptual model (see Figure 8) and named it the ‘Ecological Public Health and Just Sustainabilities Model’. The model, is an attempt to visually consolidate the literature thus far.

2.4.8.2 Underlying principles of the model

The model is based on the following premises: 1. that there are clear linkages in the literature to ecological public health and sustainable development’s social, environmental and economic pillars; 2. that there are many ways to understand and take action on health and sustainability, resulting in sustainabilities; 3. that there is agreement in the literature that the concept of sustainabilities and health have the unifying principle of equity, (i.e. intergenerational and intragenerational, social and environmental); and 4. that each premise is implicit for each level of the model.

To clarify further, there are many ways to construct what is meant by sustainable development, resulting in what Agyeman refers to as ‘sustainabilities’ (Agyeman 2005). Like the word health, sustainable development, is value laden, ideological, dynamic, multi-dimensional, contextual and complex, contested and political (Keleher & MacDougall 2011). By using the word ‘sustainabilities’, Agyeman unifies the three pillars under one interrelated term (Agyeman 2005) and in doing so conveys the plurality of meanings and understandings for each pillar at the same time. Agyeman also refers to ‘just sustainabilities’ demonstrating the need for environmental (and environmental in its broadest sense, i.e. beyond the focus of human environments) and socially just approaches to sustainability (Agyeman 2005) and this brings in the principle of equity.

2.4.8.3 Explanation of each level of the model

As the literature review showed, sustainable development and health can be viewed across different scales or levels; from the micro, meso, macro, exo and chronosystems (Bronfenbrenner 1979, 1986,1994); or individual, community,

population, setting or place (city, workplace, school) (Baum 2015) or planet (McMichael et al. 2015).

The Ecological Public Health and Just Sustainabilities Model is informed by Bronfenbrenner's (1979, 1986) social-ecological nested concentric circles, each contained within the next. However, as Coutts et al. (2011) argue, a gap in public health models has been the way in which the natural environment is portrayed (Coutts et al. 2011). An ecological public health approach recognises the need for equal representation of the natural environment and social worlds. As a way to refocus public health to include the natural environment, Stanger uses the term 'eco-social', to emphasise ecological–social interdependence and reciprocity (Stanger 2011). In the Ecological Public Health and Just Sustainabilities Model, each level is labelled eco-social to represent this and follows Stanger's adapted approach.

In line with Bronfenbrenner (1979, 1986) and Stanger (2011), the Ecological Public Health and Just Sustainabilities Model shows seven concentric circles. Each circle represents a level that extends from a cellular level to a planetary scale. Following Stanger's ecosocial approach (Stanger 2011), each level is named as follows, other than human and individual human are in the centre of the model, followed by the ecosocial nanosystems, microsystems, mesosystems, exosystems, macrosystems, and the last level chronosystem, also represents tot ecological public health transitions, discussed further below.

The model is not a hierarchy, but is to be interpreted as a holarchy (Koestler 1967) as each level is interrelated to the next and all contribute to the whole. The levels are not to be seen as discrete entities operating solely within their own boundaries, but rather to be understood as dynamic and interconnected systems that create their own patterns of behaviour (Meadows 2008). To represent this arrows, show that each level is connected and dynamic.

At each level, there are ecosocial actions being undertaken that will contribute to ecological public health and sustainabilities. At the centre of the model is the individual human or species from other than human living system, again integrating the ecosocial dimension. Examples of actions that happen at the

Nanosystem level relate to biological processes that occur at the cell level in response to disease, inflammation, eco-toxicity or contact with novel entities (Steffen et al. 2015).

Microsystems actions The ecosocial actions that occur at the microsystem level could include household level energy or water saving strategies, composting and recycling, community gardens, Landcare groups, small business networks and farmer's markets.

Mesosystem actions relate to social and environmental connections. Examples include local government waste management, water and recycling systems that help protect and conserve environment and human health at the local level.

Exosystem actions - include government decisions, laws and regulations that enforce urban development, environmental protection (e.g. Protection of the Environment Administration Act 1991). Other influences could include international food systems, migratory patterns of birds and wildlife (Stanger 2011).

Macrosystems actions - At the macro level, ideologies beliefs and values influence how sustainability is understood and actions taken. From a neoclassical economics perspective this would include developing systems that enhance free trade and market lead economies. Indigenous peoples would understand actions to be taken holistically and in terms of land, spirit and community. Social sustainability would be based on being neighbourly, sharing knowledge, building trust, and ecological sustainability would be about protecting, conserving and preserving ecosystems and ecological functions essential for air, water, soil and climate. All views, values and beliefs (whether one agrees with them or not), form part of the whole picture.

Chronosystems and ecological public health transitions- The outer circle represents the chronosystem and also integrates the concept of ecological public health transitions, as these are influenced by time, past present and future. As outlined in section 2.4.7, ecological public health transitions are the result of human historical events and evolutionary change. They include biological transitions (ecological, epidemiological and biological), material dimensions

(nutrition, energy, planetary systems and boundaries) and the social and cultural dimensions of urban, demographic, cultural, democratic, economic transitions. Collectively, these transitions create the four dimension of existence, biological, material, social and cultural and are represented in the model as a two axis, the biological and material on the left, and the social and cultural dimensions on the right. The dimensions link the transitions to each level of the model.

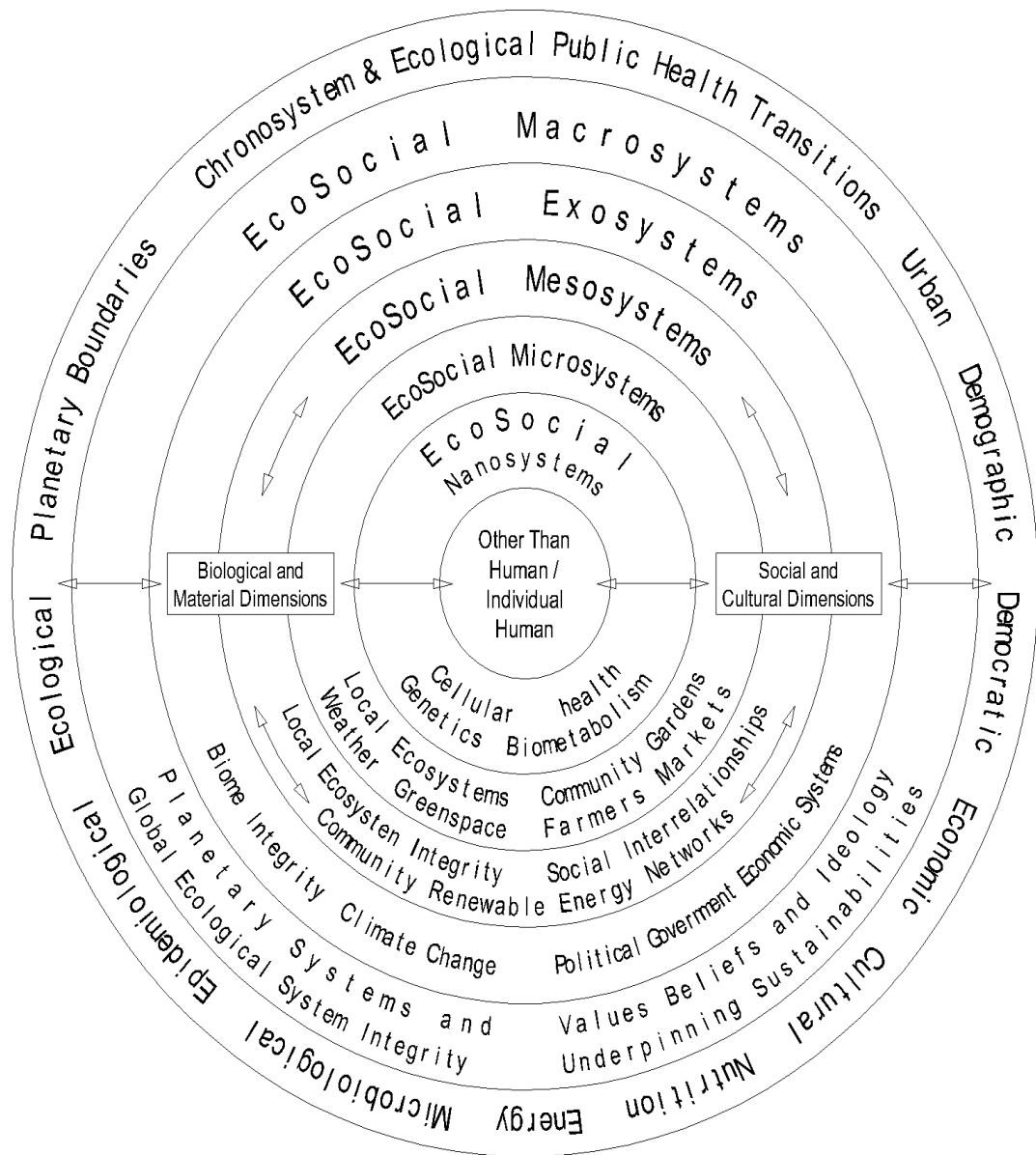


Figure 8 Author's Ecological Public Health and Just Sustainabilities Model

(Model is adapted by the author and informed by: Bronfenbrenner 1979, 1986, Agyeman 2005, Stanger 2011, Rayner & Lang 2012, and McMichael et al. 2015).

Section Summary: In summary, EPH integrates and builds on Public Health models to broaden ecological thinking beyond the social conditions for health and refocusses on the connections between local and global environments. It does this by recognising the reciprocity of the natural environment and eco-social levels of influence, from cells to planet, and integrating dimensions of existence (material, biological, social and culture) with ecological transitions, based on the principles of social and environmental equity. The conceptual model (Figure 8) integrates the theories outlined above.

2.4.9 Where do rural people fit?

This literature review has provided a synthesis of theories, principles and definitions for ecological public health. However, there are few references to rural places and people, in contrast there is an emphasis on urban places and populations. When rural populations are discussed, it is in reference to the redistribution of population from rural to urban places (Last 1998, McMichael, 2001, Rayner and Lang 2012).

McMichael (1993) discusses the impact of the urban migration in terms of the transmission of disease, and that cities having larger populations, crowding and poverty that provide an ecological setting which aids transmission of infectious diseases. Whereas rural settings provide a medium for transmission of vector borne illness (McMichael 1993). McMichael et al. (2015) also discuss rural populations as being vulnerable to the impacts of climate change specifically related natural disasters, disruption to social systems, food security and mental health (McMichael et al. 2015). With regards to rural living itself, this is briefly mentioned in terms of providing social and emotional community benefits (McMichael 1993, Last 1998). Last (1998) also refers to inequalities in access to health and specialist care, patterns of disease and socio-economic status, between cities and those living in rural places (Last 1998).

In summary, the concept of rural is not predominant in the EPH literature. However, rural populations are referred to with regards to the outmigration of people from small rural settlements to larger urban settings, social and health inequalities (including vulnerability to climate change) and patterns and transmissions of disease.

2.4.10 Part 3 Summary

In this section, I presented findings from the search strategy and introduced the concept of ecological public health, presented a range of definitions and discussed how EPH compares to other conceptions of public health; and examined theoretical underpinnings. Drawing on the literature I conceptualised an EPH and sustainabilities model as a way of bringing the two constructs of sustainable development and EPH together, and to visually consolidate the literature. The literature review shows synergies between EPH theory and sustainable development. The eclectic nature of EPH, where ‘everything counts’ (Morris, 2011), encapsulates its plurality and aligns with Agyeman’s concept of ‘sustainabilities’ (Agyeman 2005) i.e. there is more than one way to find the patterns that connect sustainable development and EPH.

Agyeman’s concept of ‘just sustainabilities’ and Raworth’s human rights perspective for a safe and just space for humanity reinforces equity as foundational principle for the EPH and Sustainabilities model (Agyeman 2005; Raworth 2013). Hancock’s community and ecosystem model directly links sustainable development pillars that are interrelated by dimensions of conviviality, liveability, viability, and equity (Hancock, 1993) and global responsibility (Kickbusch 1989, Bentley 2014). Crafting a theory to reimagine public health ‘in a way that acknowledges humans as part of the ecosystem, not separate from it, though not central to it’ (Bentley 2014) requires integration of sustainable development and EPH principles, dimensions and transitions.

A gap has been found in this EHP literature concerning how these concepts relate to health and sustainability for rural people. With the exception of one paper that discusses rural people as a vulnerable group at risk of impacts from climate change (McMichael et al. 2015) rural people or rural places do not feature. Rural people feature in the sustainable literature in terms of locations for natural resources, production and livelihoods e.g. agriculture, water, or mining. Ecological public health recognises links between health and sustainability as interacting dynamic systems that connect ecological communities large and small (Douglas et al. 2011). The determinants for both align and therefore, use of a combined EPH and sustainabilities approach as outlined in Figure 8 provides a way to explore community actions for health and sustainability in a rural Australian context.

2.5 Part 4- How does the literature review inform my research study and what are the implications for knowledge exchange and transfer?

2.5.1. Introduction

This concluding section for the literature review chapter contributes to Research Aim 3, that aims to explore how knowledge gained from this study can be translated into useful knowledge, shared with rural communities and translated into public health policy, research and practice.

In this section I briefly explain what is meant by knowledge exchange, translation and transfer. I reflect on the findings of the literature search from Part 2 and 3, examine how the literature review findings informs my research study; and consider implications for knowledge exchange and research transfer.

Building on this, I then begin to conceptualise how this knowledge can be shared. The chapter concludes with a preliminary knowledge exchange strategy that will be added to iteratively through case study analysis.

2.5.2 What is Knowledge Exchange, Translation and Transfer?

Knowledge exchange is the mutual process of learning, planning, producing, disseminating and applying knowledge (Canadian Institute Health Research, 2010). Knowledge exchange is not a linear process and integral to this exchange is how researchers can facilitate the transference of knowledge to make it relevant to audiences. This requires relationships to exist between those who generate the research knowledge and those might use it to enable exchange (Reardon et al. 2006).

Knowledge exchange includes: knowledge translation (the exchange, synthesis and ethically sound application of knowledge); knowledge transfer (a systematic approach to capture, collecting and sharing tacit knowledge in order for it to become explicit knowledge); research implementation (strategic application of how research knowledge is put into practice) (Graham et al. 2006) ; diffusion (the unplanned and passive exchange of knowledge through social interactions); and dissemination (an active process to communicate spreading of knowledge to specific audiences) (Gagnon 2010).

Knowledge exchange involves active collaboration between researcher and

knowledge users. For Knowledge-To-Action (KTA) to occur researchers need to develop innovative and strategic (often targeted) ways to engage knowledge users to facilitate dissemination of the research (Gagnon 2010). For me as the researcher I need to be clear about the research findings participants and I (as a public health researcher) would like to share, with whom and how I will go about doing this. I also would need to decide from whom would the target audience deem as the appropriate and credible medium to deliver the message? (Gagnon 210).

2.5.3 How does the literature review inform this research study?

The literature review sought to find definitions of sustainable development in the literature and to demonstrate what is known about ecological public health (EPH) and its theoretical underpinnings. To summarise, the literature review informs my study in the following ways:

Although the sustainable development topic is vast and each sustainable development pillar has its own focus, there is consensus in the literature. Each pillar agrees on two factors 1. That they are interdependent and 2. Seek to address equity, (but with a note of caution here with regards to those who align with a neoclassical economic paradigm, as their understanding may not be founded on the principle of equity in terms of fairness and justice). Therefore, when analysing case study data, I must think of sustainable development in holistic terms of three integrated and interdependent pillars with their own indicators. This aligns with the EPH approach that seeks to integrate and understand connections; and address equity. It also demonstrates that the concept of ecological thinking and equity must be considered in all aspects of case study analysis.

The literature search demonstrates the relevance of this research study to the discipline of public health. The concept of health is implied through the construct of human welfare and wellbeing in the social and economic literature, and ecosystem health (that includes micro ecosystems to planetary) in the ecological sustainable development literature. Through exploration of EPH literature we can see how EPH integrates and builds on ecological thinking beyond the social conditions for health and encompasses the connections between local and global social, ecological and economical sustainable development. EPH bridges multiple interconnecting concepts from economic policy, energy systems, protection of land and oceans, food security

and biodiversity, clean water and air and poverty to name some examples. EPH then provides a lens to examine determinants of health and sustainable development as one conjoined concept. We begin to understand that EPH and sustainable development both seek to address the same goals and have a duality of purpose where both create conditions for the other (Kjærgård et al. 2014). As such my proposition is that when considering strategies for sustainable development or EPH both perspectives need to be integrated as two sides of the same coin (Kjærgård et al. 2014). This is relevant information to share with my public health colleagues in government, academia and in service and program implementation.

The literature search provided frameworks for conceptualising EPH theory and indicators for measuring both sustainable development and EPH. These will be incorporated as part of my method for case study analysis. The search strategy reinforces the alignment to constructivist theories and application of the EPH lens to health and sustainable development requires:

‘weaving together multiple ways of interpreting the world and points public health towards recognition of interactions and multiple dimensions of existence’ (Rayner & Lang 2012, p. 64).

The search strategy also showed how there are different of paradigms of knowledge (Kuhn 2012). The concept of ‘sustainabilities’ (Agyeman 2005) illustrates that there are multiple ways to construct what we mean by sustainable development and this way of thinking aligns to constructivist approaches (Crotty, 1998). In terms of ecological transitions, Bronfenbrenner discussed how ‘environments’ are experienced in a way that goes beyond objective properties of physical conditions and includes the meaning that a person gives to that environment in any given situation (Bronfenbrenner 1979, p.22). This merging of the environment as an objective reality and the experience and construction of meaning aligns ontologically with a constructivist perspective i.e. that meaning is not discovered through objective reasoning but constructed by humans as they engage with their world (Crotty 1998).

Being aware that there are ‘sustainabilities’ and multiple ways of knowing with distinct knowledge cultures (Brown 2007) assists me to craft knowledge to action strategies. Conceptualising and implementing an EPH approach will require a shift in thinking for policy makers, practitioners and researchers (Kuhn 2012) and this is the

outcome sought by a knowledge exchange and transfer strategy.

2.5.4 Implications for knowledge exchange and research transfer

This literature review showed that there are different knowledge cultures that will require tailored messages as to how they will want to receive and share information. It reinforces the need for a strategic approach for knowledge to action approach. As I continue with the case study analysis, I plan to incorporate the guidelines proposed by Reardon et al. (2006) as part of the case study method by using the five questions as follows. The what (is the message), to whom (audience), by whom (the messenger), how (transfer method) and the expected impact (evaluation method and outcomes) (Reardon et al. 2006, p. 5).

2.5.6 Part 4 Summary

In this section I have briefly discussed what is meant by knowledge exchange, translation and transfer. I also examined how the literature review findings inform my research study and have begun to conceptualise how this knowledge can be shared, and with whom. Knowledge exchange to action strategies will evolve throughout the case study analysis process as it becomes clearer what knowledge needs to be shared, the target audiences and how to tailor messages to facilitate the knowledge exchange dissemination and implementation.

2.6 Chapter Conclusion

This literature review has four parts. After explaining the literature search method in Part 1, I presented search strategy results for a range of sustainable development definitions (Part 2) and ecological public health definitions and theoretical underpinnings in Part 3. In Part 4, I begin to conceptualise knowledge exchange and transfer. The search strategy reinforced the appropriateness of the constructivist epistemology as the underpinning theoretical framework for this dissertation and highlighted the need for a comprehensive approach for knowledge exchange to accommodate the multiple constructions of sustainable development. The approach to knowledge exchange will evolve as part of the research process. Therefore, this literature review has three purposes. First, it serves as a method for providing contextual details for the case study methodology. Second, it is a way to explore the theory and develop a case study analytical framework; third it invites theoretical debate.

CHAPTER 3 – RESEARCH DESIGN

3.1 Introduction

In this chapter I describe the setting, theoretical perspective, methodology, and methods I have applied to answer the overarching research question: How are rural communities taking action to develop sustainable and healthy communities on the far South Coast of New South Wales? Government and urban communities feature predominantly in the literature, and in contrast to this, rural communities do not. As such, to explore this phenomena of interest and address this knowledge gap, I selected to focus this research at the community level.

3.2. The Setting

The focus of this research is the rural Australian setting. As the literature showed, when considering definitions and understandings of sustainable development within public health and ecological public health, there is limited understanding of how the concepts relate to the rural Australian setting. As such, this research seeks to provide insights from a rural community perspective to address the literature gap.

The South Coast of New South Wales (NSW) has been selected as the rural setting for this study as it provides distinct case study boundaries that contrast geographically, demographically and economically, from the larger populated and more urbanised Local Government Areas (LGAs) adjacent to Sydney and on the North Coast of NSW.

The three LGAs selected for this research are located directly next to each other providing distinct borders and a confined population that lends itself for case study research design. The case study boundaries have a natural geographical division created by the mountain range that separates the coastal townships from the inland ranges of the snowy mountains and the tableland region. The LGAs have similar ecological, geological, demographic, historic (Indigenous Australian history and European) and economic characteristics. The populations are also dispersed in smaller coastal hamlets on the coast, rivers and estuaries. I present more case study contextual details in the next chapter.

3.3. Theoretical Perspective

The literature review shows that there are many ways to construct what is meant by sustainable development or sustainability and health. The literature also demonstrates that there multiple interweaving dimensions that require multiple ways of interpreting the world. This multiple way of knowing directs public health towards approaches that recognise the ‘interactions and multiple dimensions of existence’ (Rayner & Lang 2012, p. 64).

Given that the meaning of sustainable development and ecological public health is constructed by multiple ways of knowing and that people construct meaning in different ways, epistemologically, this a constructivist theoretical perspective (Crotty 1998 p8). In this way of knowing, knowledge (truth or meaning) comes into existence through engagement with the realities in our world (Crotty 1998). Linking knowledge cultures of sustainability and health requires understanding that each individual, community or institution, has their own knowledge regimes and these form their ‘internally accepted versions of reality and sets its own almost impermeable boundaries’ (Brown 2005, p.131).

In the context of this study, ecological public health can be seen as the environment’s existence not only as an objective reality but also how it is perceived and experienced (Bronfenbrenner 1979). Bronfenbrenner argues that environments are not only distinguished as linear variables but are analysed as interrelated sequences of nested ecological structures, ecological transitions, settings, roles, activities and interpersonal relationships within and across them (Bronfenbrenner 1979). Thus, how the environment is experienced goes beyond objective properties of physical conditions and includes the meaning that a person gives to that environment in any given situation (Bronfenbrenner 1979).

This merging of the environment as an objective reality and the experience and construction of meaning aligns ontologically with a constructivist perspective. Meaning is not discovered through objective reasoning but constructed by humans as they engage with their world (Crotty 1998). The environment then is at once realist (that realities exist outside the mind because the world does exist) and relativist (the way things are and the sense we make of them) (Crotty 1998).

3.4 Methodology

The methodology is informed by a theoretical perspective, shapes the choice and use of methods (Crotty 1998). To seek answers to the research question, I followed a mixed method case study research design, informed by ecological public health theory and situated in a constructivist epistemology.

The nature of sustainability and ecological public health is that there are multiple theoretical and discipline perspectives. An assumption behind this research design is that there are multiple ways of knowing and this needs to be taken into account in the research design. To achieve this holistic view a combination of methodology and methods will provide a better understanding of the research problem than if a single approach had been applied (Cress & Plano Clark 2007). Methodologically, methodological pluralism involves philosophical assumptions that guide collection and analysis of both quantitative and qualitative research. Mixed method research has evolved from being considered as a mixing of methods to mixing all phases of the research process and is now seen as a methodology (Tashakkori & Teddlie 1998).

A methodology is the logic and plan of action that links methods to outcomes (Crotty 1998). Constructivist researchers tend to use interpretive methodologies and qualitative research methods to explore and understand a phenomenon. However, as Crotty describes, positivist research as a form of constructed knowledge; non-positivist research does not rule out the use of quantitative approaches as they can make valuable contributions to a study and it is ‘how quantitative research looks when it is informed by constructionist epistemology’ that makes it congruent in constructivist research (Crotty 1998, p. 15-16). Methodological pluralism recognizes the ‘existence and importance of the natural or physical world as well as the emergent social and psychological world’ (Johnson & Onwuegbuzie 2004, p.18) and is a logical way to approach this research question.

As the research question has multiple components to it, by selecting methodological mixes, this can enable me as the researcher to choose methods from more than one paradigm that will help answer the question rather than be constrained (Johnson & Onwuegbuzie 2004).

3.5 Study aims and objectives

The aims and objectives of this research study are outlined as follows.

Aim 1. To determine the range of terms being used in the literature to explain sustainable development and ecological public health;

Objective 1: establish what is known in the literature to describe the meanings of ecological, social and economic sustainable development;

Objective 2: to explore and establish theoretical underpinnings for ecological public health;

Objective 3: examine their meanings in the context of rural Australian community.

Aim 2. To examine in what ways rural communities, perceive of, understand and take action on ecological, social and economic sustainability by;

Objective 1: exploring rural communities' perceptions and understandings of ecological, social and economic sustainability and health,

Objective 2: investigating what actions rural communities are taking to address ecological, social and economic sustainability in their community; and

Objective 3: analysing in what ways these actions contribute to ecological public health.

Aim 3. To explore how knowledge gained from this research study can be made useful, shared and put into public health policy, research and practice:

Objective 1: synthesising the findings from Aims 1 and 2 and establishing the knowledge to be shared; and

Objective 2: to explore potential knowledge exchange theories and identify strategies to facilitate research transfer and translation.

3.6 Method

3.6.1 Case Study Rationale

To answer the research question, I used a mixed method case study design to gain an understanding of a contemporary phenomenon of interest (Yin 2014), (sustainable and healthy rural communities), in a rural Australian context.

Case study research is useful for ‘how’ or ‘why’ questions and for situations when the researcher will be unable to control behaviour or events (Yin 2014). A case study method allows study in a natural setting, the use of both qualitative and quantitative data and is an excellent way to build theory (Luck et al. 2006).

To answer the research aims and objectives I used multiple sources of evidence and applied a collective (i.e. multiple cases being simultaneously studied) (Stake 1995) and exploratory case study approach (to understand how, what and why of sustainability actions in rural communities) (Yin 2014). To do this, I used a variety of methods that included analysis of social and health data, a narrative literature review, a scoping study of online media and qualitative analysis to establish and understand the rural communities’ perceptions, experience and understanding of sustainable and healthy communities.

3.6.2 Case study limitations and strengths

Case studies have been criticised for a lack of rigour and basis for generalisation (using findings and apply them to other settings) (Yin 2014). To overcome these limitations Crowe et al. (2011) advocate the use of theoretical sampling and drawing on a particular conceptual framework, using respondent validation through participants checking researcher’s emerging findings of the case and transparency in the research process from case selection, data collection and rationales for methods used (Crowe et al. 2011). Through a systematic approach to data collection and analysis Yin believes that case study findings can be analytically generalized, as opposed to statistically generalized (Yin 2014).

Much of the criticism for mixed methods research stems from the different perspectives in epistemology, in that positivist and constructionist epistemology do not study the same phenomena in the same way, and so the methods used in each cannot be combined for cross validation or triangulation (Sale et al. 2002). However,

as Sale et al. describe they can be combined for complementary purposes (Sale et al. 2002).

To implement this Cresswell (2009) suggests that in a mixed method research design the mixing of approaches (theoretical perspectives, methodology and methods) relates to different phases of research. For example, a mixed method design to gain an objective perspective at the start of a research study, may use spatial mapping data to define case study boundaries and secondary analysis of social epidemiological statistics, but would also include interpretivist approaches to gain more understanding of the social context of the research problem through focus groups. In this way the research paradigms are honoured (Cresswell 2009).

Through literal replication or theoretical replication analytical generalization is achieved; and because of this replication through multiple cases, a multiple case study is regarded as being a more robust study design (Yin 2014).

3.6. 3 Case Study Design

To provide a systematic approach and framework for the research design, I used the schematic developed by Rosenberg and Yates (Rosenberg and Yates 2007). This schematic includes elements that can assist in addressing the limitations for case study methods raised by Crowe et al. (2011) and Yin (2014) as follows:

1. Identify the research question.
2. Identify the underpinning theories.
3. Determine the case, its context and the phenomena of interest.
4. Determine the specific case study approach.
5. Identify the data collection methods to answer the research question.
6. Select analysis strategies appropriate to each of these data collection strategies.
7. Refine the analysed data through the analytical filter.
8. Use matrices to reduce data into manageable chunks and conceptual groupings.
9. Determine conclusions and develop case description

Figure 9 shows the schematic I used for this research study.

Phases of research - I divided the research study into four phases (see Appendix 13). The first phase explored definitions and meanings of sustainable development and ecological public health. Definitions and meanings came from the literature, case study participants and online media.

The second phase, I examined actions being undertaken. For this phase, I developed case selection criteria (Table 8) which was informed by the Hancock et al. (1999) that I interpreted as ecological public health and sustainability indicators.

I reviewed case study participants' experiences and then thematically categorised actions using the Hancock et al. (1999) framework. I used a multiple case study design and selected cases to either predict similar results (a literal replication) or predict contrasting results but for anticipatable reasons (theoretical replication) (Yin 2014).

Table 8 Case selection criteria

1. Is the action being undertaken in one of the three case study boundaries?
2. Does the action being undertaken meet the Hancock et al. (1999) indicators and categories?
3. Is the action being undertaken at the community level i.e. not by individuals or organisation or government institutions?
4. Is the action being undertaken being replicated (literally or theoretically) in the other case study boundaries?

I subsequently selected nine case studies that showed theoretical replication for actions for sustainability (community energy projects), conviviality (actions that brought the community together) and economic development (that focused on youth, a whole community and a whole region). I developed case study research questions that I used to organise and explain the cases (see Table 9).

Table 9 Case study research questions

1. What is the action being undertaken?
2. What is the rationale behind the action?
3. Who is involved?
4. How does the action take place?
5. How is knowledge shared?

The third phase, I focused the analysis by examining how the actions contribute to sustainable and healthy rural communities drawing on the literature and case study results. The fourth phase, I focused the analysis on developing knowledge exchange and transfer strategies drawing on knowledge exchange transfer literature, complexity theory, diffusion of innovation and deliberative dialogue. Appendix 13 provides a research design overview.

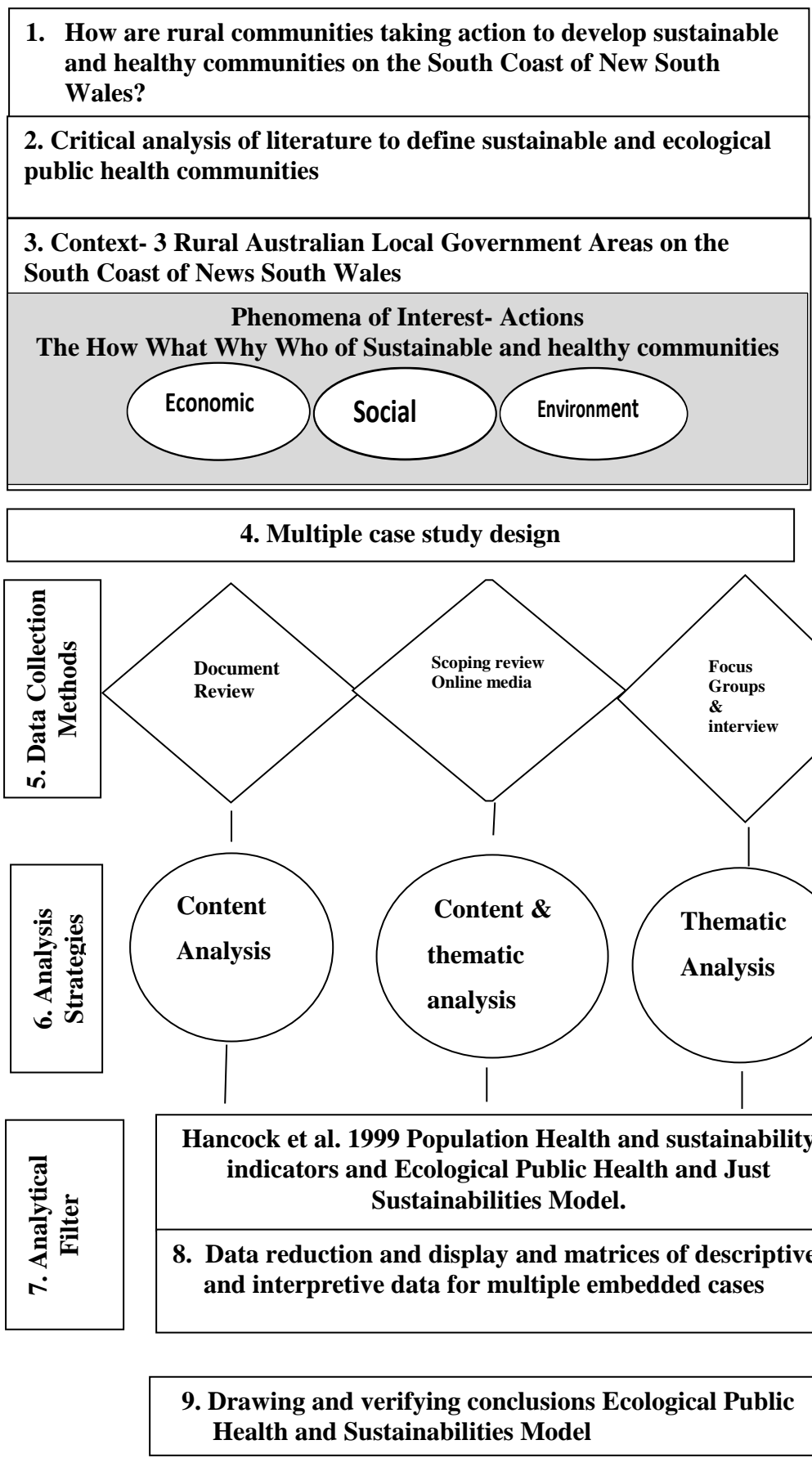


Figure 9 Research design schematic adapted from Rosenberg & Yates (2007) Schematic

3.6.3 Choice of methods

This case study involves exploration of a phenomena of interest in a ‘real life context’ and I used multiple sources of evidence that required different enquiry methods (Baum 2008, p. 181).

Narrative review for the literature review, I used a systematic narrative review approach. I selected this approach because narrative reviews are useful in pulling together a wide range of knowledge into a readable format, presenting a broad perspective on a topic. A narrative review can be used as educational tool to for knowledge transfer and invite theoretical debate (Green et al. 2006); and used to synthesise, interpret and create theory (Dixon-Woods et al. 2005). A narrative review can also help refine or determine research questions or hypotheses (Cronin et al. 2008).

Scoping Review to undertake a review of online media, I selected a scoping study methodology, as developed by Arskey and O’Malley (2005). This approach provided a useful framework for systematic search using the internet and for content thematic analysis and to arrange, map, synthesise and summarise knowledge (Arskey and O’Malley, 2005). Undertaking the scoping review provided an effective way to triangulate the data.

Document analysis – this was used in combination with other qualitative approaches as means of triangulation seeking convergence and credibility in the analysis process (Bowen 2009).

Content analysis – I used this method to assist me to categorize and organise large amounts of data and identify trends, patterns in words and discourses (Vaismoradi et al. 2013).

Thematic analysis – First, I used the Hancock et al. (1999) framework to provide categories and sorted data into the categories. Following this, I undertook a thematic analysis by reflecting on the categories, reading and re-reading documents and transcripts, reflecting on categories and adapting them to include the rural voice. I looked for new and developing themes, recurring ideas and repeated patterns of meaning (Liamputtong 2009).

3.6.4 Case selection

This research is aimed at gaining an understanding of the context of the phenomena of interest, in this study this is the actions being taken to develop sustainable and healthy communities, in rural Australia. Actions are defined as the process of doing something and physical movement (Cambridge English Dictionary n.d.).

It follows that the cases selected need to be from a rural place and the actions (to develop sustainable and healthy rural communities) are being undertaken by community members who live in that rural place. It also follows that gaining knowledge from these sources form the critical source of information that could not be sourced from other channels and so it would not be appropriate to select cases randomly.

Selecting cases is guided by appropriateness and fit to the research purpose, the phenomenon of interest, and adequacy of how many cases is enough (Kuzel 1999). To meet Kuzel's appropriateness criteria, I selected participants and cases by first using a purposive sampling strategy. This refers to the deliberate selection of specific data gained from individuals, documents, events or settings that will provide crucial information about the case that cannot be obtained through other channels (Carpenter & Suto 2008).

Sandelowski (1995) states that an adequate sample size is a matter of judgment in 'evaluating the quality of the information collected against the uses to which it will be put, the particular research method and purposeful selection strategy employed' (Sandelowski 1995, p. 179-183). To meet Kuzel's adequacy criteria, how many cases are selected depends upon the purpose of the research, the research questions, the number of participants available, and the time and resources of the researcher (Patton 2002). The number of cases selected is made, by what essentially is a subjective discretionary decision, based on information saturation, i.e. when no new information or evidence of significance is obtained (Patton 2002) in order to achieve literal or theoretical replication (Yin 2014).

Case selection techniques - Cases are selected to maximise what is learned and how easy is it to access research informants (Stake 1995).

The rural case selection - Three neighbouring local government areas on the South Coast of NSW were selected on a convenience basis, based on the fact that the researcher is a resident in one of the local government areas which enabled ease of access to the case settings and to participants for interviews and participant observation. Individual cases within the multiple case study design were purposefully selected (Patton 2002) as follows:

For Semi-structured interviews and focus groups - I followed a priori criteria (i.e. the cases are selected because they meet a predetermined criterion).

Interview participants were selected if they were:

1. An adult over the age of 18;
2. Currently living in one of the three local government areas; and
3. Are undertaking actions that they consider to be contributing to sustainable and healthy rural communities, within the case study boundary.

As a starting point, I posted an invitation to participate in the study via email or hard copy letter, to participants who were known in the community to be facilitating community gardens, chambers of commerce or Landcare groups. I found contact details from webpages, the Whitepages telephone directory and word of mouth. I also published an advert in two community newsletters, the Tuross.Org and the SCPA news. I also made use of the snowball technique to find additional cases of interest (Patton 2002).

For Embedded Case Selection - I developed case selection criteria (Table 7) and this informed the selection for embedded units of analysis in the multiple case study design discussed in Chapter 7 (Yin 2014).

3.6.5 Rigor- Credibility, transferability, dependability, and confirmability

Lincoln and Guba (1985) provide a framework for determining the rigour of research with four criteria: credibility (the truth in the findings), transferability (findings have applicability in other contexts), dependability (findings are consistent and can be repeated), and confirmability (the findings of the study have been shaped by the data and not researcher bias) (Lincoln & Guba 1985).

Credibility- I used multiple sources of evidence (literature review, interviews and focus groups, social and health statistics, document analysis and online media reviews) that established a chain of evidence (Yin 2014). For member checking, interviews and focus group participants were given an opportunity to read and verify their transcripts (Liamputtong 2009). All interviews and focus groups were undertaken by myself, and were digitally recorded. Transcripts were typed verbatim by myself.

Transferability This criterion is akin to the concept of external validity in a positivist research paradigm however, qualitative research does not seek rigid replication to justify reliability (Liamputtong 2009). Knowledge created in this study is socially constructed and cannot be measured, but it has been interpreted, by using qualitative research approaches (Liamputtong 2009). Transferability is applied to the reader of the research and through their own interpretation and construction of the study they make decisions based on their connections with the data and their own experiences with the knowledge presented and decide if this knowledge is transferable to other contexts and settings (Marshall & Rossman 2011).

Through a systematic approach to data collection and analysis, Yin believes that case study findings can be analytically generalized, as opposed to statistically generalized (Yin 2014). In this study, the Rosenberg and Yates (2007) schematic provided a systematic approach for the case study design promoting transparency of the research process. Case study analysis was guided by the Hancock et al. (1999) framework and multiple embedded cases were selected to provide theoretical replication following the case selection criteria. A multiple case study is regarded as being a more robust study design (Yin 2014).

Dependability This is based on the assumption that the research design is reliable and for me as the researcher to be able to account for my decisions and processes in a transparent and traceable way (Liamputtong 2009). In this study, this is achieved by detailed descriptions of the research methods and design, an audit trail, field notes and memos, (that I called Notes to Self) that served as a mind map as concepts emerged (Liamputtong 2009).

Confirmability To demonstrate the degree to which the results and interpretations of the findings are not from my imagination (Tobin & Begley 2004), I used the

following triangulation methods; *Data Triangulation* - I used multiple sources of evidence, *Methodological triangulation* multiple methods have been used in the data collection process, *Researcher triangulation* drawing on supervisors as part of my research team and discussing interpretations of results and theory development (Liamputtong 2009).

3.7 Ethical Considerations

Ethics approval for the study was obtained from the Social and Behavioural Research Ethics Committee at Flinders University (SBREC Project No. 6437). Approval was given for recruitment of participants for semi-structured open ended interviews and focus groups, (see Appendix 14 - 18 for Flinders University Social and Behavioural Research Ethics Committee approved documentation).

3.8 My place as the researcher

Reflexivity is an important component of undertaking qualitative research and being open and transparent about personal characteristics and relationships with participants that may influence my observations and interpretations (Tong, Sainsbury & Craig 2007). Understanding that who we are (e.g. I am a Caucasian, middle class and female, who migrated to Australia from England 24 years ago), where we live (small country town) and our social position (previously local health service manager) and our own life experiences contribute to our research stance.

I came into the research study acknowledging my role as a research instrument and although brief, my involvement in participants' lives (Marshall & Rossman 2011). As I live in one of the case study boundaries (Eurobodalla) and am part of a small rural community, I needed to ensure I maintained a stance of empathic neutrality and continually reflected on my role in conducting the research study and my own participation (Patton 2002). Maintaining participant confidentiality and following an ethical research code of conduct and transparent systematic process enabled me to build trust and maintain a good rapport with participants.

3.9. Chapter Conclusion

In this chapter, I have described the research design that includes the setting, theoretical perspectives, methodology and methods. I have explained the case study design and summarised the research design through the use of Rosenberg and Yates case study schematic (2007). I have also taken into account rigor, ethics and my stance as a researcher living in a small rural community in one of the case study boundaries.

CHAPTER 4 – An Introduction to the Case Study Boundaries and Population Health Profiles

4.1 Introduction

In this chapter, I introduce the three Local Government Area (LGAs) Case Study boundaries selected for this case study. They are the Shoalhaven City Council (Shoalhaven), Eurobodalla Shire Council (Eurobodalla) and Bega Valley Shire Council (Bega Valley). They are located 160 kilometres, 280 kilometres and 420 kilometres south of Sydney, New South Wales (NSW) respectively; and are collectively referred to as the South Coast².

I begin this chapter by presenting brief historical background details for the South Coast, the geographical location and an overview of population social and economic and health characteristics. This information sets the scene for subsequent chapters.

4.2. Case study boundaries and geographical location

4.2.1 Historical background

The first people to settle in the area were Aboriginal people, who have inhabited Australia for over 50,000 years. It was not until Europeans arrived in the area in 1797 that the first recorded contact between Europeans and the South Coast Aboriginal people in the Bega Valley and Eurobodalla, (when survivors of a shipwreck walked from Gippsland to Sydney) was documented (Aboriginal Heritage in the Eurobodalla n.d.). The European discovery of the region, also in 1797, by English explorer George Bass, also marked the start of European settlement along the South Coast (Shoalhaven City Council n.d.).

Fishing, timber, dairy, wool and beef were the original industries for the region and still contribute to the local and state economy today (Shoalhaven City Council n.d.).

² It must be stated that the three LGAs can also be grouped with other Local Government Areas for statistical purposes or regional planning. For example, Shoalhaven city council can be grouped with the Illawarra (which includes Wollongong, Shellharbour and Kiama,) or the Southern Highlands (which can include some or all of the following Wingecarribee, South coast and Cooma –Monaro regions). Eurobodalla and Bega valley can be grouped with the Capital Region which includes the Australian Capital Territory. The changes in boundaries can make it difficult to discuss descriptive data when aggregated with other LGAs.

Four quarries established in Moruya contributed to the region's development and are noted for providing granite for the Sydney Harbour Bridge and The Cenotaph Stone (Moruya and District history n.d.). Today, the region's natural beauty, historic villages and local food production (cheese and other artisan products) attract over a million visitors a year (Shoalhaven City Council Tourism Master Plan 2013) and tourism is the region's major economic contributor (ABS 2011).

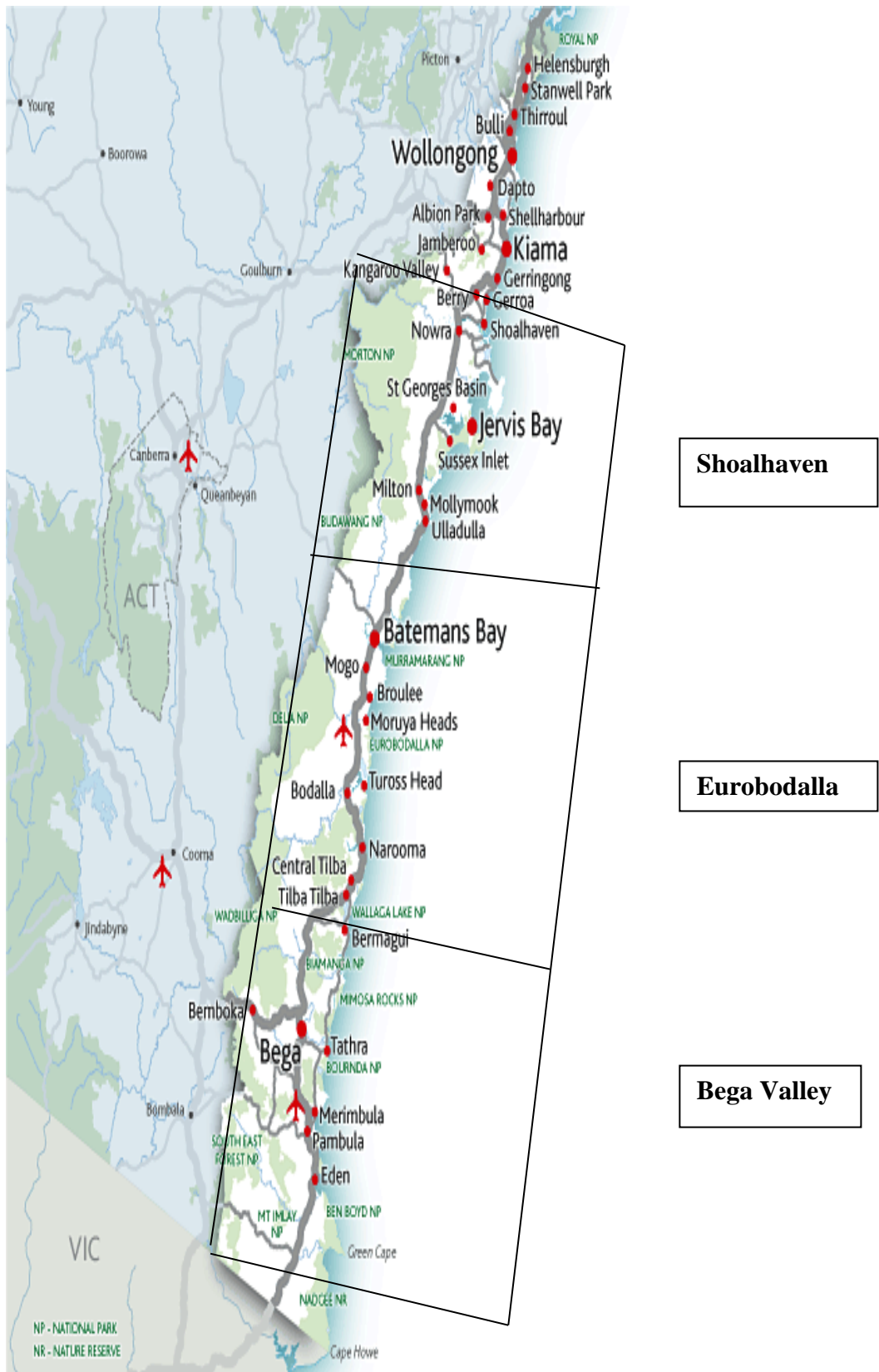
4.2.2 Geographical location

The South Coast is bordered from the west by the Southern Highlands and other coastal escarpments that spur from the Great Dividing Range and this landscape formation creates a mountainous ridge making access to the region via road limited. Due to its geographical location and the mountain ridge separating the coast from inland New South Wales, the South Coast depends on the flow and function of the Princes Highway, which extends from Sydney to Melbourne and passes through the middle of each of the LGAs.

There are four other major (sealed road) transport access points to the region, all of which link into the Princes Highway. Also due to its geographical location and land use zoning regulations the majority of human settlements on the South Coast are built on the narrow strip of land on either side of the Princes Highway. As such, any reason for road closure be it a natural disaster (bush fire, flood, landslide) accident (car crash, bridge collapse), weather conditions (frost, fog, snow, heavy rainfall) affects the flow and function of the transport system throughout the South Coast region. The Princes Highway runs directly through the larger townships (e.g. Nowra, Ulladulla, Batemans Bay, Moruya, and Bega). See Figure 10, for a map of the South Coast and Appendices 19, 20 and 21, for individual case study boundary maps.

The region is accessible via air with small commercial airports located in Nowra, Moruya and Merimbula, (one in each LGA) and multiple fishing hamlets providing access by sea.

The South Coast's division from inland New South Wales therefore, provides clear boundaries that make it appropriate for case study research to examine a phenomena of interest, sustainable development and rural health.



Shoalhaven

Eurobodalla

Bega Valley

Figure 10 Map of the NSW South Coast.

Source: South Coast.com, viewed 10th July 2016, <http://www.southcoastnsw.com/>.

4.2.3 Australian Geographical Classification

Shoalhaven is divided into two statistical local areas (SLAs) Shoalhaven–Pt A (Nowra-Bomaderry) and Shoalhaven Pt B (the Balance of the council area) and 30 small areas. The majority of Shoalhaven is classified as Inner regional (RA2) predominantly land for primary industries with some rural-residential areas by the Australian Standard Geographical Classification 2006 (ABS 2013). The majority of the land is publicly owned in Shoalhaven (68%) and this includes crown land (11%), State Forest (23%) and National Park (34%) (Shoalhaven State of the Environment Report 2011).

The Eurobodalla Shire Council is one SLA and divided into 12 small areas. Eurobodalla is classified as Outer Regional (RA3) and is predominantly National Parks, State Forests and reserves accounting for 83% of the land area, the rest is zoned for primary industries (farming for beef, dairy and some fruit and vegetables) with some urban, rural-residential areas (Australian Standard Geographical Classification 2006, ABS 2013).

The majority of Bega Valley is classified as Outer Regional (RA3) and is one Statistical Local Area with 10 small areas. It is like Eurobodalla, predominantly National Parks, State Forests and reserves accounting for 75% of the land area, the rest is zoned for primary industries (farming for beef, dairy and some fruit and vegetables) with some urban, rural-residential areas (Australian Standard Geographical Classification 2006, ABS 2013).

A summary of the South Coast geographical characteristics and bioregional information can be seen in Appendix 19.

4.2.3 South Coast Climate

The Bureau of Meteorology classifies the South Coast as a temperate zone (warm summer, cool winter)³ with average rainfall for Shoalhaven and Eurobodalla at 1500mm per year and 1000mm for Bega Valley⁴, average daily maximum

³ Australian Government Bureau of Meteorology Temperate Zone (warm summer, cool winter) <https://web.archive.org/web/20131024030422/http://www.bom.gov.au/climate/envIRON/travel/tempzone.shtml> < accessed Oct 16th 2015>

⁴ Australian Government Bureau of Meteorology Average Rainfall based on standard 30 year climatology 1961-1990, Commonwealth of Australia 210, <accessed October 16th 2015> http://www.bom.gov.au/jsp/ncc/climate_averages/rainfall/index.jsp?period=an&area=ns#maps

temperatures range from of 18 -21°C with maximum temperatures 30 °C⁵.

However, the region has experienced erratic rainfall for the past two subsequent years (2014 and 2015) resulting in extensive flooding in areas close to the Shoalhaven River.

4.3.4 Water Catchment

The Shoalhaven has a water catchment of 7,300 square kilometres with four main tributaries, the Mongarlowe, Corang, Endick and Kangaroo Rivers. The Shoalhaven River flows through the coastal flood plain to the Pacific Ocean at Shoalhaven Heads (Department of Primary Industries, n.d. d). Eurobodalla has three main rivers, Moruya, (the major source for the Shire's water supply), Buckenboursa River and Tuross River and covers 1,550 square kilometres (Department of Primary Industries, n.d. b; n.d. c; n.d. e). Bega Valley has two large catchments, the Bega River Catchment (2850 square kilometres) and the Towamba River catchment (2200 square kilometres) and are part of the Snowy and Murrumbidgee River watershed (Department of Primary Industries, n.d. a).

4.2.5 South Coast Biodiversity

Biodiversity is defined as:

‘the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems’ and provides ecosystem goods and services that are essential to human health and wellbeing’ (Romanelli et al. 2015 p.1).

The Shoalhaven has two bioregions, the Sydney Basin and the Southern Highlands. Eurobodalla and the Bega Valley are located within the South East Corner bioregion (NSW Office of Environment and Heritage 2011). Despite large areas of National Parks and reserves in the region there are number of flora and fauna species listed as endangered or vulnerable. Appendix 22 provides an overview of the bioregions, biodiversity and some examples of threatened flora and fauna.

⁵ Australian Government Bureau of Meteorology Average annual maximum temperature 1961-1990 http://www.bom.gov.au/jsp/ncc/climate_averages/temperature/index.jsp <accessed October 16th 2015>

Due to the changes in reporting requirements there is no consistency in which biodiversity indicators are reported. In addition to this, each Local Government Area has selected different indicators to report on, or different government departments have been given responsibility for reporting some measures that were previously reported on by Local Government. There is also no continuity in the reports and some measures may have been recorded in one report but omitted in subsequent reports. This makes it difficult to make a judgement as to what is the state of the environment and determine whether there is greater or less biodiversity loss.

4.2.6 South Coast Main Towns

The commercial centre and council seat in the Shoalhaven is Nowra and combined with its neighbour Bomaderry, has a population of approximately 35, 000 people. Nowra provides the majority of public services, businesses, manufacturing industries, public amenities and shops for the region.

Other Shoalhaven townships include Kangaroo Valley and Berry in the north, Shoalhaven Head, and Bomaderry in the middle, and Milton, Mollymook, Ulladulla and North Durras on the most southern border (RDAFSC 2012).

In Eurobodalla, the council seat is based in Moruya, which is seen as the central point of the Shire. However, unlike the Shoalhaven, the main commercial centre is located in Batemans Bay. Other townships include Narooma that also has a small scale commercial centre providing public services, businesses, manufacturing industries, public amenities and shops (Eurobodalla Shire Council 2016).

Bega Valley's council seat is located in Bega which is also the regional centre for the Shire where the majority of public services and commercial enterprise reside. The region's main townships are Bega, Pambula, Merimbula, and Eden. The Bega Valley is the last LGA on the South Coast of NSW and aligns with the Victorian State border. (RDAFSC, 2012).

4.2.7 South Coast Population Profile

Of the three case studies, Shoalhaven has the largest population (99,016 persons), with the largest number of residents located in the regional township of Nowra; followed by Eurobodalla (37,643) and Bega Valley that has the largest land area but the smallest population (33,468) (ABS 2014).

The South Coast population is predominantly Australian born with a low percentage of people who do not speak English well. For those not born in Australia the largest number of people come from European countries (ABS 2011).

With regards to ancestry the majority have either Australian or English (42.3%) ancestry with the remaining divided between other European cultures such as Ireland, Germany, Italy, and Netherlands). Appendix 23 provides a summary of the population profiles (ABS 2011).

4.2.8 South Coast Indigenous Culture and Language Groups

Indigenous refers to persons identified as being of Aboriginal and/or Torres Strait Islander origin as identified by the 2011 Census conducted by the Australian Bureau of Statistics (ABS 2011). The majority of Indigenous Australians now live in non-remote areas of Australia (AIHW 2015). Compared to NSW, the South Coast has a higher percentage of Indigenous people as a percentage of the total population. In Shoalhaven, 3.3% (4318 persons) of the population are Indigenous Australians, 5.1% in Eurobodalla, (1814 persons) and 2.8% in Bega Valley (905 persons) compared to 2.5% for NSW (ABS 2011). The highest proportion of Indigenous Australians live in the Nowra-Bomaderry regions, approximately 2338 persons. The age distribution differs from non-Indigenous Australian with a higher number of people being in the 0-19 years of age bracket.

In NSW, there are 120 Local Aboriginal Land Councils (LALCs) and these are divided into nine regions. The South Coast region includes the Shoalhaven, Eurobodalla and Bega Valley Shire (Local Lands Council 2009). Established under the *Aboriginal Land Rights Act 1983*, the LALCs act as an advocate and service broker for Indigenous Australians. Some of LALCs functions are to protect culture and heritage, assist with housing, access to education and employment, facilitate land rights claims and confirm Aboriginal identity (LALC 2009). There are also three Aboriginal Community Controlled Health Services on the South Coast that provide primary health care services. There are two in Shoalhaven, Oolong Aboriginal Corporation in Nowra and the South Coast Medical Service Aboriginal Corporation in Berry. Eurobodalla and Bega Valley have one Aboriginal Community Controlled Health Service, Katungul Aboriginal Corporation Community and Medical Services and has 6 sites across the two shires (AH&MRC 2015).

The South Coast has two main groups of Indigenous peoples. The Shoalhaven is the traditional land of the Tharawal or Dharawal people. Their land extends from the North of Nowra and the Shoalhaven River to south west Sydney and the South side of Botany Bay and Port Hacking (Tharawal Aboriginal Corporation n.d.).

The Eurobodalla and Bega Valley is the traditional land of the Yuin Nation and extends from South of the Shoalhaven River to the Victorian border. The Yuin have many language groups, including the Dharumba, Djirringanj, Dhawa and Dhurga and are geographically divided by clan groups 'the sea people or coast dwellers', called the 'Katungal' or 'Guthaga' and the tree climbers, known as the 'Paiendra' those living further Inland (Eurobodalla Shire Council n.d.). The Eurobodalla and Bega Valley Indigenous peoples refer to themselves as Koori, or by their clan name Brinja-Yuin, or language group, Dhurga (Koori coast n.d.).

4.2. 9 South Coast Population Age Profile

The South Coast when compared to NSW, has a larger number of seniors (70-84 years) and a smaller number of younger people, particularly in the workforce. However, the Nowra –Bomaderry SLA is the exception, here the population is younger, with approximately 56% being under 45 years of age (ABS 2011). I assume that the Nowra- Bomaderry area has more employment opportunities and easier access to public transport, which may account for higher numbers of younger people living in the area. However, access to affordable housing and education opportunities in Nowra-Bomaderry are on par with other parts of the Shoalhaven. Therefore, without further supporting data or theory, I am unable to support this speculation. The median age for Shoalhaven is 46.2 years, Bega Valley 48 years and Eurobodalla 50 years (ABS 2011).

4.2.10 Projected population

In terms of population increases, the South Coast is expected to increase by approximately 17% (113,956 persons) in the Shoalhaven, 13% (42,640 persons) in Eurobodalla and 11% (37520 persons) in Bega Valley by 2030. Although there will be some population increase in the South Coast generally, the population increases will be seen most in the coastal towns of specifically St Georges Basin / Basin View and Milton-Mollymook in the Shoalhaven, Malua Bay and Moruya Heads in the Eurobodalla and the Tura-Mirador district in the Bega Valley (Profile.Id Population

forecast 2015).

The largest concentration of the populations resides in the Nowra-Bomaderry SLA in Shoalhaven accounts for just over a third of the Shoalhaven population (34,036 persons) (ABS 2011). All other townships have less than 7000 residents.

Based on the results of the 2011 Census, the Aboriginal and Torres Strait Islander population of Australia is projected to increase by 2.2% per year by 2026 (ABS 2014b).

4.2.11 Section Summary

In this section the case study boundaries have been identified and an overview of population characteristics presented. Geographically, the South Coast is separated from inland NSW by a mountainous strip to the West and the Tasman Sea to the East, making access to the region limited by road. Bega Valley and Eurobodalla are classified as Outer Regional (RA3) with 75% of land zoned for National parks, State forest or other conservation land. From a biodiversity perspective the South Coast has three bioregions and within each case study boundary, there are hundreds of endangered and vulnerable flora and fauna, some of which are unique to the South Coast.

The South Coast's population are dispersed along a thin strip of land on either side of the Princes Highway. Shoalhaven has the largest population, is younger and more urbanised in comparison to the Eurobodalla and Bega Valley, but still older when compared to NSW. The South Coast has a higher proportion of Indigenous Australians with the largest population living in the Nowra-Bomaderry area in Shoalhaven. In the next section, I present additional social characteristics and descriptive data for socioeconomic status, economic indicators, employment and education attainment as per the Hancock et al. (1999).

4.3 Social characteristics

4.3.1 Introduction

In this section, I present an overview of the social and economic determinants that includes; employment, education and housing. Poverty, social exclusion, early childhood development, education, quality of housing and employment are other determinants that influence health across the life course (Wilkinson & Marmot 2003). Class, social status and socioeconomic conditions throughout a person's life impact on health (Keleher & MacDougall 2016). The data presented provides additional insights to the determinants of health and wellbeing in this rural place.

In the following section, I present an overview of population health data and this includes an overview of the main health issues in the region, mortality and morbidity rates, risk factors for non-communicable disease and health service usage.

4.3.2 Socioeconomic Index For Areas (SEIFA[♦]), incomes and welfare dependency

People who at the top of the socio-economic ladder tend to live longer, have a good quality of life and are more able to play a full role in social, economic and cultural life, than those at the bottom of the social gradient (Wilkinson & Marmot 2003). The Socioeconomic Index For Areas (SEIFA) is used to rank relative socioeconomic advantage or disadvantage for geographic areas across Australia based on Census data (ABS 2011). The scores show that there are pockets of significant socioeconomic disadvantage in Shoalhaven and Eurobodalla, but less of a gradient between the highest score and lowest score in the Bega Valley. The average SEIFA scores for the South Coast range from 954.6 in Shoalhaven, 955.8 in Eurobodalla, and the Bega Valley, 968.7. The highest SEIFA score in NSW is the Ku-ring-gai area in Sydney that has a SEIFA score of 1120.7.

Nowra is the largest regional centre on the South Coast, but also has the second lowest SEIFA score (815.3), the small township of Akolele on the Eurobodalla / Bega Valley border has the lowest with a score of 601. The highest SEIFA score is Bangalee 1083 in the Shoalhaven. The Eurobodalla has the widest range between the

[♦] The ABS measures Socio Economic Indexes for Areas (SEIFA) at the SLA1 scale. Scores are standardised to a distribution where the average equals 1000 and the standard deviation is 100. A lower score indicates that an area is relatively disadvantaged compared to an area with a higher score. <http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/2033.0.55.001main+features100162011>

highest and lowest SEIFA scores with the highest being the Deua 1037 and lowest Akolele, 601. (See Appendix 24 for a comparison of SEIFA scores across the South Coast region).

Income: Inadequate income is a barrier to health and wellbeing, particularly for older people (Morris et al. 2007). The poverty benchmark is estimated to be approximately \$358-470 per week, low income earners have been identified as persons with incomes of \$300 per week or less (ACOSS 2012). It is estimated that 30% of the Shoalhaven population, 29.1 % of the Eurobodalla and 28.35% in Bega Valley are low income earners, compared to 26.5% NSW and 25.9% for Australia (ABS 2011).

Welfare dependency: The region has higher percentages of people receiving income support from Centrelink when compared to State and National estimates. Impacts to child psychological, physical and emotional wellbeing, the quality of parenting and stability of home life, higher domestic violence are some of the social issues that people who are dependent on longer welfare support face (McLoyd & Wilson 1991; Wilkinson & Pickett 2009). In the Nowra-Bomaderry SLA 92% of people 65 years claim the age pension compared to NSW 71.2% and Australia 74.6% and higher percentages of people claiming a disability pension, 11% in Shoalhaven and 10% in Eurobodalla compared to 5.7% for Bega Valley and 5.6% nationally. There are also higher numbers of children living in welfare dependent homes, 33.4 % in Eurobodalla, 31.3% Bega Valley compared to NSW 14.7%.

In Summary: The data presented here shows that the South Coast is not a wealthy region. It is characterised by pockets of significant socio-economic disadvantage and higher numbers of people living on low incomes or pensions.

4.3.3 Education

There is a positive relationship between education achievement, socio-economic status and collective health and wellbeing (Blackmore & Kamp 2011). In terms of educational qualifications Eurobodalla and Shoalhaven have less people with tertiary qualifications and all three cases have higher numbers of people with vocational qualifications compared to NSW (ABS 2011). Compared to the other two cases, Bega Valley has slightly more people with tertiary qualifications. The data also shows that there is less high school participation in Shoalhaven and less people going

on to higher education after school in all three case studies (ABS 2011). Table 10 outlines case study qualification levels, school and higher education participation.

Table 10 Case study qualification levels, school and higher education participation

Qualification level and education attendance	Shoalhaven	Eurobodalla	Bega Valley	NSW
Bachelor degree or higher	10.2%	11.5%	13%	12.4%
Advance Diploma or Diploma	7.4%	7.2%	7.4%	7.1%
Vocational	24%	23.2%	22.6%	22.1%
No qualification	44.8%	45.2%	45.5%	46.8%
Not stated	13.6%	13%	11.5%	11.7%
Full-time participation in secondary school education at age 16	Shoalhaven Pt. A 68.3%	77.7%	81.6%	73.7%
	Shoalhaven Pt. B 71.6 %			
School leaver participation in higher education	Shoalhaven Pt. A 11.9 %	18.1%	13.2%	26.6%
	Shoalhaven Pt. B 16.3%			

Source: ABS 2011

Early childhood development: Early childhood development (physical, social /emotional and cognitive) strongly influences health and wellbeing, literacy and numeracy competency and economic participation throughout life (WHO 2012). The Australian Early Development Index (AEDI) measures five key domains of early childhood development: physical health and wellbeing, social competence, emotional maturity, language and cognitive skills (school-based), and communication skills and general knowledge (AEDC 2012). Table 11 outlines data comparing the three case study results with State statistics. The results show that the Eurobodalla has significantly lower numbers of children meeting developmental milestones for physical health and communication skills and general knowledge, but slightly higher percentage with emotional maturity (AEDC 2012).

Table 11 Case study comparison for the Australian Early Development Index (AEDI) measures five key domains of early childhood development

AEDI 2012	Shoalhaven	Eurobodalla	Bega Valley	NSW
Physical health and wellbeing on track % on track	80.2%	62.6%	77%	78.1%
Social competence % on track	79.5%	79.7%	80.6%	78%
Emotional maturity % on track	79.2%	82.5%	79.6%	81.2%
Language and cognitive skills (school-based) % on track	86.5%	84.4%	86.4%	87.2%
Communication skills and general knowledge% on track	79%	61.9%	78.6%	74.7%
% Developmentally vulnerable on 1 or more domains	19.2%	21.2%	19.4%	19.9%
% Developmentally vulnerable on 2 or more domains	9.7%	9.2%	8%	9.2%

Source AEDC 2012 - <https://www.aedc.gov.au/data/data-explorer?id=42515>

Section summary: Overall in percentage terms, the Bega Valley is slightly more socioeconomically advantaged, with higher percentages of people with tertiary qualifications, workforce participation and employment status compared to Shoalhaven and Eurobodalla. Shoalhaven and Eurobodalla have less people with tertiary level qualifications and all three cases have higher numbers of adults with vocational qualifications. Participation in high school at age 16 is less in the Shoalhaven and less school leavers continue to higher education in all three cases. Developmentally the Eurobodalla has more children not meeting developmental milestones.

4.3.4 Economic indicators, occupations and industries

New South Wales has a population of 7.2 million people (ABS 2011). The South Coast population collectively equates to approximately 2.37% of NSW population (ABS 2011) and contributes approximately \$6.5 billion Gross Regional Product

(GRP). Of that Shoalhaven's economy contributes \$3.69billion, (approximately 0.8% of NSW Gross State Product), Eurobodalla \$1.3 billion, (0.28% of NSW Gross State Product) and Bega Valley \$1.3 billion, (0.28% of NSW Gross State Product) (NIEIR 2014a; 2014b;2014c). Gaining data to compare the south coast local governments' GRP and GSP contribution with other regional coastal local governments is difficult as some data sources amalgamate local governments under one indicator. This changes the population size and industries. However, to give some comparison, the South East and Tablelands region contributes 7% to the GRP, whereas the Hunter region contributes 28%, the North Coast 15%, and Illawarra 10% (NSW Trade & Investment 2015). The South Coast's main industry is tourism but other industries contribute to each case study's economy.

Employment rates – ‘unemployment or under employment, stressful and unsafe work are associated with poorer health’ (Keleher & MacDougall 2011, p.37). The main industries employing residents in the region are summarised in Appendix 25 and vary in each case study. For example, the health and social care sector employs the more people in Shoalhaven and Bega Valley and retail employs more in the Eurobodalla. When looking at people's occupations, there is a different picture, there are more people working as technicians and trade workers in Eurobodalla and Shoalhaven and more professional managers and administrative occupations in Bega Valley. The youth unemployment rate is higher in Eurobodalla (11.5 %) and Shoalhaven, (10.8%) compared to the Bega Valley (7.1%) and NSW (5.3%). Unemployment status is also higher in the Shoalhaven, (7.6%) and Eurobodalla (7.5%) when compared with 6.1% NSW and Bega Valley's unemployment rate is slightly lower at 6%. (PHIDU 2015).

Industries

Tourism - Although not the largest employer, tourism is considered to be the largest contributor to the region's GRP, contributing \$500-700 million per annum in Shoalhaven and \$300-500 million in Eurobodalla and Bega Valley (Shoalhaven Tourism Master Plan 2012-2017, Tourism Research Australia, National Visitor Survey, Year Ending 30 June 2013). Tourism accounts for over 6,600 jobs, 3,456 directly employed and 3180 indirectly (Austrade 2015) and an estimated 1188 jobs that are supported by tourism in the Bega Valley alone (Bega Valley Shire Economic

Profile 2015).

Primary Industries of fishing and agriculture are challenging to report. The Australian Bureau of Agricultural and Resource Economics and Sciences reports (ABARES) include Shoalhaven with the Southern Highlands, and Eurobodalla and Bega Valley with the Capital region. As a result, this data does not provide an accurate picture of the number or type of producers, farms, and the production on farms or their economic contribution. However, the 2011 Census data showed that 6.6% of the population in the Bega Valley are employed in Agriculture, forestry and fishing, 2.7% in Eurobodalla and 2% in Shoalhaven (ABS 2011).

Agriculture contributes \$17 million (ABARES 2015a) to the Capital Region economy and \$91 million to the Southern Highlands-Shoalhaven economy (ABARES 2015b). The Capital region as a whole contributes approximately \$782 million, and equates to 6% of the total gross value of agricultural production in NSW. This is largely from wool, cattle and calve production, sheep and lamb production (ABARES 2015a). It is estimated that there are 4481 farms in the Capital region and these farms accounts for 11% of all farm business in NSW. Sheep farms are the most common and account for 31% of all farms in the region. (ABARES 2015a). There are less farms in the Southern Highlands-Shoalhaven region (approximately 800 farms) and accounts for 2% of all farm business in NSW (ABARES 2015b). Beef farms are the most common and account for 45% of all farms in the Southern Highlands-Shoalhaven region. (ABARES 2015b)

Fisheries- The fishing industry contributes approximately \$25 million to the Shoalhaven economy (IRIS 2015). There are over 150 oyster leases in the Shoalhaven estuary alone and 40 oyster producers. The main commercial fishing port in the Eurobodalla is Batemans Bay and this port is also important for aquaculture and oyster farming on the Clyde river. The South Coast oyster industry contributes 11% of NSW total production for rock oysters and over \$4 million to the local economy. Other ports include Ulladulla and Jervis Bay in Shoalhaven, Narooma in Eurobodalla, and Bermagui and Eden in Bega Valley.

Manufacturing- Bega Valley and the Shoalhaven have manufacturing industries that collectively contribute over a \$1 billion per annum. Shoalhaven's manufacturers include Australian Paper; Pentair (formerly Tyco) manufacturing pipelines, irrigation

pumps and valves; the Manildra Group who make starch, gluten and ethanol and Minova-Orica provide ground support services to mining and chemical services. Other manufacturers include Unicorn Cheese, NowChem (a locally owned chemical manufacturer); Ocean & Earth surf clothing; the Hanlon Group that make windows and doors; and BAE Systems Australia and Raytheon that provide aviation and avionic services (RDAFSC 2012). Bega Cheese is the largest manufacturing company in the Bega Valley, employing 1700 people across 6 sites, 500 farms and producing over 200,000 tonnes of dairy products each year (Bega Cheese 2015).

Defence- The Shoalhaven has one industry that is not present in the other two case studies and this is defence. Shoalhaven is a centre for Australian naval aviation and the Aviation Technology Park, and two naval bases, HMAS Albatross, located outside of Nowra and at HMAS Creswell at Jervis Bay. These sites accommodate a conglomerate of corporations that develop aviation technology for the Australian Navy and includes contractors for Kaman Aerospace International, BAE States and CAE. The industry is estimated to employ 2000 people with an estimated \$60 million in salaries (IRIS 2015).

Section summary: Tourism is the largest contributor to the Gross Regional Product. The Shoalhaven has more diversity in its economy, integrating manufacturing and defence industries with primary industries, tourism and the service sectors. Bega Valley has more people working in managerial and service sectors, whereas Eurobodalla has the least diversity in its economy concentrating on tourism and supported sectors, such as retail. The traditional industries employ less people compared to other occupation and industries, yet there are more people with trade or vocational qualifications.

4.3.5 Housing, affordability, density and homelessness

Housing density- There are three main characteristics of an urban environment that can influence health and these are place, space and people (Haigh et al. 2011). The Shoalhaven has a population density of 0.22 persons per hectare compared to Bega Valley 0.05 persons per hectare and 0.11 per person hectare in Eurobodalla. In the Shoalhaven, 9.1% of dwellings are medium or high density, compared to 17.3% in Bega Valley, 15.5% in Eurobodalla and 16% in Regional NSW (population.id community profile 2015a, 2015b, 2015c).

Housing affordability - this encompasses ‘deposit and payment constraints preventing household formation; quality and location trade-offs and the overall costs of housing consumption including utility bills’ (Rowley & Ong 2012). The South Coast has more people living with housing stress (have difficulty paying the rent or mortgage), people who are renting, and higher numbers of people renting a government house and more people receiving rental assistance from Centrelink, when compared to NSW (ABS 2011).

Homelessness- Homelessness, temporary accommodation or sleeping rough can lead to health risks and increased vulnerability to violence and social isolation (Marmot et al. 2010; Hagan et al. 1997). Shoalhaven has 226 people classified as homeless, 98 in Bega Valley and 89 in Eurobodalla. It is estimated there has been over a 60% increase in homelessness since the 2006 Census (Ghosh et al. 2013).

Section summary: The Shoalhaven has more urban density (persons per hectare) but Bega Valley and Eurobodalla have more medium to high density dwellings. Housing stress is an issue for all three case study areas with higher numbers of people needing rental assistance and homelessness is on the increase.

4.4 Population Health Profile Introduction

In this section, I present the case studies’ population health profile and identify the key health status issues that exist within the cases. I use the Hancock et al. (1999) framework to guide to data selection and include data for mortality, disability, health service usage, health risk factors and disease burdens that contribute to wellbeing and quality of life (Hancock et al. 1999).

4.5 Births and Deaths

This section identifies numbers of births and avoidable mortality rates, (avoidable and preventable mortality refers to deaths from certain conditions that are considered avoidable given timely and effective health care) (ABS 2011). The results show that fertility rates are slightly higher in all three case study areas compared to NSW estimates. The data also shows that there are higher rates of avoidable deaths (2009-2012) for cancers, diabetes, circulatory diseases, traffic accidents and suicide and self-inflicted injuries. The median age at death for all persons in all three case studies is 81 years (PHIDU 2015). Appendix 26 shows the estimated numbers of births in

2014 and avoidable deaths due to diabetes and circulatory diseases.

4.6 Health Risk Factors

The data in Table 12 gives an indication of the health promoting behaviours in the case study populations. The data shows that there are lower rates of high risk alcohol consumption in all three cases, when compared to NSW estimates. Shoalhaven and Eurobodalla have less people who are physically active but all three cases have lower numbers of people consuming adequate fruit and vegetables and higher rates of obesity. There are higher numbers of people currently smoking in Shoalhaven and Eurobodalla, and all three cases have higher rates of smoking in pregnancy. For Eurobodalla, this rate is over double the NSW estimates.

Table 12 Shoalhaven estimates of major risk factors 2007-2008

Risk Factor	Shoalhaven Balance	Eurobodalla	Bega Valley	NSW
Current Smoking (ISR ⁶ /100)	21.2	21.6	19.8	19.9
High risk Alcohol consumption (ISR/100)	5.2	5.1	4.8	5.7
Physical inactivity (2007-2008)	33.7	33.6	41.3	34.9
Adequate fruit intake adult (2007-2008)	48.1	48.1	48.4	50.5
Low Birth weight (%)	5.9	4.6	3.5	6.1
Smoking during pregnancy (%)	18.4	25.3	21.8	12
Overweight	35.1	35.8	34	34.6
Obesity	30.3	30	30	26.4

Source: Public Health Information Development Unit (PHIDU) 2015, Social Health Atlas of Australia 2011-2013. published 2015, PHIDU, The University of Adelaide, Adelaide.

⁶ ISR= Indirectly Standardised Rate expressed in Number per 100 standard population

4.7 Disease burden, rates of chronic illness, psychological distress and disability

Hancock et al. (1999) list wellbeing, disability / morbidity, stress and anxiety as health status categories (Hancock et al. 1999). Appendix 27 shows a selection of statistically significant chronic illness statistics comparing the case studies with NSW estimates for hypertension and Arthritis, ischaemic heart disease, type 2 diabetes, cholesterol, Chronic Obstructive Pulmonary Disease (COPD) and Asthma. Appendix 27 provides data for mental health behavioural problems, mood (affective) problems and psychological distress, disability and health status. The data shows that there are higher numbers of people that rate their health as fair or poor and people living with a severe or profound disability in all three case studies (PHIDU 2015). The data also shows that with the exception of estimates for hypertensive disease and rates of circulatory disease in all three places, Bega Valley, that are almost on par with NSW estimates, all three cases have higher rates of chronic illnesses, psychological distress and other mental illness.

4.8 Health Care Services, Access and usage

Access to health care services that provide equitable access, utilisation, treatment and outcomes is a determinant of health (Keleher & MacDougall 2009).

Hospitals- South Coast has two Local Health Districts, Shoalhaven falls under the Illawarra-Shoalhaven Local Health District (ISLHD) boundary and Bega Valley and Eurobodalla are part of the Southern NSW Local Health district (SNSWLHD). Shoalhaven has three hospitals located in Berry, Nowra and Milton. Eurobodalla has two hospitals, one located in Batemans Bay and the other in Moruya. Bega Valley has two hospitals located in Bega and Pambula. Currently work is underway to build a larger regional hospital in Bega.

Since the local health district boundary changes and the Shoalhaven has been amalgamated with the Illawarra health district region. The Illawarra has been part of the World Health Organization Healthy cities movement since 1987. As such Shoalhaven is now included as part of this project (Healthy Illawarra n.d.).

Appendix 28 outlines the principal diagnosis and cause for admission to hospitals in the South Coast hospitals and shows that for all indicators reported the case studies

have higher rates of hospitalisation on all indicators compared to NSW estimates. The higher rates of hospitalisation in the case studies may be explained by the higher numbers of people who delay consulting medical care because they cannot afford it, cannot afford their prescriptions or cannot get to places due to the lack of transport (PHIDU 2015). Overall, there are higher numbers of people that report they have difficulty accessing services in Bega Valley (38%), 35.8% in Eurobodalla and 34.4% in Shoalhaven compared to 28.4% in NSW.

Aged care services - Due to the older age groups on the South Coast access to aged care services is relevant to this rural population. In 2011, the number of high level aged care places available to the Shoalhaven and Bega Valley’s ageing population was significantly lower compared to NSW rates.

General Practice (GP) and Primary Health Care Services- The Shoalhaven has more people accessing GP enhanced primary health care services and GP Mental Health Care Plans than the other two cases (see Table 13). But the total number of services accessed through the Medicare Benefits Schedule (MBS) during 2009/10 is less than NSW. However, demand for Practice Nurse Services is significantly higher in all three cases.

Table 13 GP enhanced primary health care services and GP Mental Health Care Plans

Services	Shoalhaven	Eurobodalla	Bega Valley	NSW
Services billed to the Medicare Benefits Schedule (MBS) 2009/10 ASR per 1000	517	442	405	583
Total services by GPs for Enhanced Primary Care items ASR per 100,000	3318	1251	1285	2618
Practice Nurse services under the MBS 2009/10 ASR per 100,000	41053	43743	42047	29845
Better Access Program: Preparation of Mental Health Care Plan by GPs 2009/10 ASR per 100,000	11751	7300	6981	8222

4.9 Chapter Conclusion

This chapter has established the case study boundaries and provided an overview of geographical, social and economic characteristics. As the data demonstrates, the South Coast is not a wealthy region and has some pockets of significant socioeconomic disadvantage reflected in the SEIFA scores, the high numbers of people on pensions, low incomes and people needing rental assistance.

Geographically, the South Coast is separated from inland NSW by a mountainous strip to the West and the Tasman Sea to the East, making access to the region limited by road. Bega Valley and Eurobodalla are classified as Outer Regional (RA3) with 78% of land zoned for National parks, State forest or other conservation land in the Bega Valley and (83%) in the Eurobodalla.

The South Coast is rich in biodiversity and because of its natural beauty and extensive coastline, it is a popular with tourists and retirees. But the region also has some significant threats to flora and fauna with hundreds of species listed on the threatened species list. Economically, the region depends heavily on tourism. Shoalhaven, however, has more diversity with a strong manufacturing and defence industry base.

Shoalhaven has the largest population, is younger and more urbanised in comparison to the Eurobodalla and Bega Valley. Most people who live on the South Coast were Australian born. If they have come from overseas, they were mostly of European ancestry (mostly British) and speak English. There are very low percentages of people that come from non-English speaking countries. Christianity is the dominant religion. Proportionally, the South Coast has higher numbers of Indigenous Australians, many of whom live in the Nowra-Bomaderry region. The Indigenous population come from two traditional language groups the Dharawal and the Yuin.

The population health profile shows that the South Coast has higher rates of avoidable deaths, i.e. deaths that could be averted with access to timely medical care. Rates of suicide and self-harm are higher, as is mental illness and psychological distress, yet usage of GP Mental health care plans are low in Eurobodalla and Bega Valley, but higher in Shoalhaven compared to NSW. Rates of chronic illness, disability and hospital admissions are also higher across the South Coast. Barriers

exist in accessing services and include cost, transport and access to services due to high demand and no service providers available.

The data also clearly demonstrates that health inequalities exist between the case studies and NSW. This is demonstrated for a range of indicators and include mortality, morbidity, disability, health burden for chronic illness and higher numbers of people reporting their health as fair or poor overall. However, of the three case studies, Bega Valley has slightly better health and socioeconomic status. In the next chapter, I begin to explore case study participants' understanding of sustainable development and health and present findings from an interpretive analysis of focus groups and semi-structured interviews.

CHAPTER 5 – Rural Communities Perception and understanding of Sustainable and Healthy Communities

5.1 Introduction

In this chapter, I explore the rural communities' perception and understanding of sustainable and healthy communities. This is directly related to research Aim 2, *'To examine in what ways rural communities perceive of, understand and take action on ecological, social and economic sustainability'*. I have used two methods to answer this question. Analyses of participant's interviews and focus groups are outlined here and the next chapter outlines the analysis from a scoping review of online media.

This chapter also relates to Aim 3 *'To explore how knowledge gained from the research study can be useful, shared and put into public health policy, research and practice'*. I will be considering the five steps described by Reardon et al. (2006), as outlined in Chapter 2, and specifically asking what knowledge found here can be of use to public health policy, practice and research?

5.2. Participant characteristics

Forty-eight participants were interviewed between May and October 2014, 9 from Shoalhaven, 27 from Eurobodalla and 12 from the Bega Valley, 27 were females and 21 were males. Interviews were digitally recorded and transcribed verbatim by myself. After interviewing 48 participants, as no new themes were emerging, particularly for how participant's perceive sustainable community and a healthy community, data saturation was reached. Shoalhaven had the smallest number of participants but after interviewing 9 participants, very quickly it was evident that the Shoalhaven participants were more inclined to have an economic stance with few variations in their perceptions and understanding of sustainability and health and no new themes emerged.

All participants were sent a copy of their transcript and given an opportunity to make comment or amendments. Table 14 outlines the numbers of participants and interview method used. Socioeconomic status was not assessed directly but participants did discuss where they lived. To gain an indication, I looked at the SEIFA scores of the townships / location they live in and (if stated) their occupations

past and present. Most participants in Shoalhaven and Eurobodalla live in urban settlements, in contrast to the Bega Valley participants, where half of the participants live on rural properties.

Table 14 Interview methods and number of participants

Number of participants	Shoalhaven	Eurobodalla	Bega Valley	Total
Number Female Participants	6	10	5	21
Number of Male Participants	3	17	7	27
Semi-structured 1:1 interviews face to face	0	6	3	
Semi-structured 1:1 interviews via telephone	7	8	9	
Semi-structured focus group (face to face)	2	13	3	
Total number	9	27	12	48

Locations ranged from the high SEIFA ranked communities (e.g. Deua, Potato Pont, Mossy Point and Bangalee-Cambewarra) to the lowest ranked (Bodalla and Cobargo). Appendix 29 provides a list of the participant location and the SEIFA score of that location. With one exception, participants had moved to the region from an Australian city such as Sydney, Melbourne or Canberra. Not all participants provided details of how long they had been living on the South Coast (12 participants did not provide this information). However, for those that did provide this information, 12 participants had been living in the region for less than 10 years, 15 had been in the region for 10 to 30 years, and 3 had been living on the South Coast for 30 years or more. There was one participant who stated they were living part time in Sydney and part time on the coast (see Table 15). There was one Aboriginal participant, who had retired to the South Coast from Sydney, but was originally from the Riverina region of NSW (i.e. the South Coast was not the participant's country). As far as I am aware there were no participants who came from old established rural farm families.

Questions about education or employment status were not explicitly asked, but many

participants discussed tertiary qualifications, or made comments about their current occupation or retirement status. Participants are either currently employed in middle to high income occupations or were in these occupations prior to retirement and moving to the South Coast. In comparison to the majority of South coast residents it would appear that participants in this study had higher qualifications.

Table 15 Number of years the participants have been living on the South Coast

Number of years living in the region	Shoalhaven	Eurobodalla	Bega Valley	Total
Unknown	0	8	4	12
Born in the region	0	1	0	1
Part time resident	0	1	0	1
Less than 5 years	0	2	3	5
5-10 years	1	4	2	7
10-15 years	5	2	3	10
15-20 years	1	5	0	6
20-25 years	0	2	0	2
25-30 years	1	0	0	1
30 years +	1	2	0	3
Total number	9	27	12	48

Current (paid) occupations ranged from the tourism and hospitality industry, environmental/ natural resource management / land management, manufacturing, food industry, working in local government, academic or religious institutions and the health or social care industries. Age was not asked specifically, but from participant’s responses, they were mostly older working adults or retired. Not all participants that had retired discussed their previous occupations. However, of those that did, occupations ranged from: executive positions in State government, professorships in academic institutions, small business owners, teachers, astrophysicist, retired Anglican Church bishop, accountant and manager in a private company. Appendix 30 provides a summary of participant current or past occupations.

5.3 What does ‘sustainable’ mean to interview participants?

In this section, I present findings from focus groups and semi-structured interviews exploring participants’ understanding and perception of the term sustainable or sustainability. Appendix 31 provides the interview guide. In defining ‘sustainable’, participants tended to start with the phrase it is ‘something’ then follow this with words like; ongoing, regeneration, has longevity, can carry on, continuation, self-sustaining and indefinitely. One participant referred specifically to intergenerational

equity in their definition.

‘I think to me it is about leaving less of a footprint on the earth. It's about promoting intergenerational equity and teaching kids’ (ED, Shoalhaven).

The results show that there are differences between the three cases as to which sustainable pillar participants were most aligned to. In Shoalhaven it is the economic pillar, Eurobodalla the ecological pillar and in Bega Valley the social pillar as outlined Table 16.

Table 16 Participants alignment with sustainable development pillars

Sustainable development pillar/ stance	Shoalhaven	Eurobodalla	Bega Valley	Total
Ecological	3	17	4	25
Economical	6	4	2	11
Social	-	5	6	11

Differences emerged when articulating what the ‘something’ is. For these participants, their geographical location was not the factor that created differences in their understanding. The differences emerged when looking at the stance participants are taking in relation to the ‘something’. For example, participants who aligned with an economic perspective spoke of similar aspects such as; economic measures, profits, growth, business planning and trade, regardless of their case study location.

Economic pillar: Eleven participants discussed ‘sustainable’ in terms of sustainable business, in particular within the tourism and agricultural industries. In this perspective, a sustainable business can keep trading, it has a regular customer base, is well run, does not rely on handouts and can keep on producing for itself. To be sustainable a sustainable business needs to be efficient, have quality standards and benchmarks and meet industry best practice. A sustainable business is a successful business that provides sufficient quality work for its employees for the long term and is growing and thriving.

Two participants stated that a sustainable business focuses on the triple bottom line (KB, Shoalhaven, MatD, Eurobodalla) of ‘business, community and environment’

(KB, Shoalhaven). Social development and prosperity is seen to be the intended outcome from economic growth for the current generation ‘and possibly the next generation to come’ (TP, Shoalhaven).

Ecological Pillar: Unlike participants that align with the economic pillar participants were mostly retirees and if in the workforce their work had connections with environmental / land management, permaculture, natural therapy or environmental policy development in local government. Participants who aligned with ecological sustainable development spoke of efficient use of natural resources and their replenishment, not depletion or degradation. Ecological sustainable development was seen by participants as being part of the natural cycle; taking care of and teaching others to be mindful of natural resources, living systems, rivers and soil; and being aware of where products come from and how they are made.

Discussion of ecological sustainable development included renewable energy; local, organic, chemical free food production; minimal waste, the need for transport of food; and less ecological footprint. It meant ‘doing the same thing on a regular basis but with a minimum impact on the environment’ (Steve, Eurobodalla).

There was also the sense of connections on multiple levels from micro to macro and the limits to resource use, as one participant explains:

‘Sustainable for me means something that can go on into the future, something that can last... it is about thinking about changes, thinking about the limits to our use of the planet on that kind of level, the macro level. Then there’s sustainable on a micro level and what you are able to do day-to-day’ (BB, Bega Valley).

The outcome of ecological sustainability is ‘future security’ (Emily, Eurobodalla). One participant described this in terms of ‘survival’ and that living systems ‘are very much reliant on natural systems of the planet and to an extent the physical systems’ (SM, Eurobodalla).

Social Pillar -Participants who aligned with the social pillar integrated their definition with their understanding of a sustainable community. This is discussed further in the next section. They were either currently working in local government, health services or have retired from teaching roles. Participants discuss the place and

the ‘local’, the built environment, access to services and amenities. They also discussed social contact, and being part of the community and the need for lifelong learning. The outcome of social sustainability is a cohesive society that lives in harmony.

‘I think it [sustainable] is think local, support local, play local and look out for people. I think if we all look out for each other and we’re respectful to everybody, I think that is sustainable’ (Sue, Bega Valley).

Participants also made linkages to scales and levels from individual (micro) to community and to global scales.

‘To me this is what sustainability is about and on a very micro scale it is maintaining myself and my family, but also the people around me’ (AK, Eurobodalla)

‘And you’ve got think globally as well as locally’ (Sue, Bega Valley).

‘Sustainable’ definitions are presented in Table 17.

Section Summary: There was little difference in how the word ‘sustainable’ is understood across the three case studies and the word sustainability is used interchangeably. Participants agree that ‘sustainable’ relates to an abstract ‘something’ that goes beyond the present and will continue for the benefit of humans, at least for the next generation. The ‘something’ is an objective thing, out there in an abstract future and involves processes undertaken in the present to enable regeneration and replenishment for longevity for the human world. The ‘something’ has levels and scales from individual to global. It is dynamic and involves change. With the exception of one participant, equity is not a core theme in how participants understand and perceive ‘sustainable’.

Table 17 Participants definitions of sustainable

Shoalhaven
“Sustainable, basically I view from a business perspective and a sustainable business is one that will be able to keep trading for the long term, for the foreseeable future. It is one that has a regular customer base and basically it is run on a sound business practice, it works, makes a profit” (TP)
“It means something that will last for at least another generation” (Ali W).
“I think to me it is about leaving less of a footprint on the earth. It's about promoting intergenerational equity and teaching - for me personally teaching kids to be less consumerist, to value natural things rather than constantly wanting manufactured items that have a large footprint” (ED)
“To me sustainability is about repetition with minimal impact on the environment or well-being of the inputs to the project or business” (JL)
“...you are looking at three things... a business, community and environment; and they are all equally important” (KB)
“Sustainability means something is ongoing possibly forever” (LB)
Eurobodalla
“A sustainable activity is one that could continue indefinitely because it is not depleting its resources” (CW).
“Using our environment over and over and over again without destroying it” (Steve TG)
“...how we use the resources of the earth in a way that doesn't degrade the natural environment and that involves an increased focus on renewable energy. It involves the way we develop and it also involves the way we engage socially and culturally” (LC)
“I think it means that whatever action you are taking regardless of what field it is in you are not going to leave a heavier footprint, whether it be the natural environment, the social environment, the built environment... it is an activity that will allow and not preclude similar activity.” (RP)
“I think sustainable means it has longevity, where it doesn't exploit and it has accountability beyond just maybe one bottom line” (MatD)
Bega Valley
“I always think of sustainable in an economic and well-being area. So it is something that is repeatable and is self-supporting...And... is self-generating” (GorB)
“...from my perspective it's starting to think long term as opposed to a process where we are purely consuming natural, financial or any other sort of resources with no regard to the future” (DM)
“Something that can be perpetuated in this generation and the next and its ongoing and in a way that it can look after itself and feed itself and nurture itself and be continual” (JT)
“Something that can go on into the future, something that can last. There's sustainable on a micro level, what you are able to do day-to-day, over a longer period and how you come to a steady state of existence within the world around you” (BB)
“it's whatever you do it's justified in terms of social and environmental impacts, both for existing and for future generations. So your footprint doesn't degrade but you are achieving social and economic outcomes, positive outcomes, in a way that preserves the resources” (BL)
“Something that can keep going past the project funding period” CF
“Able to replenish itself over a given period of time, you know whether it is a lifespan or hundred years or whatever” (VG)

5.4 Participant's understanding of a sustainable community

Regardless of whether or not a participant aligned to a particular sustainable stance there was consensus in the way they saw a sustainable community functioning as a society. It is respectful, safe, inclusive, collaborative, neighbourly and local. There was also agreement on the need for local decision making and governance, demographic stability, community connections and design.

Differences reflect the stance participants took when defining the sustainable 'something' related this to *how* participants perceive a sustainable community which becomes sustainable and included personal actions and behaviour. The way the community is designed (its economic and social structures) and the physical setting contribute to this. Living a sustainable lifestyle was discussed by those aligning to the ecological stance. For those aligning to the economic pillar developing an economic base is the way to achieve a sustainable community. The findings are discussed under the following themes: the awareness of the need to be a sustainable community, decision making and governance, demographic mix, community connections and safety and sustainable design.

A sustainable community is made up of people who are aware of the need to be sustainable and that to be sustainable requires change. Participants discussed that a sustainable community 'can be a group of people from diverse backgrounds coming together with a common goal' (SMc, Eurobodalla). It is a community that 'understands itself' (SW, Eurobodalla) with its 'own identity' (MH, Eurobodalla) is 'conscious of need to be sustainable' (LC, Eurobodalla) and 'has confidence in itself' to make needed changes (RB, Eurobodalla). A sustainable community is 'capable of change. Good change. Change that does not destroy it. It enhances it' (AM, Bega Valley). A sustainable community is not one single community

'We are talking about multiple communities. And that they all network or interlink with each other. That's a sustainable community' (AM, Bega Valley).

Decision making and Local Governance- Participants described a sustainable community as one with a locally owned governance structure where the community engages in decision making. It has regulatory frameworks to guide accountability and responsibility and everyone participates in this. But a sustainable community

also has freedom and choice.

‘...sustainable communities are probably more about what decisions we make to make sure that it has longevity... if you don’t have a say in your own future, as a community, as a town, someone else is going to come along, that does not share your values and do something here that may not be in keeping your own vision, your own values’ (MD, Eurobodalla).

Community leadership was also seen as important and as pillars of the community need to be trustworthy, transparent and good role models.

‘A sustainable community needs to have strong leadership, whoever the leader is and it could be many leaders. But the leaders have to be strong and they also have to do have the trust of other people, there is integrity to that’ (MH, Eurobodalla).

A sustainable community has a demographic mix, community connections and is safe- Participants described a sustainable community as demographically stable (i.e. it does not have a highly transient community), and with a mix of age groups (not too young or old). Its population is content and does not need to move away for employment, education or health care. Everyone has value and people are not segregated by age or disability.

‘You might just sit and read to a child or be the watcher as young children are playing. Everyone, everybody has value. We are the value’ (St, Eurobodalla)

People live in harmony, share spaces and share knowledge and their strengths (ED, Shoalhaven). There are ‘strong social linkages’ and ‘people do things together’ (ED, AW, and LB, Shoalhaven), it is ‘socially just’ (St, Eurobodalla). A sustainable community is a ‘united community’ that ‘pulls together in times of need’ (AR, Eurobodalla). A sustainable community was also seen as one that has high levels of investment in social capital and participation in social activities and volunteering is high. This includes community groups, festivals and other local cultural activities.

A Sustainable Community is designed –Participants saw a sustainable community as a well-planned and designed place, that purposefully brings people together, meets all of its basic needs and does not rely on outside sources. So that people can connect and interact with each other, the urban design facilitates integration and connections

and easy access to services and amenities. It has intergenerational housing structures and people are not isolated or segregated.

‘See our young people have been broken away from our older people. We have old people’s villages and all the young people are employed to go in and work in them. Whereas in a village, a sustainable community, that happens naturally’ (St, Eurobodalla)

Participants described a sustainable community as aesthetically pleasing with shared open and green spaces and it is walkable. The community values the place and takes care of their natural and built environments and this visually apparent when walking / driving around. The scale of community can be ‘small town or village’ (Brian, Shoalhaven), or a ‘cluster of people that are geographically located in the same areas’ (LB) and the size can be anything from 300 people (St, Eurobodalla) to 10 to 12,000 people (TP, Shoalhaven).

Population size in ecological sustainability terms is discussed by one participant:

“We don't have a huge population here, in terms of the area of this continent, but we are probably near the maximum population that we can support because of the water and things like that” (SM, Eurobodalla).

Barriers to a sustainable community are acute issues like a natural disaster (TP, Shoalhaven), pollution (TP, LB, Shoalhaven), poor planning (JL, TP, Shoalhaven), violence, crime, marriage breakdowns and selfish behaviour (Brian, KB, Shoalhaven).

The Differences: The main differences in participant perceptions are between those aligning to either an ecological or economic stance. The social aspects of a sustainable community seem uncontested. Participants aligning to ecological stance spoke of sustainable ways of living as the method to achieve a sustainable community and those with an economic stance discuss employment and a strong, diverse, industry base.

The Ecological Stance- A ecological sustainable community is ‘attached to a certain way of life’ (AliW, Eurobodalla). This includes ways to produce energy and independence from fossil fuels. ‘A truly sustainable community has got its own way

of producing energy' (SM, Eurobodalla) and has local food production, low consumption and waste, and has a public transport system or methods to share transport with each other.

People living in a sustainable community 'live a sustainable lifestyle' (SW, Eurobodalla) that includes adopting environmental sustainable practices, building houses with sustainable products and design (solar panels, water tanks, drought resistance plants in the garden, LED lights) renewable energy, growing your own vegetables and fruits, buying local products and recycling (everything).

'A sustainable community ...it's local food production, it's minimising the inputs, minimising chemicals, minimising excess cultivation and at the same time protecting your natural resources on your property, your bushland, your native grasses, your soils, water. So it's better property management overall' (PG, Eurobodalla).

However, adopting ecological sustainability practices is not unique to those with an ecological stance. For example, 7 of the 12 participants that align with the economic stance describe using environmental sustainable practices as part of their business model but it is framed in terms of financial efficacy and not in terms of preservation or conservation or living within ecological limits.

A sustainable economic community – To those aligning to the economic stance a sustainable community has a 'diverse economy' (JL, Shoalhaven) so it can 'survive economically' (TP, Shoalhaven) and is 'socially and economically rich' (HC, Eurobodalla). It provides 'meaningful employment' (JL, Shoalhaven) has 'sufficient work' and 'a strong industry base' (KB, Shoalhaven). The key concept here, is it is local.

Table 18 provides a summary of participant sustainable community definitions.

Table 18 Participants definitions of a sustainable community

Shoalhaven
‘A sustainable community, I think the word sustainable is used differently here, in that phrase. To me that is a community that is adopting principles of environmental sustainability; that are advocating environmental sustainability; and are practising environmental sustainable ways.’ (AW)
‘sustainable communities are basically towns and villages; communities that survive economically on what they're doing’ (TP)
‘A sustainable community is a community that has all of its basic needs for its inhabitants...By that I mean everyone has gainful employment. It has a good education system. There is {sic}good medical facilities available and all in close proximity. Energy. Food. All reasonably priced. And all the basic needs of the community are met’ (Brian).
‘A sustainable community to me is one that has a lot of social linkages. So I guess lots of different interested engaged community groups, who are able to rely on each other. So there is an increased element of sharing skills and knowledge in that sort of community, different people taking on different roles, where they have their strengths, and a lot of it comes down to social linkages’ (ED).
Eurobodalla
‘...for me the link for sustainable communities is to try and have some robustness in the local supply and demand of services and goods’(AliW)
‘I think that the sustainable community is one that sort of embraces the environment that they live in and tries to sort of minimise the impact on the environment having a sort of local footprint that is basically consistent with environmental conservation, energy conservation, and energy conservation in its broadest sense’ (LB)
‘I suppose a sustainable community is one that has the competence and confidence to do things on its own and on its own bat and not rely on the handouts from government... a sustainable community is one that has confidence in where they live and what they want and have the means to actually do things that aren't given the green light by governments. It has competence and identity’ (RB).
‘...is one that has a considerable investment from the community itself. So there's a lot of informal kinds of supports, because otherwise if there isn't that on the ground support or acknowledgement of what makes good community, it is not sustainable if you keep having to inject energy into it and get external things going. It has to be self-sustaining’ (TS)
Bega Valley
‘It is an interconnected community in which the things that go on in the community are mutually supported to the benefit of the whole community and people understand of recognised the community as existing’ (AM)
‘It doesn't rely on external inputs to exist. It may use them but it does not fully rely on them. It is able to look after itself within itself, feed itself, care for itself, build its own resources, generates income into the area to look after itself’ (JT)
‘...it is where most of its needs, basic human needs of food, shelter, housing are met from within the community...for energy and for food’(JC).

Section summary: Participants understand a sustainable community to be one that is aware of the need to undertake practices/ processes to make it sustainable. It is a community that focuses on ‘local’, be this business, production, its design or how decisions are made and by whom. A sustainable community designs itself in a way to facilitate social interactions, promote easy access to people, employment, recreation and services. A sustainable community can provide for itself without outside assistance.

The word equity is referred to explicitly by one participant only. However, other participants discuss enabling social connections, ensuring everyone’s basic needs are met and social justice, which relates to the concept of equality.

Differences are seen in the way that a community becomes sustainable, either by changing behaviour to undertake ecological sustainable ways of living or by developing economic viability of local industries and business. When asked if the place is a factor for a sustainable community, participants could see differences between larger urban centres and small rural communities. For example, smaller communities by their population size facilitate connections and the landscape may facilitate different types of activities that cannot be available in a city.

However, participants perceived that if the ‘ingredients’ (AB, Shoalhaven) are present, such as: the awareness, working together as a community to take steps to be sustainable (ecologically and economically), good social connections exist, with strong, local, trustworthy leaders and local governance’ and the design and demographic mix facilitates cohesion, then conditions could be created for a sustainable community. ‘It’s like food, people can grow food anywhere’ (AliW, Eurobodalla). The analogy here is you can ‘grow’ a sustainable and healthy community anywhere with the right ingredients.

Regardless of the strategy used, participants see a sustainable community as a desirable happy place with empowered people working together for a common goal. Despite its positive attributes, a sustainable community is an aspirational goal, an objective reality of something ‘out there’ that is optional. You can choose to be a sustainable community (and all that this entails as outlined above) but it is not essential and not always achievable.

5.5 Participant's understanding of health

As with the word sustainable there are few differences in the way that participants from any area perceive of and understand the concept of health. Without exception, all participants first refer to human health which is understood as physical, mental, emotional and spiritual health, a state of wellbeing and absence of illness. The findings are discussed under the following themes: human health, mental health, individuals and responsibility, social connections, other factors assist health and equitable access to health care.

Health was considered to be a human construct and 'a functioning and working healthy body. So your healthy body is working, your healthy community is functioning.' (TS, Eurobodalla).

Following a description of human health, two participants then described health beyond a human construct. One participant connected planet health to human health and the other to 'environmental health'.

'...But when I think of health again, I think what might be ahead for the planet. It mightn't be as healthy a future as we hope for ...are we going to be able to keep our bodies working?' (SM, Eurobodalla)

'I also think of environmental health, so clean water, fresh air, less weeds, and healthy vegetation communities' (ED, Shoalhaven).

Mental health was seen as a core component of human health and few participants left out mental health in their interview. Participants discussed mental health as being directly related to people's ability to function and participate in their lives.

'I think if you don't have good mental health you don't have much at all really' (Sue, Bega Valley).

"You know health is your own well-being, how capable you are physically about achieving what you want out of each day and health is about attitude as well...if you're miserable, you are sick. If you are happy and optimistic you are healthy" (RP, Eurobodalla).

Individuals are responsible for their own health- Participants discussed factors that help individuals to achieve their health status and quality of life. In their view, there is a hierarchy that starts with personal behaviours and taking responsibility for your own health. This includes ‘living a healthy lifestyle, not drinking too much alcohol or smoking, being physically active and not obese’ (LB, Shoalhaven).

‘I am a strong believer that we are all responsible for our health’ (LynB, Eurobodalla).

Health was seen as a duty, a responsibility and an expectation, to keep oneself healthy and not be ‘a burden on the rest of the community’ (JL, Shoalhaven).

‘Living here, we’ve got a responsibility to be aware and keep healthy’ (LB, Shoalhaven).

‘...I think that you would expect people to be healthy when you are living in an environment like this’ (RP, Eurobodalla).

Social connections - Participants perceive social connections as a way to prevent illness, particularly mental illness and to identify those in need of assistance and support. The physical environment (fresh air, water and no pollution) and ‘eating chemical free food’ (SS, Eurobodalla) also contribute.

Other factors assist health- Participants understood that there are factors that enable health including; ‘having a disposable income’ (MD, Eurobodalla), ‘employment’, (JL, Brian, TP, Shoalhaven) and ‘access to health services’ (TP, ED, Shoalhaven).

Health inequality and equity- With the exception of one participant, participants did not discuss equity and health inequalities but did discuss equity in terms of access to health care. One participant believes that equity in access to education, wealth and access to health and social care services is related to health.

‘There is great inequity, so we need more equity, where everyone can have the basic things in life, health and education, and we are moving to an era where there is going to be less equality and access will depend on wealth’ (GB, Eurobodalla).

Section summary: Participants first related the word health to humans. However, ‘sustainable’ was seen as a choice, an objective and an optional ‘something’ out there in the future, whereas, health was not. Health was seen as personal and an essential. As a member of their community, an individual must take responsibility for their health. Health was not seen as a choice. Health was similar to sustainable in that participants understood it to have levels, from individual, family to community and (in two examples) ecosystems and the planet. It was also seen to be dynamic and a state that can change from wellness to illness. Table 19 shows a range of participant definitions for health.

In defining health, participants described factors outside an individual’s responsibility that assist with health which include the physical environment (fresh air, water and no pollution), employment and economic status, social interactions and access to health care services. Mental health is a prominent issue for these participants. Similar to how participants defined sustainable, the concept of equity was not a core theme relating to health unless it is in reference to health care access.

Table 19 Participant’s definitions of ‘health’

Shoalhaven
Health is ... ‘A state of wellness...So all parts of health, obviously basic health, mental health, physical well-being, outlook on life, to have a healthy lifestyle, to be an active participant in the community. And I would hope, without being a burden on the rest of the community’ and ‘Financial sustainability creates health’ (JL)
“I think personally. I think of my own well-being. My health is good and fortunately it is. It enables me to do all of the things that I want to do in my retirement” (Brian).
Eurobodalla
‘Status of physical and mental well-being’ (CW)
‘The capacity to live in balance as far as possible within the whole community of creation. And I would say that that requires a society that has the best interests of the other at heart... I mean the social other’. (LC)
‘...health means to me, it is more than just physical health, you know it’s having a level of purpose and contentment in your life, connection with other people, having physical health as well. So your body can do what you want to do ... And having a level of engagement in your house, which means that you feel like you have some measure of control over it’ (AliW)
Bega Valley
‘To me health is personal physical health and really the non-reliance on medical intervention at any time’ (DM).
‘What comes to mind? You know being fit, strong and food’ (JC)
‘I would think about preventative health, day-to-day people being able to take care of themselves. But certainly health services very quickly come into mind after that. So what health services are available? And that is physical health’ (VG).

5.6 Participant's understanding of a healthy community

As with the definitions of 'sustainable' and 'health', participants varied little in their description of a healthy community. Descriptions were similar to those of a sustainable community. However, when describing 'sustainable' or 'sustainable community' participants had a stance, but when participants discussed a healthy community, they did not. Participants included; employment, urban infrastructure, education, access to health care, transport, social connections, access to a variety of recreational activities and healthy affordable foods as factors that enables and supports a healthy community. As with a sustainable community participants described a healthy community as one that is aware of the need to be healthy and also has a demographic mix. However, unlike a sustainable community a healthy community is not seen as aspirational, it is essential. Table 20 outlines participant definitions of a healthy community.

A healthy community has visual signs of health and people within it live a healthy lifestyle - Participants described a healthy community as one where individuals take action to be healthy and understand risks to health posed from alcohol, smoking, a sedentary lifestyle and then take steps to address risks to prevent disease. It is about individual behaviour, attitude and intention to be healthy.

'A healthy community is one that understands the risks involved in their activities and it doesn't undertake the extra risks such as smoking' (JL, Shoalhaven participant).

'In a healthy community it is not just about the way they think it is about what I can do to be healthy' (RB, Eurobodalla participant).

Participants describe a healthy community as having visual signs of being healthy.

'In a healthy community... people are not obese. I'd see people who are outdoors. I see people talking to each other, engaging with each other, being physically active, being happy doing a variety of different things, being productive, have productive occupations, self-care occupations. I see people who are able to breathe fresh air. What else would I see? A healthy community has a sense of togetherness and social cohesion and therefore has some social capital. So individuals are healthy but the community as a whole is also healthy' (AW, Shoalhaven).

Table 20 Participant definitions of a healthy community

Shoalhaven
<p>‘Healthy community? It gets back to what I was saying about a sustainable community. It is a community that is pretty much self-reliant inasmuch as it is a community that does not rely on government handouts in order to survive. So the community has a good industry or industries that enable it to contribute to the overall economy of the country. And at the same time the payoff for the community is it has for the upcoming generation and the existing working generation. That is a healthy community’ (Brian).</p>
<p>‘A healthy community is an active community’ (LB)</p>
<p>‘A healthy community would be one that would be better engaged with each other. So they could actually support each other better and communicate within the community to help arrest mental health issues. A lot of people with mental health issues feel very isolated and they can live right next door to people’ (JL, Shoalhaven).</p>
Eurobodalla
<p>“...I think that a healthy community is a happy community... I think there is a connection between happiness and ... healthiness.” (MD)</p>
<p>“In a healthy community there is that ability to look out for and perhaps notice that someone is not around and being able to say “Are you okay? Are you well? Is there anything I can do?” (LynB, Eurobodalla)</p>
A healthy community is....
<p>When asked “If you look out the window and see healthy community, what does it look like?”</p> <p>MH: They are jogging, they are swimming.</p> <p>KB: They are laughing. They are hanging out in their groups.</p> <p>TS: Yes, and outdoor living and doing their gardening.</p> <p>JT: Yes, but they are also undertaking activities as volunteers and engaging with other people around those lifelong learning things.</p> <p>KB: They are making healthy food choices.</p> <p>TS: Yes, eating well, planting things in the garden, growing their own food. They are helping each other out, so there is a lot of good neighbourly sense.</p> <p>KB: There is little reliance on drugs and alcohol so consumption is low’ (Focus Group participants, Eurobodalla).</p>
Bega Valley
<p>‘... They are healthy. They are not diseased. There are low rates of disease. They are a socially tolerant and cohesive community of people. There is cooperation amongst people’ (JC)</p>
<p>‘A healthy community, it is a community that is out doing things, physically active, contributing, being involved in things that are going on, taking responsibility for themselves and their bodies and their families bodies’ (JT)</p>
<p>‘A healthy community is a community that could talk to each other. That’s it to me. I think it is a community that is talking to each other and seeing each other and can support each other’ (BB)</p>

Social Connections and Demographic mix – Most participants discussed social connectivity and interaction with others as contributing to a healthy community. Participants described a healthy community as having networks, sense of community and belonging across age groups, ‘that help integrate and look out for everyone at all stages of life’ (CW, Eurobodalla). It is a neighbourly place where people look out for and take care of one another. This aligns with descriptions of a sustainable community.

‘A healthy community is a connected community’ (SW, Eurobodalla participant).

Participants see that having a demographic mix has two functions. Firstly, people are not segregated by age but interconnected across the generations; and secondly there is a mix of younger and older people available in the workforce and for volunteering.

‘I think demographic is a big one where you have a mixed demographic so that your older people are supported by the younger generations but you know younger generation is also supported by your ageing people’ (ED, Shoalhaven participant)

Access - health care, transport and employment, income- Participants discuss that access to health care, transport, employment and income are interlinked. They are of specific concern for rural communities which also have health and social impacts. Comments included access to medical care as an issue due to allocation of health care funding, recruiting and retaining medical practitioners, to having human and built infrastructure available locally and the need to fundraise for new equipment or capital works for the hospitals. Transport for health care and social needs, the social impact of having to move away for health care or work or being social isolation were other key issues of access.

‘the lack of public transport it is one of the biggest issues here and that is why so many older people in older life who have ceased to be able to drive have to leave the area’ (MB, Eurobodalla participant)

Participants that live outside larger urban town like Nowra, Bega and Batemans Bay, described public transport as limited or completely lacking. Descriptions of transport by focus group participants range from ‘sparse’ (Sue, Bega Valley) to ‘we don't have

any transport at all' (SM Eurobodalla).

Finally, as one participant summarises:

'I think a healthy lifestyle has a lot to do with the organisations and the activities that you can become involved in. A lot of them require you to be able to go from Tuross to somewhere else, you need transport' (MB, Eurobodalla).

Section summary: Participants understand a healthy community to have many similar attributes to a sustainable community. For example, a healthy community is aware of the need to undertake practices/ processes to make it healthy, social interactions and networks are important as is a demographic mix, access to employment, transport and health care services. Unlike a sustainable community, being a healthy community is part of day- to-day life and people have to take responsibility for their own health. As with a sustainable community, participants see social connections as an essential component, implying social inclusion and equality are attributes of a healthy community. However, there were differences for example in how participants discussed governance. A sustainable community was seen to have local decision making powers over actions and the process itself. It 'does not rely of government handouts' (RP, Eurobodalla). In contrast to this, when these participants described governance in terms of a healthy community, they would take their concerns to government decision makers and rely on their decisions for services, programs and resource allocations for health care. There was a sense that participants saw the government's role as providing the essential health enabling infrastructures and institutions as opposed to the community finding its own ways and solutions.

A sustainable community then, would seem to be more empowered and would choose its own way to reach a goal. A healthy community needs empowered individuals to undertake healthy behaviours but beyond the individual level the community defers to governments and institutions to make, enact and deliver healthy public policies, specifically for medical care.

Participant's perceptions and understanding of sustainable and healthy communities aligned with many of the Hancock et al. (1999) indicators. However, there are gaps, as outlined in Table 21. Gaps were for viability, equity and governance.

Table 21 Case study perceptions and understanding comparison to Hancock et al's (1999) indicators

Hancock et al Indicator.	Silences from model
Sustainability	<ul style="list-style-type: none"> • Energy and renewable energy were combined. • Water consumption silent. • Renewable resource consumption implied through actions of recycling and renewable energy. • Waste in terms of individual handling and services for safe removal.
Viability	<ul style="list-style-type: none"> • Few comments made on viability overall. One comment on toxins from microfibers, one comment on food contamination and Minamata disease were examples.
Liveability	<ul style="list-style-type: none"> • Green / open space – in terms of aesthetic and place as we have lots of ‘space’ • Smoke free places- not really commented, one participant spoke about smokers being selfish • Noise pollution – not mentioned
Conviviality	<ul style="list-style-type: none"> • Charitable donations – referred to by two participants in terms of donating food to charitable causes and fundraising
Equity	<ul style="list-style-type: none"> • Economic disparity mentioned by one participant in terms of sustainable actions limited to the educated and wealthy. Not mentioned for health. • Discrimination/ exclusion – discussed in terms of age but not Indigenous cultures, gender, children youth, sexual preference not referred to. Other than human living systems absent throughout. • Access to power- not referred to for healthy community
Prosperity	<ul style="list-style-type: none"> • No gaps most participants link economic development with well-being
Education	<ul style="list-style-type: none"> • Early childhood- as an age group silent but included on the wish list. • Adult literacy implied but not defined • Sharing knowledge in the community is widely discussed.
Governance	<ul style="list-style-type: none"> • Citizen action not referred to in terms of definitions but in understanding participants discuss civil action in Bega valley for example about introduction of National Parks in the 1970s. • Participants see government as accountable for Healthy public policy- strong theme participants see the need for government decision makers to be committed to providing health care and community services. Council workers discuss their role in urban planning, social policies and waste management.
Health Status	<ul style="list-style-type: none"> • Disability / Morbidity in terms of inclusion and implied as an issue is loss of physical function. • Mastery implied for health, but not for a sustainable community. • Mortality or causes of not generally discussed but did refer to ‘dying healthily’ (CM, Bega Valley).

5.9 How does this knowledge inform research exchange and transfer strategies?

Participant's definitions of the term 'sustainable' shows that world views influence the way participants understand the term. There is no relation to where they live on the South Coast. In defining health and a healthy community, participant's understandings are in agreement and world views align. To be healthy is essential, to be sustainable is a choice.

Sustainable communities are empowered to make their own decisions. Healthy communities make their own decisions at the individual level but defer to governments and decision makers at the community level and beyond.

Determinants for a sustainable community and a healthy community align. Specifically, participants align sustainable and health determinants for meeting basic needs (access to food, public services for water, sewage and rubbish collection), systems and services (e.g. food, education, transport, employment) and social connections. Sustainable and healthy communities have co-benefits in that sustainability and health are about the best outcomes for humans. Participants align social determinants with health and a sustainable community, but have not made linkages to broader ecological determinants of health, or the other than human living systems.

Regardless of the stance or location, participants perceive the aim and goal of both a sustainable and a healthy community to be for the benefit of the community and the place they live in and to provide them with social benefits, quality of life and longevity.

When comparing understandings with the Hancock et al. (1999) framework participants' perceptions align with the prosperity and conviviality indicators. However, there are notable gaps in the viability and equity indicators.

As a public health researcher, this knowledge tells me that participants have made connections between the social determinants of health when thinking about sustainable and healthy communities, but have limited understanding of the connections to ecological determinants (as reflected in the limited examples for the viability indicator). Significant silence relates to equity. Whilst equality is implied

throughout, economic disparity housing affordability (mentioned by two participants) and access to power are silent, as are Indigenous Australians, children and young people.

Participants can see linkages between the social determinants of health, and this provides a good platform to start with. Knowledge exchange can emphasise co-benefits for both sustainable and healthy communities. What is needed is to share knowledge of the connection of ecological determinants in addition to social determinants. This linkage can be made through the proposition that if it is agreed that health and the meeting of basic needs is essential, then this is founded on the healthy functioning ecosystems that create the living conditions necessary to meeting those essential basic needs.

This knowledge also tells me that looking at the ‘sustainable’ aspects brings out opposing views that could inhibit discussion and collaboration, creating barriers to sharing of knowledge. When sharing knowledge about sustainable and healthy communities placing the emphasis on health (that seems to be in agreement) and again emphasising synergies between health and a sustainable community, may be a way to share knowledge, create less tension and disagreement, thus enabling knowledge exchange to occur.

Participants describe a sustainable community as making its own decisions. The Ottawa Charter for Health Promotion agrees that one of the platforms for enabling a healthy community is an empowered community (WHO 1986). Therefore, public health strategies that align sustainable and healthy public policy need to ensure that they are implemented in a way that facilitates empowerment of rural communities.

In Summary: I am beginning to conceptualise the what, who, by whom, how and expected impact of knowledge exchange and transfer (Reardon et al. 2006). At this early stage of the analysis I have summarised the key aspects of knowledge exchange as follows:

‘The what’ - Participants see alignment with sustainable and healthy community but understanding of how this relates to ecological determinants is limited. Sharing knowledge of ecological determinants can be a focus of knowledge exchange and transfer but it should be framed in terms of co-benefits and synergies between the

two concepts.

‘The who’- This knowledge can be tailored to individuals, communities, public health practitioners, researchers and policy makers.

‘By whom and How’ This is a key factor in knowledge exchange and transfer. At this stage of my analysis I am still exploring how this aspect of knowledge exchange can be enacted.

‘Expected impact’- rural communities, public health practitioners and policy makers will understand the relevance of ecological determinants and this will lead to the development of policies and programs informed by rural community decisions. Understanding ecological determinants is an emerging field of investigation for public health researchers which presents opportunities for future research projects.

5.9 Chapter Conclusion

I have explored participant’s understanding of the terms sustainable and health. I revisited the Hancock et al.'s indicators and compared participant’s perceptions and understanding looking for consistency and gaps through this analytical filter (Hancock et al.1999).

Through this analysis, I found that participants’ understanding of a sustainable and healthy community are closely aligned, and specifically that both concepts focus on the human. Participants see that the social determinants needed for health are the same determinants needed for a sustainable community. However, there are gaps in connections to ecological determinants of health and equity.

Understanding how participants perceive the term sustainable has highlighted the potential for conflicting of views but when considering ‘health’ world views were more in alignment. Framing sustainable and healthy community in terms of health co-benefits may be a way to introduce and progress this discourse. In the next chapter, to provide a different perspective and alternative data source, I examine how sustainable development and health are discussed in the study online media.

CHAPTER 6 - A SCOPING STUDY OF ACTIONS FOR SUSTAINABLE DEVELOPMENT AND HEALTH AS REPORTED IN ONLINE MEDIA

6.1. Introduction

Through the process of analysing participant's understandings and perceptions, I began to see a pattern emerging with regards to how participants in each case study aligned with a particular sustainable development stance. For example, participants in Shoalhaven aligned more with the economic pillar. However, it also emerged that participants who aligned with a stance (economic, social or ecological) spoke of the sustainable development pillar in the same way regardless of their geographical location. In addition to this, regardless of the stance or location, participants perceive the aim and goal of sustainable development and health is for the benefit of the community and the place they live in and to provide social benefits, quality of life and longevity. Health is a unifying concept which could be used as a way to unite conflicting world views and engage rural communities in actions that lead to co benefits for both sustainable development and healthy rural communities.

I decided to examine other data sources to explore this phenomena of interest by looking at media coverage of actions for sustainable development and health in these communities. I chose a scoping study method (by using the framework by Arskey and O'Malley 2005), to examine what the case study media are saying about sustainable development and health in their catchment. This chapter presents the findings from the scoping study review and provides additional contextual details for the phenomena of interest.

This chapter, also relates to research Aim 2 '*To explore rural communities' perceptions and understanding of ecological, social and economic sustainability and health*' and Aim 3 '*To explore how knowledge gained from the research findings can be useful, shared and put into public health policy, research and practice.*

Throughout the analysis, I will be considering the five steps outlined by Reardon et al. (2006), (the what, whom, by whom, how and impact for knowledge exchange and research transfer) as outlined previously, specifically asking what

knowledge found here can be of use to public health policy, practice and research.

Findings are presented from a scoping study review examining how the case study online newspapers discuss sustainable development and health actions within their boundaries.

6.2 Scoping Study Research Questions and Method

6.2.1 The aim and rationale for the scoping review

The aim is to examine the extent, range, and nature of community activities being reported in the media for sustainable development and health in the case study boundaries, and to identify gaps.

The scoping study methodology, as developed by Arskey and O'Malley (2005) provides a useful framework for content thematic analysis and to arrange, map, synthesise and summarise knowledge (Arskey and O'Malley 2005). This methodology will work well to answer the review question, "What does the online newspapers tell us about the actions being undertaken in rural communities for sustainable development and health across within the case study boundaries?" It will also identify:

1. Sources of evidence used, target populations and settings;
2. Main assumptions / key messages;
3. Similarities and differences between the three cases.

Using online sources of newspapers is a pragmatic decision to improve time management and provides easy access to newspaper back issues. There are limitations in this approach as articles published online may not represent the total sum of all articles printed in the hard copy. However, because the internet, as a mainstream news medium, has potential to cultivate the adoption of innovation it has the advantage of assisting with diffusion of ideas (Nguyen et al. 2003).

6.2.2 Identifying studies and study selection

To define the concepts and a terms of reference for the scoping review, 'sustainable development' aligns with the Brundtland report (WCED1987) that 'Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs'.

This definition encompasses the equitable focus of the three pillars of social, environmental and economic development, to ensure that the basic needs of all are met.

Accordingly, to conceptualize the term health, the World Health Organization definitions of health i.e. ‘a complete state of physical, mental and social well-being, and not merely the absence of disease or infirmity’ (WHO 1946) and health promotion ‘the process of enabling people to increase control over, and to improve, their health. It moves beyond a focus on individual behaviour towards a wide range of social and environmental interventions’ (WHO 1986) are drawn upon.

In September 2012, the United Nations reaffirmed the Sustainable Development Agenda in the Rio+20. Also in 2012, the World Health Organization began high level panel discussions around the amalgamation of the Sustainable Development Agenda and the Millennium Development Goals. Using this as a reference point, I explored online newspaper articles published from January 2012 to December 2014.

6.2.3 Study selection: Search strategy and inclusion criteria

Each Case study has at least two online newspapers that cover readership in either their northern or southern borders, as outlined in Table 22. The online newspapers are owned by Fairfax Media Limited.

Table 22 Case study Online newspapers

Shoalhaven	South Coast Register – (Middle to northern end of the case).
	Milton-Ulladulla Times – (Southern end)
Eurobodalla	The Bay Post & Moruya Examiner (Middle to northern end of the case)
	Narooma News (Southern end)
Bega Valley	Bega District News (middle to northern end of the case)
	Eden Magnet (Southern end)

Search terms were selected to accommodate search engine limitations of online newspapers that prohibit a more comprehensive search strategy. Since the purpose of a scoping review is to provide a comprehensive but broad view of articles, the chosen search term for this review were deliberately broad (Arskey and O’Malley 2005). “Sustainable 2012”, “Sustainable 2013”, “Sustainable 2014”; and “Health 2012” Health 2013” and “Health 2014” were used.

6.3 Scoping Review Results – Charting the data, collating summarizing and reporting

6.3.1. Study selection: screening

Data screening and abstraction is an iterative process and to guide evidence synthesis I adapted the steps outlined by Arskey and O’Malley (2005). The data was first sorted into four categories, the three pillars of social, economic and ecological sustainable development, and health. A total of 413 articles were extracted for analysis (see Table 23).

Table 23 Online Media Scoping Review Results- Initial data sorting numbers of articles for the three Sustainable development pillars and health.

Case Study online media	Economic	Social	Ecological	Health
Shoalhaven South Coast Register	30	15	12	73
Milton Ulladulla Times	5	34	8	27
Eurobodalla- Bay Post & Moruya Examiner	4	3	3	22
Narooma News	14	10	8	36
Bega Valley Bega District News	5	17	13	31
Eden Magnet	11	9	7	17
Total	69	87	51	206

After initial screening of titles and content the total number of articles was reduced

further to 355. Shoalhaven had the highest numbers of articles (n=142), Bega Valley (n=113) and Eurobodalla the least (n=100). Articles were excluded for the following reasons: they did not discuss sustainable development or health issues (n= 18), they were repeated (n=24), they were published before or after the search timeframe (n=5), or were not related to the South Coast (n=11).

6.3.2 Limitations of the Hancock et al. 1999 framework and the need for the rural voice

I found using the Hancock et al. (1999) framework a useful approach as it required me to look at the data in an integrated way, i.e. looking at sustainable development and health. However, as I became more engaged with the data, the degree of integration of the concepts of sustainable development and health became more apparent. This made it difficult to separate articles into discrete categories. Allocation of data to an indicator subsequently focused on the main issue as presented by the media, but with the understanding that other sustainable development and health aspects were integrated within it. This reinforced the ecological nature of this phenomena, i.e. that one aspect cannot be looked at in isolation of others, it is connected to others on multiple levels.

An example is the article in the Bay Post that attempts to allay community concerns about the potential environmental health risks posed to humans from a colony of Flying Fox bats in Batemans Bay, ('Flying foxes pose no health risk: NPWS' Bay Post, 2012). This article demonstrates the underlying tensions arising from humans and bats living alongside each other in an urban built environment. It integrates the concepts of health, safety, sense of place, land use, ecosystem health and adult literacy; and as the eastern grey fruit bat is a protected species, regulation and law. The article is also a good example of a knowledge transfer strategy in this rural place using the media. The 'what' is the potential risk to human health from diseases carried by bats, 'the who' is the Batemans Bay community, the 'by whom' is a well-respected local National Park Ranger and 'the how' is a detailed article raising awareness about the potential risks posed by the bats and chances of disease transfer occurring.

Although I found the Hancock et al. (1999) framework a useful tool, themes and

categories emerged on closer analysis and reflection of interviews and focus groups and in the media, that were not outlined in the Hancock et al. framework, thus revealing limitations of this framework. It was originally designed as an urban social planning tool in a Canadian context and developed in 1998. As shown in the literature review, over the last 17 years, additional global ecological health issues have emerged that may have particular relevance to rural Australian communities. These include climate change and food security and health risks from natural disasters.

From the findings of the literature review, the interviews and focus groups and the themes emerged from the media articles, I found I needed to adapt some indicators and create new ones to make them more appropriate for the rural case study context as outlined in Table 24.

Table 24 Adaptations made to Hancock et al.1999 framework

Hancock et al. Indicator.	Adaptation of indicator / new indicator	Rationale
Land Use	<ul style="list-style-type: none"> • Land and water use 	Land and water use are both contentious issues in this rural place. For example, the south coast has dedicated areas for recreational fishing, water licenses for agriculture and conservation areas in marine parks.
Viability- Water quality	<ul style="list-style-type: none"> • Water quality- rivers and estuaries • Water quality – oceans and marine systems 	Consideration of water quality takes on a broader meaning for the South Coast depending on where the human and other ecological communities live. It can relate to creeks, dams and river systems, as well as marine and the ocean systems.
Livability- Community safety and security	<ul style="list-style-type: none"> • Community safety and security – non-environmental hazard (e.g. crime) • Community safety and security – environmental hazard risk (e.g. tick borne disease) • Community safety and security – environmental risk (e.g. natural disaster/ climate change) 	Community safety and security, in an urban context can relate to crime rates. But in this rural context it can also relate to: community safety from driving safely on country roads, swimming in safe waters, and other environmental hazards such as ticks carrying rare diseases, or natural disasters (bush fire, drought floods and storms) and the emerging risk from climate change and sea level rise.
Conviviality- Sense of Neighbourhood	<ul style="list-style-type: none"> • Sense of Place 	Sense of neighbourhood is an urban construct which needed to be adapted to ‘sense of place’ which seems more appropriate here.
	<ul style="list-style-type: none"> • Culture and history of place 	As part of conviviality, a cultural dimension needs to be included with particular reference to Indigenous Australians as part of local culture in this place. The connection to history of the rural place is also appropriate.
Equity	<ul style="list-style-type: none"> • Access to health care services 	Access to health care services is more than the services being provided. It is about access, quality of care and affordability. It is also about health equality and equity in resource allocation and outcomes for rural people.
Prosperity	<ul style="list-style-type: none"> • Business development and technology 	To flourish, local business needs to have quality fast connections to information and communication technology systems e.g. internet and social media, in order to keep pace with economic changes, share news and gain feedback from consumers and keep up to date with emerging technology advances.
Governance	<ul style="list-style-type: none"> • Community leadership & decision making • Regulation & law 	Community decision making and community leadership play a role in small rural communities. The case studies are predominately bound by national park or state forest conservation areas for land and ocean. As such, there is a strong emphasis on environmental issues but the indicators of equity and governance do not quite cover the range of meaning appropriate for this rural case study setting. In particular, governance needs to have an additional measure of regulations and law.

6.3.3 Charting the data

Having adapted the Hancock et al. (1999) framework, I reorganised the data under the respective indicator and charted the categories as per Arskey and O'Malley (2005). Categories included: the citation - title, author, newspaper name; a summary of the sustainable development or health issue; the population, setting and location; the assumptions or key messages; and the evidence used. The results are presented in Appendix 32. The results showed that there are more articles discussing conviviality, equity (in terms of access to health care) and promoting healthy behaviours (see Table 25).

Table 25 Online media scoping review results- The number of articles as per adapted Hancock et al. (1999) indicators.

Hancock et al. Indicator	Shoalhaven		Eurobodalla		Bega Valley		Total number of articles
Online Newspaper	South Coast Register	Milton Ulladulla Times	Bay Post Moruya Examiner	Narooma News	Bega District News	Eden Magnet	
Number of articles for Sustainability							
Energy	2	0	0	0	5	1	8
Renewable resource consumption	1	0	2	5	6	2	16
Waste	0	0	0	0	0	1	1
Local Production	10	1	1	1	2	2	17
Land Use	2	0	2	2	2	2	10
Ecosystem Health	6	1	1	2	2	1	13
Number of articles for Viability							
Air Quality	1	0	0	0	0	0	1
Water Quality	1	0	0	0	0	1	2
Toxic production and use	0	0	0	0	1	0	1
Number of article for Liveability							
Housing	3	0	0	0	0	0	3
Safety – non environment people crime	1	2	1	4	1	2	11
Safety – environment risk	4	3	4	5	1	2	19
Transportation	0	0	0	2	1	1	4

Number of articles for Conviviality							
Family security / safety	0	0	0	0	1	0	1
Sense of place	17	19	4	16	12	12	80
Demographics	0	1	0	0	0	0	1
Charitable donations	0	0	0	0	1	0	1
Number of article for Equity							
Discrimination / Inclusion	2	0	1	0	1	0	4
Housing affordability	0	0	0	1	0	0	1
Access to health care	14	0	8	8	16	4	50
Economic disparity	1	0	0	0	2	0	3
Human rights	0	0	0	0	1	0	1
Number of article for Prosperity							
Diverse (local) economy	8	0	1	7	0	5	21
Local control	1	0	0	0	0	0	1
Employment	1	1	1	0	2	1	6
Number of article for Education							
Education quality	4	1	0	0	0	0	5
Lifelong learning	0	0	0	0	0	2	2
Number of articles for Governance							
Voluntarism	0	0	0	1	2	0	3
Citizen action	3	0	1	1	0	2	7
Perception of government / government leaders	5	3	2	1	0	0	11
Regulation & law	0	0	0	2	0	0	2
Healthy public policy	0	0	0	0	2	0	2
Number of article for Health Status							
Health Promoting behaviour	19	4	3	10	9	2	47
Total	106	36	32	68	70	43	355

6.3.3 Evidence used

The majority of articles draw on local residents' opinion and where there are discussions about infrastructure (roads, ports, new housing developments, and capital works e.g. new hospital in Bega) information is provided by politicians from all levels of Government, (particularly the Mayor in Shoalhaven) and government funded departments e.g. the NSW Government Department for Primary Industries or the Office of Environment and Heritage. Target populations and settings are diverse and include targeting individuals; specific demographic groups e.g. older retirees, business owners /landowners, younger or families, Indigenous Australians; or whole communities or the whole region.

Articles that draw on data for specific reports were limited and covered social sustainability, health statistics and environmental issues. The first article that discussed social sustainability issues looked at increases and decreases in the number of people moving to the area and where they were moving to and compared this to the previous 2006 Census. This article drew on the Australian Bureau of Statistics 2011 Census data (Carless 2012). The second article looked at the reduction in crime rate statistics in Eurobodalla between 2012 and 2013. The article drew on data reported in the NSW Recorded Crime Statistics 2013 report ('Crime statistics fall across Eurobodalla Shire' 2014).

There were three articles that focused on health statistics. The first article reported the waiting times for emergency room care at Bega hospital using data sourced from the NSW Government Bureau for Health Information on emergency room waiting times data set (Ormes 2012). The second article ('Health system Survey takes the pulse of Shoalhaven health' 2013) discussed the overall health of the Shoalhaven population. The article drew on data reported in the Illawarra-Shoalhaven Population Health Profile: 2013 report, published by the Illawarra-Shoalhaven Medicare Local. The article summarised the report and highlighted local health care and social service gaps (including the distribution of general practitioners and primary care workforce) and disease rates for chronic disease, mental health disorders and cancers. The last article discussed risk factors for heart disease and drew on the Australian Bureau of Statistics Australian Health Survey to raise awareness of risk factors for heart disease and promote the free health check clinics in the Bega district ('Free heart health checks in Bega' 2014).

The last category of articles using specific data sources discussed environmental issues. One article discussed the positive audit results for the Eden wood chip mill. The audit had been undertaken by an independent auditing company, NCS International. The article reported that the wood chip mill is meeting accredited green industry standards ('Chip mill gets green tick' 2012). There were two articles that that focused on coastal management issues. The first discussed the risks posed to the Shoalhaven communities from coastal erosion (and climate change) and drew on longitudinal case study research by the University of NSW and Macquarie University (Hutchinson 2012). The second article drew on data from the NSW Government Annual State of the Beaches Report to highlight water quality, environmental safety and ecosystem health issues in the Bega Valley ('Aslings Beach: One of the cleanest' 2014). The last article raised awareness of a new State Government website that shows communities 'climate change information down to the nearest 10km allowing them to build resilience to extreme events and plan for future' ('New climate change predictions released' 2014). Articles citation and the data sources they used can be found in Table 26.

Table 26 Online media articles and data source used

Citation	Summary of article and Source of evidence
Articles for Social Sustainability	
Carless, S 2012, 'Towns facing a real decline', <i>Milton Ulladulla Times</i> , June 27, viewed April 10th 2015, www.ulladullatimes.com.au/story/187767/towns-facing-a-real-decline/	Demographic and population size changes in Shoalhaven. Australian Bureau of Statistics 2011 Census.
'Crime statistics fall across Eurobodalla Shire' 2014, <i>Bay Post</i> , May 7, viewed April 5 th 2015, http://www.batemansbaypost.com.au/story/2262879/crime-statistics-fall-across-eurobodalla-shire/	Reduction in crimes in Eurobodalla. NSW Recorded Crime Statistics report 2013 reports on a ranges of crimes reported for 2012-2013.
Health	
Ormes, B 2012, 'Bega Hospital triage among state's worst', <i>Bega District News</i> , Dec. 11, viewed March 20th 2015, www.begadistrictnews.com.au/.../bega-hospital-triage-among-states-worst/	State hospital Emergency Room waiting times. NSW Government Bureau for Health Information on emergency room waiting times.
'Free heart health checks in Bega' 2014, <i>Bega District News</i> , Feb. 25, viewed April 5th 2015, www.begadistrictnews.com.au/story/.../free-heart-health-checks-in-bega/	Report draws on data from the Australian Bureau of Statistics Health Survey 2011-2013 to promote heart health clinic.
'Health system Survey takes the pulse of	The report summarises data from the Illawarra-

Shoalhaven health' 2013, <i>South Coast Register</i> , Oct. 14, Viewed April 11th 2015, http://www.southcoastregister.com.au/story/1837895/survey-takes-the-pulse-of-shoalhaven-health/	Shoalhaven Population Health Profile: 2013 (Illawarra-Shoalhaven Medicare Local 2013).
Environmental Risk	
'Chip mill gets green tick' 2012, <i>Eden Magnet</i> , March 14, viewed 10 th April 2015, http://www.edenmagnet.com.au	Independent auditor NCS International - NCS International Pty Ltd (or NCSI) audit report for the SEFE wood chip mill.
Hutchinson, A 2012, 'Coastal erosion survey focuses on Seven Mile Beach', <i>South Coast Register</i> , July 23, viewed April 11th 2015, http://www.southcoastregister.com.au	University of NSW and Macquarie University's Longitudinal case study data from a three-year study into the monitoring and forecasting for coastal erosion at Seven Mile beach, Shoalhaven.
'Aslings Beach: One of the cleanest' 2014, <i>Eden Magnet</i> , Oct. 23, viewed 10 th April 2015, http://www.edenmagnet.com.au/story/2645540/aslings-beach-one-of-the-cleanest/	NSW Government Annual State of the Beaches Report.
'New climate change predictions released' 2014, <i>Eden Magnet</i> , Dec. 16, viewed 4th April 2015, http://www.edenmagnet.com.au/story/2767121/new-climate-change-predictions-released/	Conservation Climate change NSW Government and NARClIM research partnership report. The NSW and ACT Regional Climate Modelling (NARClIM) Project is a research partnership between the NSW and ACT governments and the Climate Change Research Centre at the University of NSW.

6.3.4 Assumptions and key messages

After analysing the data using the adapted Hancock et al. (1999) framework it became apparent that there is an emphasis on social sustainability and this is consistent across the three case studies. It is reflected in the majority of articles promoting conviviality, specifically the sense of place and social support networks. A key message promoted by the online media is that the South Coast is a region of connected people that celebrate being rural and local.

The analysis also shows consistency across the case studies for equity in access to health care, particularly for mental health access to medical practitioners and waiting lists for services. The high level of awareness and promotion of good mental health also shows how much of a health burden mental illness is to these rural communities and the need for mental health promotion and suicide prevention strategies and programs. The key message here is that health and wellbeing (particularly mental wellbeing) is seen as a priority to the community and that access to quality health

care is essential.

Related to this is the unique relationships that rural communities have with service providers, particularly health professionals and teachers. Health service providers and the services they provide are highly valued by the community. The health professionals are part of the community and the health service is an institution that must be protected. It is noteworthy in the media to report when a General Practitioner passes away, a new health service manager arrives in town or a new service is being delivered.

The online media results are also consistent with findings from the participant focus groups and interviews in that the articles reinforce the concept that as members of the community it is your responsibility to ensure that you are healthy. Promotion of healthy lifestyle behaviours (mainly for promoting physical activity and healthy weight in women and children) is another main theme in the online media. A range of sporting or recreational activities are reported that promote a sense of place and social network support. Men's health and men's sheds are promoted in the Bega Valley.

Other assumptions and key messages include the positive portrayal of economic development projects, for example, new roads, housing developments and other new infrastructure such as the proposed extension to the Eden wharf to accommodate cruise ships or the proposed Shaolin temple in Shoalhaven and the new regional Bega Hospital. These improvements are seen to provide social wellbeing through employment and diversity in a locally controlled economy. Economic development is seen to be supported by those in powerful positions such as the State and Federal Government politicians, and decision makers in local government and business. The assumption here is that economic development is good for the region and will result in prosperity and wellbeing for the locals and for the region.

Environmental sustainable practices are endorsed in the online media especially when they align with local production and benefits to the local economy, such as oyster farmers winning a grant to address the water quality of the estuaries and lakes. Other examples include the integration of renewable energy in the solar farm at Tathra or the community energy project in Shoalhaven that have environmental and economic development co-benefits.

The results also show that there are tensions in all three case study areas for land use and conservation, particularly for the timber and fishing industry. But tensions also exist between conserving the natural environment and tourism, such as the introduction of horse riding in national parks and the Hunt Fest as a tourism and economic development strategy. The assumption here is that there needs to be a balance between conserving natural assets and the need to accommodate the economic development.

Articles relating to Indigenous Australians focused on positive promotion of an employment agency in the Shoalhaven, but negative connotations for the Aboriginal Medical Service in Narooma, in contrast to the positive news for the Medicare local's Aboriginal health team, who also provide primary health care services to the same communities. There were articles promoting art and celebration activities for NAIDOC week (National Aborigines and Islanders Day Observance Committee now a week of celebration of Indigenous Australian conducted nationally every year) in the Shoalhaven. One article discussed tensions between traditional fishing practices and recreational fishing regulations in Wallaga Lake.

Articles related to children discussed academic achievement, participation in a bush care project and physical activity (particularly participation in sport). Young adults are the least represented population group in the online media. When this age group was discussed it was in articles discussing homelessness, criminal convictions for drug trafficking and an accidental death by hit and run near Bermagui.

Results from the online media review are consistent with the interviews and focus groups, in that the focus of the activities reported were about or undertaken by older community members, reflecting the demographics of the region. There were fewer articles discussing children, families and Indigenous Australians. Young adults were the least discussed age group.

6.4 How does this knowledge inform research exchange and transfer strategies?

With regards to the scoping study findings there are several key points that may prove useful to public health practitioners, researchers and policy makers. They are outlined below.

Firstly, for my own knowledge translation, I learnt that in using the Arskey and O'Malley (2005) scoping review method is time consuming, but that the results provided additional contextual details and supported case study findings in the previous chapter.

Secondly, through both the analysis process and gaining an understanding of the emerging themes, it became clear to me that the rural community voice and rural perspectives needed to be added to the Hancock et al. (1999) framework. Hancock et al. (1999) advise that the indicators developed in their framework serve as a guide to policy makers and researchers only, and that to make the indicators relevant to a community, the community needs to be engaged in the process of developing them (Hancock et al. 1999 p. S25). Thus, the Hancock et al. framework was adapted to reflect the rural voice and in doing so made the indicators more relevant to the case study analysis and the rural place. These insights reiterate to me, as a constructivist researcher, that the theoretical framework is not a static tool, moreover, it is a conceptual guide upon which to build theory that is based on the research context.

Revisiting the Reardon et al. (2006) knowledge exchange steps, this scoping study shows that:

'The What': Knowledge gained from this scoping review, through adaption of the Hancock et al. (1999) framework to incorporate the rural voice, highlighted the emphasis on social sustainability, particularly the sense of place and social support networks, equity in access to health care and promotion of health promoting behaviours for all three case studies. The results showed that mental health is of particular concern for these communities.

This scoping review also revealed to me that while tensions exist between those supporting ecological sustainability and those seeking economic development but each come from the perspective of benefiting health and wellbeing. Therefore, they are seeking the same outcome. Framing knowledge transfer messages in terms of

benefits to social sustainability, health and wellbeing particularly for mental health outcomes and emphasising synergies between a sustainable community, may be a way to share knowledge, create less tension and disagreement enabling knowledge exchange.

‘The How’: The online media focus on an individual issue and explicit links to sustainable development and health may not be obvious to a lay person reading the newspaper. Articles are written in such a way that when applying the adapted Hancock et al. (1999) framework the integrated nature of sustainable development and health becomes visible. A lay person would, for example, read a good news story promoting the celebrations and successes of a local community member. The adapted Hancock et al. framework would show that the article integrates many categories related to sustainable development and health. The articles are written in such a way that the reader is gaining knowledge about multiple sustainable development and health concepts under one headline. This means that delivering messages about sustainable development and health can be and are (explicitly and subliminally) combined. Using online media as a knowledge exchange strategy can facilitate the dissemination of multiple messages integrated into one article and result in a wider dissemination of concepts.

‘The who’: in this scoping review the online media focus on tailoring messages to and sharing knowledge with their local communities, but as the results show, messages are aimed at older adults, and they rarely discuss topics beyond the case study boundary. However, as the newspapers are freely available on the world wide web the audience reach has the potential be much broader. The online newspapers are also owned by the same media company which could lead to ideological bias or sublime messages being infused into the articles (Hanusch 2013).

‘The whom’: Most articles were delivered through the rural person’s voice i.e. by a local resident. However, articles discussing economic development use government officials or politicians to reinforce key points. When there is a need to establish a scientific basis for a topic, credible, recognised, Australian based resources are drawn upon, such as the Australian Bureau of Statistics. Choosing the appropriate person or mechanism to disseminate information is important if you want the message to be read. Given that health professionals have such high standing in rural communities (Farmer & Kilpatrick 2009), particularly the medical profession,

disseminating information through the voice of the local General Practitioner could be a useful strategy.

‘Expected impact’: Sharing integrated messages written in a way that communicates multiple co-benefits for sustainable development, health and wellbeing; delivering them using the local voice and respected community members (e.g. the local GP); and making them available on the internet to the case study residents could enable wider geographical reach for knowledge transfer. This could lead to further social connections and sense of place, increased community participation in local activities, prompt community action to address inequities or promote local services and programs.

6.5 Chapter Conclusion

In this chapter, I presented the findings from a scoping study review that examined how the case study online newspapers discuss sustainable development and health within their boundary. I began the analysis of six online newspapers by applying the Hancock et al. (1999) framework. During this process, I found that I needed to adapt the framework to make it applicable to the rural context of this research and add in new indicators or reframe old ones.

Having done this, application of the adapted framework highlighted the integrated nature of sustainable development and health, reinforcing the ecological aspect of this phenomena. Having made the revisions to the Hancock et al. (1999) framework, I then reflected on the previous chapter which explored participant definitions and their understanding of the terms sustainable and health. The sense of place, equity in access to health care and promotion of health promoting behaviours remained as strong themes. The analysis also showed that there is an emphasis on social sustainability here on the South Coast, particularly for sense of place, social support networks. Articles are however, aimed at the older adult audience.

In addition, the scoping study reveals tensions that exist between those seeking ecological sustainability and those seeking economic development. However, their goal to benefit their community’s health and wellbeing, quality of life and longevity are aligned. Health (particularly mental health) also remained as a unifying concept. Health professionals are held in high regard, which gives some

pointers for ‘the what’ (of sustainable development, health and wellbeing co-benefits) and ‘the by whom’ components in knowledge transfer and exchange strategy.

Using the scoping review to look through the lens of local media not only contributes to the developing picture of how rural people understand and take action to develop sustainable and healthy communities, it also highlights gaps, inaction and areas of tension.

CHAPTER 7 COMMUNITY ACTIONS

7.1 Introduction

In this chapter, guided by the adapted Hancock et al. (1999) framework, I explore the actions people are undertaking within the case study boundaries, to develop sustainable and healthy rural communities. As outlined in Chapter 3, I am using a multiple case study approach and will present reports for cases that have theoretical replication (Yin 2014).

This chapter, relates to research Aim 2, Objective 2, *‘To investigate what actions rural communities are taking to develop sustainable and healthy communities’*; and Aim 3 *‘. To explore how knowledge gained from the research findings can be useful, shared and put into public health policy, research and practice.* I complete the chapter by revisiting the knowledge exchange and transfer steps outlined by Reardon et al. (2006).

7.2 Case study selection

I reviewed the findings from the participants’ focus groups and semi-structured interviews and online media articles and focused on actions that were implemented at the community level, i.e. actions not being implemented by government departments or by individuals. I sorted actions by using the adapted Hancock et al. (1999) framework (see Appendix 33).

To reduce the data further, I looked for actions that were replicated (theoretically or literally) in each case study (Yin 2014). This resulted in reducing actions into three categories: Conviviality- actions that bring the community together and foster sense of place and social support networks for local (food) production, community conservation and community cohesion; Sustainability - actions to address energy consumption; and Prosperity- actions aimed at developing youth employment and local and regional economies (Table 27). Having selected potential cases, the case study analysis protocol was followed for each case outlined in Chapter 3. I present here the cross case reports. Individual case reports can be found in Appendices 34, 35 and 36.

Table 27 Theoretically replicated cases: Sustainability, Conviviality and Economic development

Case category Adapted Hancock et al.	Shoalhaven	Eurobodalla	Bega Valley
Sustainability			
Energy-Community Energy Projects	Community energy project- Repower Shoalhaven	Community Energy project – Solar Savers	Community Energy Project – IMAGINE Tathra sewer plant solar project
Conviviality			
Bringing the community together - Sense of place and social support networks	‘Serendipity’ –the Basin view project	Sustainable Agriculture and Gardening Eurobodalla (SAGE)	Cobargo and surrounds – The can’t sing choir, Second hand Sunday, food swaps, recycling, Freecycle, car pool, community news, music, community learning – ‘healthy death’
Prosperity			
Diverse economy and employment	Youth development	Narooma Next	South Coast Tourism

7.3 Actions for Sustainability–Community Energy

7.3.1 Introduction

The overarching aim for the community energy projects is to increase the use of, and access to, solar energy in their catchment area. The community develops, delivers and benefits from sustainable energy projects (Coalition for Community Energy [C4CE] 2015). Community energy can include supply-side projects (renewable energy installations and storage) demand-side projects (energy efficiency and demand management) and can also include community-based approaches to selling and distributing energy (C4CE 2015). The projects are at different stages of implementation, use different models and have different target groups.

7.3.2 Overview of Repower Shoalhaven, IMAGINE and Solar Savers

Case 1- The Repower Shoalhaven: This project is based on an economic business model and constructed around the idea that renewable energy makes good business sense, not only for cost saving on energy bills, but also promoting businesses and investors as innovators and leaders in the transition to clean energy (Repower Shoalhaven 2015). Focus is on deliberate engagement with multiple networks in the business and investor community across the whole Local Government Area. There are four successful projects to date. As a demonstration of how their model works, Repower Shoalhaven use the Shoalhaven Bowling club project. This is summarised in Table 28 (Repower Shoalhaven 2015).

Table 28 Repower Shoalhaven model summary

1. Established 2013 as a not-for-profit association and registered as an incorporated association
2. Created a company structure to deliver the projects: Repower One Pty Ltd.
3. First project: 99kW solar PV system on Shoalhaven Heads Bowling Club
4. 20% funded and owned by the Bowling Club and 80% funded and owned by the community
5. Investor rate of return is forecasted with 7.86% p.a.
6. Repower Shoalhaven collects an administration fee
7. Bowling club buys all power produced
8. At end the of 10 years Bowling club will own the system

Source Repower Shoalhaven, viewed November 30th 2015, <http://www.repower.net.au>

Knowledge transfer forms a large part of Repower Shoalhaven's operations. For example, Figure 14 demonstrates how Repower use infographics to disseminate knowledge. They also have a website, regularly use social media (Facebook, twitter, LinkedIn) and good news stories are regularly published in the local media.

HOW OUR COMMUNITY SOLAR MODEL WORKS

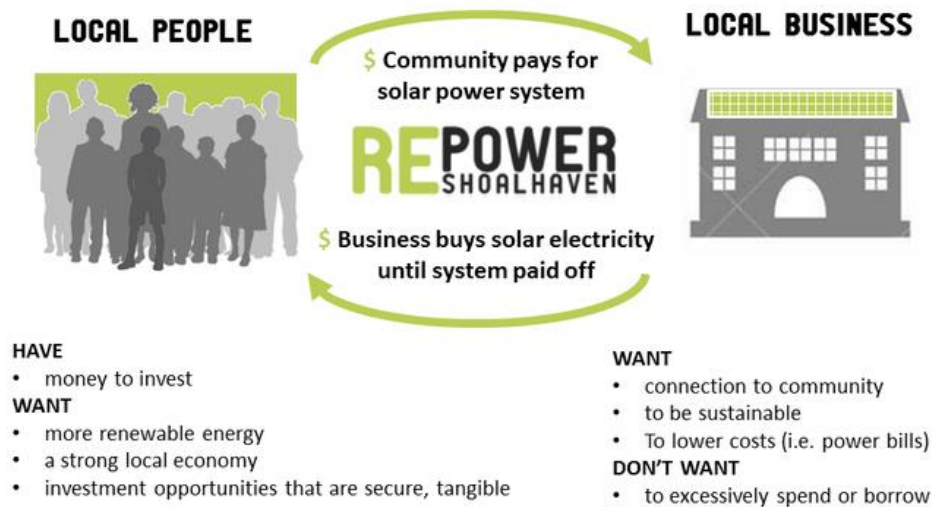


Figure 11 Repower Shoalhaven "How our model works"

Source: Repower Shoalhaven, viewed November 30th 2015, <http://www.repower.net.au/about.html>

Case 2 IMAGINE, Tathra Community Solar Farm, Bega Valley: Tathra is a small community with a population of approximately 1520 people (ABS 2011) and 18 kilometres from Bega, the Local Government centre. IMAGINE's mission and rationale is based on ecological sustainable development to address global warming and climate change (Clean Energy For Eternity [CEFE] 2015).

Originally, the project aimed to power Tathra's water pump and sewage works (See image Figure 15). However, with strong community support this expanded to provide solar energy to any community shared building or service in Tathra. Community members buy, sponsor or participate in fundraising to buy panels (CEFE 2015). CEFE see themselves as a 'Think Tank' seeking to engage the community, generate ideas and proposals for community owned energy projects, and raise awareness of about climate change (CEFE 2015).



Figure 12 IMAGINE – Tathra Community Solar Farm

Source: (Energy Matters March 23 2015 <http://www.energymatters.com.au/renewable-news/imagine-solar-tathra-em4736/>)

Case 3 ‘Solar Savers’ Eurobodalla: The Southcoast Health and Sustainability Alliance (SHASA) is a newly formed group of Eurobodalla community members. They have been successful in receiving a NSW Government grant for \$50,000, under the Office of Environment and Heritage (OEH) ‘Growing Community Energy’ projects (‘Eurobodalla groups solar push’ 2015). The purpose of the grant is to undertake a feasibility study, looking at appropriate community energy projects that will enable low income households to access solar energy. Funded by the grant, SHASA have contracted the Community Power Agency (CPA) to undertake the feasibility study. The overall aim is to contribute to the reduction in the cost of living pressures (from lower energy bills) in low income households, address financial barriers for low-income households to installing solar power, protect those who are most vulnerable to the effects of extreme weather conditions, improve the health and well-being of those unable to meet the costs of heating cooling; and to educate homeowners on effective ways to save energy (SHASA interview participant) (CPA 2015).

7.4.3 Cross case report

There are several similarities between the three cases. The main aim of their projects is to increase the uptake of solar energy in their communities. Community participation is also essential for success. The differences lie in the way in which they achieve this. The projects have clear alignments to sustainable development stances, for example the IMAGINE project in Tathra has an ecological stance,

Repower Shoalhaven an economic stance, and Eurobodalla's Solar Savers has a social sustainability stance.

Repower Shoalhaven's business model draws on technical expertise to develop and present the project within business networks in the community. Engagement strategies target business networks and community investors (i.e. people with the financial means to invest). The project is framed around cost saving and good business practice and has a formalised governance structure. Communication methods are business like and targeted to their business networks.

The IMAGINE project like Repower Shoalhaven, has a formal governance structure, but the difference is that CEFE engages the community at the grass roots level. This project is all about community connections, sense of ownership and ecological sustainable development. Again like the Repower Shoalhaven model, the IMAGINE project relies on investment from community members, i.e. they need to have the financial means to be able to contribute to purchase solar panels. Communications strategies are written material, such as the policy document, that is technical and assumes that readers have enough knowledge or education to be able to understand and action the information presented.

In contrast, the Eurobodalla's 'Solar Savers' project has an informal group arrangement, with no formal structure or decision making process. Members rely on the CPA, government agencies and the council, for project management guidance and support. Community engagement is on a 1:1 level with housing service providers and people living on low incomes. The project aims to give low income households no upfront costs in purchasing, renting or installing solar panels.

Of the three projects, 'Solar Savers' has formally linked the concept of health and wellbeing and social sustainability, as is evident from their name. They also recognise the links between energy costs and increased community vulnerability during extreme weather events for the target group. In common, with the IMAGINE project Solar Savers discusses reducing carbon emissions and climate change (note Repower Shoalhaven does not), and in common with Repower Shoalhaven, emphasises the cost benefits of solar energy.

Knowledge transfer is an essential component of all three projects. Repower Shoalhaven have dedicated resources and strategic approach to developing and researching their communication and engagement strategies. They have explicitly incorporated knowledge transfer into their model, make communication and engagement toolkits freely available on their website and actively share with other community energy projects.

Whilst community energy describes projects focusing on solar energy, it conveys the dynamic way in which the projects are implemented, the momentum and strength and sense of empowerment that comes with it and through connection to place. It is like the communities' energy driving the projects can be felt. From an ecological public health and sustainability perspective, these projects improve health at the all levels from the Nano system level to biosphere levels. They decrease aerosol loading, air pollution, greenhouse gas emissions contributing to global warming and climate change, providing energy for daily use (cooking, heating water, refrigerating) and at times of crisis (heat waves and black out in bush fires).

7.4. Actions for Conviviality- bringing the community together

7.4.1 Introduction

In this section, I present a cross case report for three case studies that focus on conviviality, themed around ways of bringing the community together. Whilst the cases are all different, they have a common purpose. They each seek to purposefully bring the community together be it for agriculture and conservation projects, to create and build a community project together, or simply ways to bring people together that would otherwise be isolated geographically, intellectually and communally.

7.4.2. Overview of 'Serendipity', SAGE and the Collective Community – Cobargo, Quaama and Brogo

Case 1 'Serendipity' Shoalhaven: 'Serendipity', this is how an interview participant described the aquaponics garden in the Basin View Masonic Village, Shoalhaven (Shoalhaven interview participant). Aquaponics is a 'sustainable food production system that combines aquaculture (raising aquatic animals in tanks) with hydroponics (cultivating plants in water)' (Wicks 2013). The aim of the project was

to create a garden that would ‘feed the body and mind, soothe the soul and stimulate the senses’ (Wicks 2013) for over 50 aged care facility residents. The end result is a garden that produces 350kg of fish and 150kg of yabbies per year and a variety of vegetables, flowers and fruit that residents use or sell at the community market days held in the garden (Baldwin 2012). Table 29 provides a summary of steps that contributed to the Basin View Village project. Figure 16 is an image of the garden in 2013.



Figure 13 Royal Freemasons 'Benevolent Institution Basin View Aquaponics garden in July 2013

Source: RFBI Basin View Masonic Village Aquaponics Garden image

<http://rfbi.com.au/?s=Basin+View>

1. A new manager started working at the RFBI Basin View Village and wanted to engage and connect the residents and the local community.
2. The manager mentioned the idea to a neighbour, who is an academic studying marine biology and aquaponics, who also mentioned the idea to a fellow academic (an occupational scientist) working in the same building. The academics work in the University of Wollongong campus in Nowra.
3. The occupational scientist and the marine biologist began a project plan and engaged residents through interviews and explore their ideas.
4. The project plan was supported by the management and RFBI provide the funding for the start-up costs of the garden.
5. The marine biologist had a friend (working in Brisbane) who has an interest in aquaponics and together using resident's ideas and input from the occupational scientist (who has expertise in working with older people), they designed a garden that will meet the resident's needs.
6. The residents establish a steering committee to oversee implementation
7. Residents designed a roster for the garden
8. RFBI adapted the caretakers job description to include maintenance and support of the garden

Table 29 Basin View Village project

Case 2 Sustainable Agriculture and Gardening Eurobodalla Inc. (SAGE): SAGE is a community lead sustainable agriculture project, located in Moruya on the flood plains along the Moruya River. Based on principles of 'good, clean and fair' SAGE has two main components. One is a community garden that has members and volunteers that participate in establishing and maintaining the garden, and the second component is the management of a local farmer's market (SAGE 2015). Since SAGE began in 2009, the scope and number of projects and partnerships has increased beyond what was originally intended. The farmer's market is now established as an outlet for local produce and is an economically viable business that is contributing to the local economy (SAGE Farmers Market 2015, O'Connor, 2015). There is an educational calendar of events; and multiple networks and partnerships have been established with schools and residential aged care facilities; other Landcare groups, community gardens and agricultural groups. There is also a network of organic farmers and local growers who plan deliveries and harvests to assist each other and decrease transport costs (SAGE 2015). Figure 17 shows an artist impression of SAGE.



Figure 14 Illustration of SAGE, Moruya

Source: SAGE 205, <https://thesageproject.files.wordpress.com/2011/11/concept-drawing-of-the-sage-site.jpg>

Case 3 The Collective Community – Cobargo, Quaama and Brogo, Bega Valley:

In contrast to the previous case studies that discuss a specific project or group, this case study showcases actions occurring within the Cobargo, Quaama and Brogo communities. These communities are not coastal places, are very small and spread-out, and located on either side of the Princes Highway. To reduce the isolation, they actively work together to create ways to bring people together physically, communally and intellectually (Quaama Progress Association 2015). They do this through an eclectic mix of locally based activities, mostly undertaken in small groups in community halls or private homes, at no or low cost. Activities include art and creativity, a sharing economy (e.g. food swaps, the local exchange trading scheme [LETS] and recycling), organic gardening and permaculture and learning and sharing information. Figure 18 is an image of Cobargo's main street; the Princes Highway goes straight through it.



Figure 15 Cobargo main street (Princes Highway)

Source: Sapphire Coast Tourism 2015, viewed November 30th 2015, <http://www.sapphirecoast.com.au/the-region/towns/cobargo/>

7.4.6 Cross Case Report

All three cases involve different activities. The aquaponics garden is an innovative idea that came into being through the partnership of aged care facility residents and staff, the local community, trades people and academics. The second case looked at establishment of a viable business enterprise based on a community garden, again bringing together community, education institutions and local farmers. The last case study, ‘the collective community’, actively sought to create a convivial community through development of creative ways to engage and bring the community together.

Whilst the cases had a different focus they had six common themes. First, they all purposefully intended to bring the community together to meet, celebrate, learn and share, and work together. Food is a common theme, from the design of a garden, turning the soil and harvesting crops, selling produce at farmer’s markets or festivals, donating to charities to sharing at food swaps. Another common theme is the sense of localism and strong sense of place evidenced by the support and promotion of local production of food and working and building onto the knowledge and skills of

local networks.

Although the last case did not have a formal arrangement in place, governance is still a common theme arising from a sense of community control in decision making, problems solving and the social agreement of the rules of ‘how things are done here’ (CM Cobargo).

These cases show that the community has the capacity and capability to be creative and entrepreneurial. Each action has a leader that starts the conversation, uses their networks to find others who may be interested in testing out a project and then takes steps to get the project into action. Actions have a sense of purpose, they are a challenge, but also a sense of fun and something the community wants or will benefit from. It is not imposed and the community can participate or not. These communities show that they are not afraid to try things and support each other in the process.

The use of formal and informal knowledge are core components of these actions. Learning together could be anything from what to do in a bush fire, to learning about aquaponics and aquaculture or how to write a grant for government funds to support the community garden. A common link between the knowledge and connecting the community is the use of digital technology, the internet, email and social media.

All three cases start with addressing social sustainability but their actions also contribute to ecological and economic sustainability. Serendipity by producing food for the residents at the aged care facility and reducing energy bills through solar power, the collective community by introducing an alternative economic system that does not involve money, and SAGE purposefully setting out to implement an economically viable farmers market that creates a local economy that is community controlled.

Serendipity and SAGE, have actively sought and developed networks outside of their original groups, thus influencing the meso system. However, the collective community interconnects community at the micro level only. Since all three cases use organic farming or permaculture they contribute to ecological sustainability which in turn contributes to Nano systems and biosphere health. They do this by decreasing the use of fertilizers and pesticides, improving water catchment by permaculture design, and improving air, water and soil quality that remove toxins

through functioning ecosystems. All three cases contribute to social, economic and ecological sustainability.

7.5 Action for Prosperity – youth engagement, town and regional economic development

7.5.1 Introduction

In this section, I present three case studies that focus on prosperity and as with the previous case studies for conviviality and sustainability cases, they have different approaches, but are all seeking to support economic development within their region. The cases focus on youth, a town and a region.

7.5.2 Overview of South Coast Youth Leadership Forums, Narooma Next and South Coast Tourism

Case 1 South Coast Youth Leadership Forums Shoalhaven: This project was created by a small group of Shoalhaven business owners concerned about the high rates of youth unemployment and youth disengagement in the Gilmore electorate. They decided to find a way to inspire, motivate and encourage young people (GYLF, 2014). The business owners created the Inspire Youth Australia Limited as a public benevolent institution that targeted vulnerable and disadvantaged young people to ‘Be The Change’. The organisation targeted 15 to 17-year-olds and sought to inspire, empower and encourage them to take a leadership role and facilitate social change. The 3-day annual programme aimed to build and use local networks to engage youth with each other, their community and local business; to facilitate empowerment and learn change management strategies. The choice of using the electorate (and not Local Government Area) was a way of directly engaging political support.

Case 2 Narooma Next Narooma: Narooma is a small coastal town with a population of approximately 2500 people (ABS 2011). It is a popular tourist destination and is well known for its seafood produce. In early 2014, a business community group in Narooma joined together to develop the ‘Narooma Next’ project as means of developing the town’s economic sustainability beyond the focus of tourism. Actions included building and using local expertise and knowledge to create local solutions; developing strategic partnerships beyond the town e.g. the University of Sydney’s Business School, the Chambers of commerce and Regional Development Australia. Community leadership, participation and decision making are considered to be

central to the project's success. The Narooma Next Group now see that Narooma residents need to be part of developing the vision for the town's future and building on the town's natural and social assets.

Case 3 Sapphire Coast Tourism Ltd, Bega Valley: Sapphire Coast Tourism Ltd (SCT) is a public company that has been operating since 2008 and works in partnership with the Bega Valley Shire Council, local business owners and the community, to develop the Bega Valley as an attractive tourist destination. Actions include working on a regional approach for tourism development through strategic partnerships with neighbouring Local Government Areas. Strategies use local knowledge and historical heritage stories to build the South Coast brand (South Coast Tourism n.d.). Actions for knowledge transfer have three main purposes: to gather knowledge for the organisation itself; to communicate and provide tourists with information; and to share information and resources between stakeholders (SCT 2010). The task has been approached on two fronts, one with the South Coast and the other as the Australian Wilderness Coast that links with the Victorian towns and the Snowy Mountains regions (BB, SCT participant). This approach has been very successful for the Bega Valley's economy.

7.5.3 Cross Case Report

The three cases promote economic development as a way to promote prosperity, enhance wellbeing, raise standards of living and provide employment. The projects have several similar characteristics in that they promote community leadership and collaborative ways of working, specifically working with community members with high socioeconomic status, and good connections with local and State politicians.

All three case studies enlist assistance from people outside of the case study boundary to broaden discussions, bring different perspectives, experiences and knowledge, and status. Each case works with people in positions of power and influence to promote the project, attract new investors, sponsors or supporters. Relationships with the local council and businesses are important features of these case studies. All three cases use objective data, economic analysis and reports to facilitate knowledge and engage stakeholders, benchmark their project and guide focus for future projects or address weakness in the current approach.

All three projects have strong sense of place, promote local control and decision making and seek ways to improve the availability of employment in their region. The SCYLF has a focus on developing knowledge and skills for youth in the Shoalhaven region. It is focused on Micro level change using Meso level connections. Narooma Next and Sapphire Coast Tourism are focused on ways to develop the local economy through tourism and businesses with their networks also influencing actions at both the Micro and Meso level.

Approaches to knowledge transfer align with corporate marketing strategies using webpages, social media, workshops and facilitated meetings for strategic planning. However, it is the sharing of community knowledge and experiences that help shape and inform the overall approach for all three cases.

From the ecological public health and sustainabilities perspective, the cases are not focused on ecological sustainability, even though Narooma Next and South Coast Tourism base their economic development on the availability and aesthetic value of natural assets.

7.6 Cross Case Summary

Chapters 6 and 7 provided insights as to how focus group and interview participants from these rural communities perceive of and give meaning to the word sustainable and health. Results showed that participants understand that the two concepts are integrated and that actions taken to develop a sustainable community can also develop a healthy community. As such, when asked to define the concept of a sustainable and healthy community some participants found it difficult to separate the two concepts. In this chapter, actions that explicitly link health and sustainable development are evident in the case studies that arise from a social stance, such as the Solar Savers, Serendipity and the collective community as they intentionally seek to improve and enhance health and wellbeing.

Linkages to health and wellbeing are not as clearly articulated in the other case studies. SAGE, for example set out to create a community garden and business enterprise. It is only as the project developed that an understanding emerged that there is a positive flow-on effect to the community that contributed to physical, mental and social wellbeing. Connections to health and wellbeing are also not made

in the Repower Shoalhaven or IMAGINE community energy projects or the Sapphire Coast Tourism case studies, but is implied in the Narooma Next and SCYLF cases. What this shows is that there seems to be a disconnect between an understanding and perception of a sustainable and healthy community, (where the concepts are aligned and interdependent) and the narrow focus of the case studies that have not formally acknowledged community health and wellbeing, even as an aspirational goal.

In addition to this, and in line with findings from Chapter 6 and 7, the cases align with a sustainable development stance. However, the actions in this chapter show that the path to achieve their sustainable development goal, economic or ecological, is achieved by first implementing social sustainable development approaches. Thus, the pathway to ecological or economic development in these rural communities is through development of conviviality, the sense of place, local social support networks, pooling resources, tapping into local knowledge and expertise and community leadership. When these building blocks are in place the focus on economic or ecological development actions can proceed. In this way, sustainability actions align with public health thinking that seeks to build structural determinants of health as the platform for individual and population health.

There is an aspect of entrepreneurship about the case studies, each one is dynamic creative, innovative and have an element of risk. Technology and technical expertise also have a key role, all of the case studies use the internet and social media to communicate information to the community.

The analysis reaffirms that actions operate on different levels, ranging from individuals, small groups to towns and regions. Governance arrangements vary between the case studies and reflect the approach taken to the project design and purpose but all include community leadership, local decision making and local solutions.

The actions outlined here also reinforce that actions for a sustainable and healthy rural community are human centric, i.e. they are being undertaken solely for human development. Actions for social sustainability although contributing to health and wellbeing are mostly focused at the micro level. Cases seeking economic development interconnect micro and meso levels. However, because they ignore ecological sustainability, they have little beneficial impact at the Nano System or

biosphere levels. The natural environment and nature has a strong presence in the case studies and is also embedded in the sense of place. It is socially constructed as healthy soils, organic farming, increasing the use of renewable energy and the promotion of pristine unspoilt wilderness and oceans. The purpose of undertaking these actions is ultimately for social and economic development. The Repower Shoalhaven, Sapphire Coast Tourism and Narooma Next case studies base their projects on natural resources and renewable resources, it is the product that they promote and need. However, there is another disconnect between using the natural assets and taking steps to preserve, conserve and protect them so that their projects will remain ongoing (i.e. be sustainable). There are no references to partnerships with organisations or community groups that can assist with conservation and preservation.

Participants did not seem to make connections to (or have little awareness of) how actions influence the Nano system, Exo system e.g. ecosystem health or macro level planetary health (planetary boundaries e.g. climate change and freshwater supply). Water consumption, biodiversity loss or land use change was not seen to be an issue even in projects focused on ecological sustainability. There is also little recognition of how other ecological public health transitions (outlined in Figure 8, the Ecological Public Health and Just Sustainabilities Model) such as demographic, urban and epidemiological changes may influence health and wellbeing in this rural place.

This leads me to interpret that even though case study participants understand and perceive that sustainable and healthy communities are closely aligned, what they mean is that social sustainability and either economic *or* ecological sustainability are aligned, but not all three. At a broader level, this shows a lack of understanding that all three sustainable development pillars are inextricably linked and contribute to health and wellbeing as interdependent dimensions, not as two legs of the sustainability stool. They will not meet their ultimate goals without including the missing pillar. In the literature review social sustainability had been referred to as the missing pillar, but in contrast these results show that the missing pillar can vary. The analysis also shows that in this rural place, with these people, at this time, the pathways to economic or ecological sustainability are through social sustainability first.

Finally, there are core characteristics in the way each of the cases have gone about developing their project. First, they are instigated by a local person who generally has some sphere of influence, is recognised as a community leader or has expert knowledge and skills. This person is also a member of many different networks within the community that can be drawn on for support, guidance and finding appropriate resources for the project. Working within their networks to form a group, the community leader develops and identifies the what, who and how strategies for project implementation. Once a strategy is in place the newly formed group set about implementing the project, that usually starts on a small scale and then expands building on success and promotion throughout the community.

7.7. How does this knowledge inform research exchange and transfer strategies?

The knowledge gained from the case studies provide guidance to public health practitioners, researchers and policy makers to take into account when working with rural communities.

Firstly, earlier chapters showed that there is an understanding that health and sustainable development are co-dependent. In this chapter analysis shows case study participants in rural communities have a limited understanding of the ways in which their projects can contribute to sustainability and health in their community beyond a financial or social benefit. For example, there is a lack of awareness of how ecological public health transitions and planetary boundaries can influence health in the rural place.

To assist the rural community to make this connection, the public health discipline has a role to share knowledge and experience gained from research, policy development and practice in the field. For example, sharing knowledge on the linkages between energy and health, particularly the impact on health from fuel poverty (Wilkinson et al. 2007) biodiversity loss, ocean acidification and their impacts on ecosystems that services that are essential for life (MEA 2005). For social health, the impact of urban and demographic transitions will require health planners to work with a wide range of stakeholders to create age friendly urban design, services and infrastructure (Hugo 2011) and this is of particular significance to the South Coast communities.

Secondly, this chapter reaffirms the findings in Chapter 6 and 7 that development of social sustainability (promoting conviviality, sense of place and support networks) is the first step in any sustainable development and health project. It is the social agreement and unspoken rules of how things are done that form the platform upon which to proceed. Therefore, addressing social sustainability and building this into the project as the starting point, will greatly increase the chances of a project's implementation in this rural place. It also points the way to how public health practitioners, researchers and policy makers can work with rural communities.

Thirdly, community leadership, including social entrepreneurs and a community voice are also prerequisites for working with rural communities to implement projects. Actions need to be focused locally, using resources, skills and knowledge in the rural place.

Fourthly, a functioning and effective technology system with ready access to the internet and social media forms an essential component of knowledge exchange and transfer.

Once again, through revisiting the Reardon et al. (2006) knowledge exchange steps, analysis in this chapter shows:

'The What'- The 'what' therefore is about assisting the community make the connections to how their own projects sustainable development and health and the influences of ecological transitions on community health and wellbeing.

'The How'- The main strategies are to work alongside the community to build social sustainability, particularly the sense of place and social support networks first, and using technology, social media to disseminate messages. Engaging community leaders and tapping into their networks is also another way to diffuse and disseminate knowledge. Using a social sustainability as the first approach is a way to engage the community before focusing on economic or ecological projects.

'The Who' – Community leaders and social entrepreneurs will play a key role in assisting knowledge dissemination and diffusion.

'Expected impact'- building social connections and sense of place, and ensuring there is community participation and the rural voice in local actions, may give a

project a greater chance of knowledge dissemination and successful project implementation.

7.8. Chapter Conclusion

In this chapter, I set out to explore actions people are undertaking within the case study boundaries to develop sustainable and healthy rural communities. Using the adapted Hancock et al. (1999) framework, I selected case studies for the multiple case study design (Yin 2014).

Case studies focused on: sustainability, community energy; conviviality and ways to bring the community together; and economic development at different levels of the community from youth, to a town and a region. Analysis of the case study reports reaffirmed that processes to establish social sustainability and more specifically conviviality, particularly for sense of place and social support networks, are the building blocks for sustainable development and health projects in this rural place.

The analysis shows that projects that begin with a social sustainability stance explicitly integrate health and wellbeing as an intended outcome of the project. In contrast, for projects that arise from an ecological or economic stance, linkage to health and wellbeing are less clear.

Using the Reardon et al. (2006) steps to knowledge exchange and transfer, the analysis has identified key steps in setting up a rural community project, the importance of community leadership and networks, local solutions and resources. To share the knowledge, a variety of diffusion and dissemination strategies can be used, many of which can be via the internet and social media.

In the next chapter, I revisit the Ecological Public Health and Just Sustainabilities Model and use this as a way to discuss issues that were silent in the case study analysis.

CHAPTER 8 DISCUSSION OF FINDINGS IN LIGHT OF ECOLOGICAL PUBLIC HEALTH TRANSITIONS AND EQUITY

8.1 Introduction

In the previous chapter, I explored multiple case studies that provided examples of how rural people are taking action to develop sustainable and healthy rural communities on the South Coast of NSW. The analysis reaffirmed findings from previous chapters that social sustainability, particularly conviviality, sense of place and social support networks (tailored to the place, locally owned, led and driven), provides a foundation upon which to build economic or ecological sustainable development projects. The cases also showed how there are multiple constructs of what contributes to a sustainable and healthy rural community.

Exchanging knowledge, working with others and developing skills, forms a core part of all of the cases. There is also a sense of entrepreneurship and innovation and willingness to try out new ideas. This reflects the importance of social interaction and the social construction knowledge as part of this (Morse 2006). The community use a range of methods to facilitate diffusion and dissemination of knowledge including the bush telegraph (word of mouth); community leadership; facilitated workshops, forums or formal education classes; hands on practical experience (learning by doing and watching); and using digital technologies, social media and the internet. The demographics of the participants in this case study tended to be older adults, who are retired or had previous managerial or professional roles. These attributes and acquired life skills may have assisted them to organise and structure activities and put them into practice, learn and re-learn. These structural characteristics are attributes of a functioning 'community of practice' (Kostas & Sofos 2012).

The literature review showed that all three sustainable development pillars (underpinned by principles of equity) are needed to create sustainable and healthy communities. But the concept of equity (intergenerational, intragenerational and environmental) for children, Indigenous people and other than human (this refers to every living species and physical system on earth that is not human) (Harvey 2006), were silent in actions and definitions discussed by case study participants.

The concepts of population and consumption are also silences. The role public health, other than to provide access to health care, is also absent in participant's construction of sustainable and healthy rural communities.

The analysis revealed that there seems to be a lack of awareness of how their particular actions contribute to, and are influenced by, dimensions beyond the micro level, such as how actions at the Exo and Macro system levels can and do influence sustainability and health in this rural place. The influence of how other issues such as social-cultural, material and biological and planetary boundary transitions contribute to sustainability and health is also limited.

In this chapter, I reflect on the case study analysis from previous chapters and revisit the Ecological Public Health and Just Sustainabilities Model, I introduced in Chapter 2 (Figure 8) by commencing the chapter with a discussion on ecological public health transitions. Following on from this I provide a commentary on some issues not addressed by case study participants, such as: population and consumption and equity. This chapter, relates to research Aim 1, Objective 3, Aim 2 objective 3 and Aim 3 objective 1 and 2.

8.2 Ecological Public Health Transitions and the South Coast Rural Communities

8.2.1 Introduction

In this section, I discuss the outer level of the Ecological Public Health and Just Sustainabilities Model, the ecological public health transitions, and discuss them from a South Coast and rural community perspective. The process of looking at transitions broadened my public health mindset beyond epidemiological approaches and population health profiles and social models of health, to understanding how other systems are influencing rural community health as a whole.

8.2.2 Planetary Boundaries

'Planetary boundaries' refers to the nine planetary boundaries framework that describes components of a safe operating space deemed essential for living systems on earth and include climate change; rate of biodiversity loss (functional and genetic); biogeochemical flows (e.g. phosphorous and nitrogen cycles); stratospheric ozone depletion; ocean acidification; global freshwater use; change in land use;

atmospheric aerosol loading; and chemical pollution/ novel entities (Rockström et al. 2009, Steffen et al. 2011, Steffen et al. 2015). The planetary boundaries are all interconnected and will have an impact on sustainability and health globally. However, climate change, ocean acidification, biogeochemical flows, biodiversity loss, land use and fresh water have specific relevance to the South Coast communities. A summary of the planetary boundaries, potential health impact and the South Coast is outlined in Table 30.

Climate change assessments for the South Coast show that sea level rise, heat waves, climate variations (including more frequent and intense storms, droughts and drying and floods), will have an impact on the region (Norman et al. 2012). Climate change impacts from disasters, displacement from the land and impacts from prolonged drought have impacts on mental health, social cohesion and economic viability for rural communities (Berry et al. 2010). Mental health issues, injury and suicide already contribute to health disparities on the South Coast.

There are signs that ocean acidification is occurring in southeast Australia with southward movements of tropical fish and plankton species (Howard et al. 2012) as well as the impact from climate change influencing temperature, ocean currents ocean chemistry and weather conditions (Booth et al. 2009). Recently a Dugong, usually found in tropical waters in Queensland found its way to the Merimbula inlet. The unusual presence of the animal raised awareness of how much the water had warmed ('Dugong sightings in Merimbula Lake' 2015). In addition to this, fish stocks are depleting and deforestation and land clearing for agriculture and urban development are contributing to further biodiversity loss and ecosystem degradation (WWF 2015). South Eastern Australia was recently listed as one of 11 places around the world that will account for 80% of global forest loss by 2030 (WWF 2015) and on the South Coast increased sediment and run off from farms causes soil erosion, land degradation and pollution, particularly after heavy rains (Eurobodalla Shire Council 2014). Deforestation and land use change also effects climate change, by clearing native vegetation that releases CO₂, logging of native eucalypt forests decreases carbon carrying capacity reducing potential for carbon sequestration (Bradshaw 2012).

Table 30 A summary of the planetary boundaries, potential health impact and the South Coast

Planetary Boundary	Health impact	South Coast issues
Atmospheric aerosol loading	Globally, atmospheric aerosol loading from desert or volcanic dust and human made aerosols (burning forests, fossil fuels) contributes to air pollution which is estimated to cause over 7 million deaths a year (WHO 2012).	High rates of asthma and chronic respiratory illness (PHIDU 2015).
Ozone depletion	Ozone depletion has led to increased solar UV radiation that can cause problems for eyes, skin, genetic damage immune system suppression (Norval et al. 2011), and reduced productivity in agricultural crops and the food chain (Fahey & Hegglin 2010).	Higher incidence rates of melanoma in Shoalhaven and Eurobodalla than NSW (Cancer Council 2011)
Novel entities	Novel entities are anthropogenic substances engineered chemicals and have been found to release of CFCs (chlorofluorocarbons) that damage the ozone layer or are plastic polymers that degrade to micro plastics that pollute earth systems (Steffen et al. 2011). Chemicals leach out of the plastics into soils or the air and the microscopic plastic travels to rivers and the ocean where it is ingested, inhaled and absorbed by living systems (Thompson et al. 2009).	Damage to ecosystem services –essential for life - Risk to water, soil and air quality.
Ocean acidification	Oceans provide essential ecosystems services, fibre and food (MEA 2005). The ocean acts as large carbon sink and is reliant on plankton that photosynthesise CO ₂ and produce over half of the oxygen we need to breathe (Richardson 2009).	Damage to ecosystem health essential for life. Ocean acidification is occurring in southeast Australia with southward movements of tropical fish and plankton species and declines temperate (Howard et al. 2012).
Climate change	Impacts of climate change range on health and wellbeing include extreme weather events (heatwaves, droughts, floods, storms, cyclones), occupational exposure to heat, disease (vector borne and zoonotic), impacts to food and water supply and quality, security and livelihoods (McMichael et al. 2006).	As well as health impacts listed, the South Coast will experience impacts of climate change through increased temperatures, changes in rainfall patterns, sea level rise, increased coastal inundation and erosion and increased risk of bushfires (Norman et al. 2012)

		<p>Displacement from place following disaster and impacts of prolonged drought impacts on livelihoods, social cohesion and mental health in rural communities (Berry et al. 2010)</p> <p>Rural people, older people, Indigenous Australians and children most vulnerable (McMichael et al. 2015)</p>
Biogeochemical flows	<p>The human influence on biogeochemical flows e.g. by over fertilization with nitrogen or phosphorus fertilizers that interfere with the carbon cycle and results in ecological damage and degradation to forests, landscapes and water systems (Rockström et al. 2009) that decreases water quality, reduce oxygen in water impacting on fish, algal blooms flourish and release toxins and bacterial growth (EPA 2015)</p>	<p>South Coast farmers have been using elevated concentrations of nutrients, pesticides and fertilizers measured in creeks and rivers. Soils have been reported to be highly acidic and water quality effected due to the application of nitrogenous fertilizers, land clearing and salinity (Regional State of the Environment Report 2008). Health effects include air pollution (asthma and respiratory tract illness) increased cancer risks strongly indicated for non –Hodgkin’s lymphoma, bladder and ovarian cancers (Townsend et al. 2003)</p>
Fresh water Biodiversity loss Land use	<p>Human health ultimately depends upon ecosystem products and services, fresh water, clean air soil, food, shelter and fuel sources (WHO Climate Change and Health 2015)</p> <p>Biological / Biophysical diversity of microorganisms, flora and fauna provides food, medicines and industrial products (WHO Climate Change and Health 2015)</p> <p>Clearing of land leads to biodiversity loss. Trees provide oxygen, filter water and soil and assist in river flows (MEA 2005)</p> <p>Water is an essential nutrient for life (Molden 2007)</p>	<p>South Coast is at risk from increased human population more proposed urban development, continued harvesting of native forests clearing of land that will impact on ecosystem services essential to life (MEA 2005).</p> <p>Biodiversity loss can lead to increased risks of contracting vector borne and zoonotic disease such as Ross River fever, dengue fever and, malaria (Townsend et al. 2003), zoonotic (Hendra disease) viral (H5N1 influenza Ebola Haemorrhagic fever,) (Morens et al. 2004)</p>

Due to the landscape formation of the South Coast, the river systems emerge from the escarpment and the close proximity to the ocean means that water has a shorter distance to flow and can move much faster down the slopes, which exacerbates the transference of pollutants, can cause gullies and further erosion of river banks and ecosystems and effect drinking water quality (Atech 1999). Removing native vegetation reduces the capillary networks that filters and traps the water and slows the flow, reducing ecosystem damage and allows time to filter water maintaining water quality (Clarke, McLeod & Vercoe 2009). On the South Coast the wetlands and coastal saltmarsh also contribute to water supply and purification, climate regulation and coastal protection (MEA 2005). With increased population and further land clearing the ecosystems services that wetlands and marshes provide are being weakened (MEA 2005). This is occurring at a time when there is an increased need for denitrification and flood and storm protection against inundation from sea level rise and climate change (MEA 2005).

8.2.3 Current Social-Cultural Transitions – demographic, urban, economic and democratic

For the South Coast, the demographic change, urban and economic transitions bring challenges and opportunities. The ageing population and out migration of youth skews the demography towards the over 55 age group resulting in an ageing workforce, decreased in ratio of younger people to older dependent requiring care and support puts pressure infrastructure and services to meet the needs of an older population (Hugo 2011).

The ageing baby boomer generation brings challenges, but in comparison to previous generations, Hugo describes this generation as having higher mobility rates, are more educated and have been occupied in professional or managerial roles prior to retirement, are diverse and wealthier (Hugo 2014). They also bring years of life experience to rural places contributing to community life (particularly voluntarism) (Regional Australia Institute 2015) that contributes to social sustainability.

In addition to the ongoing outmigration of young people, Australian country towns have experienced population declines due to changes in the economic environment, particularly for extractive industries (mining, agriculture, forestry) (Hugo 2005). This has resulted in the urban transition, (the move from rural to urban-based living that

results in concentrated population in cities, change in social dynamics and modes of life) (Rayner and Lang 2012). On the South Coast this has also resulted in a localised economic transition from large scale production of food and goods to tourism, retail and recreation industries (Green 2010).

At the same time as the South Coast business community are proposing strategies for economic growth (FSCRDA 2013), the population is increasing (ABS 2011) and land use is changing (Shoalhaven Local Environment Plan [LEP] 2014, ESC LEP 2013 and draft Rural Land Strategy 2105, Bega Valley LEP 2013) there are increased risks to biodiversity, air and water quality (MEA 2005). A summary of the social-cultural transitions and South Coast issues are outlined in Table 31.

Table 31 A summary of the current social-cultural transitions and South Coast

Transition	Issue of concern	Potential South Coast Issues and health and sustainability impacts
<p>Demographic transition Changes in a societies' high birth and death rates to low birth and death rates (Kirk 1996).</p>	<ul style="list-style-type: none"> • South Coast has an older population, in-migration of retirees, sea and tree changers (Burnley & Murphy 2004) • Outmigration of young people to the cities for work or education (Hugo 2005) 	<ul style="list-style-type: none"> • Increase in aged related disease, disability and mortality • Increased need for aged care services and social care support (PHIDU 2015) and recreation.
<p>Urban transition the move from rural to urban-based living (Rayner & Lang 2012).</p>	<ul style="list-style-type: none"> • Concentrated population in established urban areas • Increasing urban sprawl, decreased biodiversity and natural capital, lack of infrastructure and services to accommodate increase in (ageing)population (Hugo 2011) 	<ul style="list-style-type: none"> • Changes in social dynamics and modes of life (Rayner and Lang 2012) and change of "rural culture" (Green 2010) • Increased 'Anthropogens' and further removal from nature (Egger & Dixon 2014) can lead to increases chronic disease.
<p>Economic transition- 'the changes in production focusing on increasing inputs and outputs' guided by market demand and pricing for global economic activity (Rayner & Lang 2012).</p>	<ul style="list-style-type: none"> • South Coast has a decline in forestry, fishing and dairy farming and manufacturing industries, higher than State average rates for long term unemployment (ABS 2011). • The potential for high revenue input from tourism and flow-on benefits to the retail trades has made tourism the focus for economic development (Green 2010). 	<ul style="list-style-type: none"> • Inclusive economic development has the potential to benefit the whole community (Sachs 2015) • Employment and sense of control of over work life contributes to health (Wilkinson & Marmot 2004) • But over dependence on tourism and service based economies can lead to less diversity in the local economy which makes the South Coast vulnerable in times of economic downturns (Machlis & Field 2000)
<p>Democratic transition 'The process of moving from a society and economy dominated by pre-ordained authority... to one where the population plays a more active role in that society and governance' (Rayner & Lang 2012 p 278).</p>	<ul style="list-style-type: none"> • In Case study actions there is evidence of local control, participation in decision making, collaboration and cooperation and is simply the 'way we do things around here' 	<ul style="list-style-type: none"> • Community leadership, self-organizing groups with shared decision making and tailored governance structures can lead to improvement in health (Laverack 2006).

8.2.4 Material transitions – Nutrition and Energy

Nutrition transitions: The impact of the nutrition transition is evident on the South Coast with higher rates of overweight and obese adults, lower rates of physical activity and fruit and vegetable consumption (PHIDU 2015). Nutrition transition also refers to food security, the changing eating patterns of emerging economies and increased consumption of animal products, an increased global population and climate change impacts on crop yields, impacts of prolonged drought or other weather events, food waste and nutrient content depletion (McMichael et al. 2015).

The South Coast agricultural sector focuses mainly on dairy farming, beef and sheep. The industry has had a below average season, water has not been replenished, with crop failures and a slower stock growth rate (Local Land Services 2015). With the forecast predicting warmer than average temperatures influenced El Niño in the Pacific and very warm Indian Ocean temperatures (Bureau of Meteorology 2015) this will have further impacts on South Coast food producers' livelihoods and food security. In May 2016, the two largest supermarket chains in Australia, Coles and Woolworths, announced dramatic price cuts to milk produce. This announcement created a "crisis" in the Australian dairy industry, prompting a social media campaign to encouraging the South Coast community to keep buying locally produced dairy produce. And support local farmers (ABC 2016). The swift impact of the changes to the milk prices demonstrated how quickly decisions made at the global level by international corporations' influence livelihoods at the micro level.

The agriculture industry also uses vast amounts of water and energy and contributes significantly to air pollution and greenhouse gas emissions (Horrihan et al. 2002). Livestock is estimated to contribute to over 15% of greenhouse gas emissions from methane, CO₂ and nitrous oxide (Gerber et al. 2013) and contributes to global nitrogen and phosphorous pollution (Oita 2016). It is estimated that if people in developed countries reduced food waste (by 50%) and consumed protein within their national dietary guidelines, this could reduce their country's global nitrogen footprint by over a third (Stevens et al 2014). Globally, agricultural production is reaching a plateau at the same time that there is less arable land and population increasing (Christophersen 2015).

With economic growth and technological advances, extensive land clearing has occurred to accommodate croplands and livestock production. Livestock production is also seen as a leading cause of soil loss, water and nutrient pollution and biodiversity loss (Machovina et al. 2015). Compounding this further, the consumption of meat is increasing resulting in a ‘protein transition’ and is a result of increased incomes (e.g. in countries like India and China) and the increased global population and more mouths to feed (Wellesley et al. 2015). This will not only have implications for climate change and biodiversity loss, food production and waste, but also for humans physical wellbeing (World Watch Institute 2004). For example, consuming large amounts of meat (particularly red meat) has been linked to increased risk of coronary heart disease and other chronic disorders (Erlinger & Appel 2003). Thus, there are co-benefits for limiting the consumption of red meat as this will also reduce environmental impacts and promote human biological health (Machovina & Feeley 2014). Public health nutritionists have a role to play here in working with decision makers to influence policy change in the food and agricultural sectors that will focus on farm to plate change and takes into account the ecological footprint of food creation and nutrient content.

Energy transitions: As the global population and economic activity has increased so too has energy consumption (O’Connor 2010). Energy demand today is being driven by pressures to address climate change and transition from burning fossil fuels to other high quality energy efficient resources that will maintain economic development (Sachs 2015) and clean energy sources that do not add to the burden of disease through air pollution and occupational hazards (Haines et al. 2007). As the community energy projects demonstrated in the previous chapter, there is evidence that transition to clean energy has commenced on the South Coast. Currently it is residents that have higher incomes that can benefit from, and invest in, these energy technologies. People on lower incomes already experience energy hardships and may be in an energy poverty cycle because of debt, energy rationing and food trade-offs (ACOSS 2014). They may not be in a position to engage in the energy transition that is occurring in the higher income populations Table 32 outlines some issues for the South Coast and Nutrition and Energy transitions.

Table 32 Summary of nutrition and energy related transitions on the South Coast

Transition	Issue of concern	Potential South Coast Issues and health impacts
<p><i>Nutrition Transition</i> Describes the ‘historical pattern of change in diet and physical activity’ over the 20th century as countries became richer (Rayner & Lang 2012 p. 195)</p> <p>Food Security- refers to the challenge of meeting human food and nutritional needs while protecting environmental services. Interconnected with epidemiological and demographic transitions.</p>	<ul style="list-style-type: none"> • Nutrition transitions have interconnecting systems such as agriculture, manufacturing, retail, education, culture, trade and economic (Lang & Rayner 2007). • Food security – global population size, consumption patterns and climate change impacts on crop yields, prolonged drought and other weather events, food waste and nutrient content depletion (McMichael et al. 2015). 	<ul style="list-style-type: none"> • South Coast with higher rates of overweight and obese adults, lower rates of physical activity and fruit and vegetable consumption (PHIDU 2015). • Inadequate or over nutrition can lead to chronic disease (AIHW 2013) • Local Food production impacts from below average season, water not replenished, crop failures and slower stock growth rates (Local Land Services 2015). • Forecast for warmer than average temperatures influenced El Niño in the Pacific and very warm Indian Ocean temperatures (Bureau of Meteorology 2015)
<p><i>Energy transition</i> Refers to structural changes in energy systems (World Energy Council 2014) and is occurring because of changes in the patterns of use, technologies employed and environmental impacts (O’ Connor 2010).</p>	<ul style="list-style-type: none"> • Energy demand today is being driven by pressure to address climate change and transition from burning fossil fuels to other high quality energy efficient resources that will maintain economic development (Sachs 2015) • The availability, quality and accessibility of fossil fuel supplies is an emerging issue (Michaux 2014) • The South Coast is also reliant on fossil fuels (although the Snowy Mountain hydroelectricity plant services much of the Coast). 	<ul style="list-style-type: none"> • Community energy projects discussed in the previous chapter are seeking to meet the challenge of energy transition by implementing community lead, self-governed and self-sufficient energy, distribution and generation and storage system (Rae & Bradley 2012). • Low income population may be experiencing energy hardship making it difficult to engage in energy transitions (ACOSS 2014) • People with chronic illness, the elderly and very young are at risk of heat related mortality (Kovats & Hajat 2008)

Despite moves on the South Coast and at the micro-meso level to transition to a clean energy and low carbon economy the rate of adoption is constrained by government policy and continued investment in fossil fuel and mining sectors (Foran 2011).

8.2.5 Biological transition- epidemiological and ecological

A population's health is dependent on a genetic, behavioural and social factors and healthy environment that provides clean air, water, and food, and sanitation, minimal exposure to pathogens, toxins and environmental hazards (Barrett et al. 2015).

However, human kind can shape environments and manipulate and alter biology, through industrialisation and technology, biodiversity destruction and other methods such as the invention of antibiotics (Rayner & Lang 2012). Anthropogens ('man-made environments, their by-products and/or lifestyles encouraged by these, some of which may be detrimental to human health') create dysmetabolic conditions which lead to long term chronic illness and ecosystem change (Egger & Dixon 2014). On the South Coast, with influences of the demographic and nutrition transitions (see Table 33), there is evidence of epidemiological transitions, as seen in the higher numbers of people with non-communicable diseases, lower rates of communicable disease, longer life expectancy and increasing numbers of people with in age related degenerative illness such as dementia and arthritis (PHIDU 2015) that requires health services to provide a broad range of appropriate, timely and affordable health care services.

Immunisation has been an effective public health intervention in preventing disease (Mercer 2014) but, there has been decline in the immunisation rates for children on the South Coast (PHIDU 2015). This could be due to parental preferences and a perception that the diseases have been eradicated removing the need for vaccination (WHO 2000) which will reduce herd immunity and can result in outbreaks of communicable disease, like measles (Menzies et al. 2012). An example is the local media report on students with German measles in Broulee primary school and mumps at Batemans Bay high school (Students diagnosed with German measles 2015).

Due to climate change and land use changes, rural communities are at increased risks of contracting zoonotic and vector borne diseases transmitted by mosquitoes and ticks (malaria, Ross river fever and dengue fever) (Butler & Harley 2010). The

destabilization and fragmentation of biodiversity systems has destabilized the microbial world (McMichael 2014). A stark example is the rapid spread of Ebola Virus in West Africa in 2014, that is thought to have spread from rural areas from infected bats. The outbreak is thought to be directly related to deforestation and ecosystem fragmentation that forced the bats to find other habitats and brought them into contact with human communities (Alexander et al. 2015).

Table 33 Ecological, biological transitions and the South Coast

Transition	Issue of concern	Potential South Coast Issues and health impacts
<p><i>Ecological Transition</i></p> <ol style="list-style-type: none"> 1. The changing nature of humankind’s sense of and separation from the natural world and the ‘progressive incorporation of nature into human frames of purpose and action’ changing how and why nature is used for human progress (Bennett 1976 p.3); 2. The transition of a person from a setting or a role and physical, biological and social experiences (Bronfenbrenner 1979); 3. Evolutionary change of species (Darwin 1859). 	<p>‘Anthropogens- man-made environments, their by-products and/or lifestyles encouraged by these, some of which may be detrimental to human health (Egger & Dixon 2014)</p>	<p>Increase numbers of people with chronic illness, disability, premature death, suicide, injury and mental health issues (PHIDU 2015)</p>
<p><i>Biological transition</i></p> <p>Is used to ‘identify and specify the processes of change that life forms go through in their environment’ and is a long process of staged evolution in biological complexity’ (Rayner and Lang p.213-214).</p>	<ul style="list-style-type: none"> • Human kind shape environments that can manipulate and alter biology, through industrialisation and technology, biodiversity destruction and other methods such as the invention of antibiotics (Rayner & Lang 2012). • The discovery of antibiotics and immunisations contributed to mortality declines and facilitated the transition from the age of 	<ul style="list-style-type: none"> • Decline in childhood immunisation rates (PHIDU 2015) • Increased risks of contracting vector borne and zoonotic disease (McMichael 2013) • Emerging diseases Bacterial – Melioidosis, Vector borne (Ross River fever, Zika, dengue), zoonotic (Hendra disease) viral (H5N1 influenza Ebola

	<p>pestilence to the age of receding pandemics (Rayner & Lang 2012)</p> <ul style="list-style-type: none"> • Because of overuse of antibiotics, bacteria have undergone an ecological transition and are becoming more resistant to antibiotics and treating bacterial infections is becoming more challenging (Mercer 2014). 	<p>Haemorrhagic fever.) (Morens et al. 2004)</p> <ul style="list-style-type: none"> • Remerging disease Vancomycin resistant <i>S. aureus</i>, Multi drug resistant TB, Lyme disease (Morens et al. 2004)
<p><i>Epidemiological transition</i></p> <p>Refers to ‘how patterns of disease and morbidity shape population health’ (Rayner and Lang 2012 p.121).</p>	<ul style="list-style-type: none"> • Human life expectancy was low and population growth was slow for thousands of years but with social and technological advancement, life expectancy increased and mortality rates declined (Barrett, Charles & Temte 2015 p.69). • Humans moved from the age of pestilence and famine, to the age of receding pandemics and now the age of degenerative and man-made disease (Omran 1971). 	<ul style="list-style-type: none"> • Higher numbers of people with non-communicable diseases • lower rates of communicable disease • longer life expectancy • Increasing numbers of people with in age related degenerative illness such as dementia and arthritis (PHIDU 2015).

8.2.6 Section summary

This section has covered ecological public health transitions and how they may influence sustainability and health at the South Coast at the community level. Transitions are evident in demographic, urban and economic change, with older people moving to the coast and younger people moving away and the declining primary industries and the emergence of tourism. Epidemiologically, health issues are also in transition with high rates of non-communicable diseases now merging with degenerative disease as result of the ageing population. At the same immunisation rates for school children are declining and rates of some communicable diseases are being reported more. Planetary boundary transitions are also of concern as biodiversity loss, water catchments and land use change are also in transition on the South Coast, due to tourism, economic development, climate change and increase in population.

8.3 Population and consumption, and equity

8.3.1 Introduction

In this section, I discuss issues that participants did not discuss or include in their actions namely; population and consumption, and equity. Linking this back to the Ecological Public Health and Just Sustainabilities Model, these issues are operating at the Exo and Macro system levels and need to be understood as a set of interrelated issues to be addressed concurrently, and not in isolation. (Ehrlich & Ehrlich 2014).

8.3.2 Population and consumption

In 2012, the world's population reached 7 billion people and is predicted to increase to over 11 billion people by 2100, with most of the population in Africa and Asia (United Nations, Department of Economic and Social Affairs, Population Division 2015). Australia has experienced rapid population growth in the last decade mostly attributable to net overseas migration (Lowe 2012). From the government policy level, a bigger Australia (population and economic growth) is promoted positively and perceived to provide jobs, education opportunities and high living standards (Department of Sustainability, Environment, Water, Population and Communities 2011).

However, the subject of overpopulation and how to address it is taboo (King & Elliott 1997). Malthus discussed in the 1780s how more deaths and more births would lead to exponential growth and preventive checks, such as intentional reduction in fertility, malnutrition, war and famine that would reduce population, when a population went beyond its capacity to sustain itself with the available resources (Malthus 1798). His words, unpopular then and now, resonate with 21st century ecological public health issues particularly as the global population increases. Technology is being used to exploit the environment, depleting and disrupting natural resources rapidly (McMichael 2001) and faster than they can be replenished (MEA 2005). Resources are also being unevenly distributed amongst the world's populations so that there is an inequity between those who are consuming resources the most and those who have little or no access to them (Ortiz & Cummins 2011). Richer developed countries consume ten times more natural resources than developing nations and account for the largest proportion of global greenhouse gas emissions (Sustainable Europe Research Institute 2009). Whilst human development

has increased human population and life expectancy, it has accompanied reduction in populations of other species and extinctions of many (Dickman 2014).

In this case study, the concept of population, or over population, was not a core theme, nor was the concept of progress through technology solutions, material production and consumption considered an issues of concern (Ehrlich & Holdren 1971). When you live in a small country town that has a population skewed to one age demographic and youth outmigration (Hugo 2011), high unemployment and higher number of people with social and health care needs (ABS 2011) you need a critical mass to attract and maintain essential services and amenities (Alston 2009). An increased population could be seen to be desirable for a rural community's sustainability. Also when you live in a town that is 'at the end of the chain' (Powell 1997) and dependent on tourism for its economic sustainability you encourage, not discourage consumption. Which in turn creates a ripple effect by placing additional burden on natural resources, pollution and waste (Creel 2003). This is further compounded by the pervasive neoclassical economic world view and the addiction to growth (Washington & Twomey 2016). Finally, as there is a perception that the South Coast has a small population and is surrounded by green and open spaces with access to fresh water and food, the concept of a 'tragedy of the commons', seems a far distant reality (Hardin 1968).

Australia is also seen as a large continent with seemingly endless space to accommodate extra people but less than 10% of the land is suitable for agriculture (Stanton 2003) and this land is where most of the Australian population live or want to move to (Hugo 2011). Overcrowding and competition for physical and personal space seems a remote concept from a rural person's perspective, but coastal towns are having fast population growth that poses threats not only to landscapes but to place identity and changes to values and culture of the place (Green 2010). Expansion of urban footprints, building on productive land for housing, an increased demand on natural resources e.g. fresh water supply, transport and waste systems, are some practical population growth issues (Lowe 2012), and are real issues for the South Coast communities.

The need for stewardship and working together to improve the local natural environment was practised by some case study participants. But the link between

economic development, population size and disruption of natural systems at local and global scales and how this can impact on health (McMichael & Powles 1999) was not a core theme. Case study participants defined a sustainable and healthy community that ultimately as one that supports human wellbeing and survival (McMichael & Butler 2006). However, there was little acknowledgement of the ‘eco-impooverisation’ and ‘eco-pathology’ from overpopulation and consumption (Butler 1997) that leads resource limits and the need to live within the carrying capacity of supporting ecosystem to promote population health and social cohesion (McMichael & Butler 2006).

8.3.3 Equity - Intergenerational Intragenerational Environmental Cultural

The literature review showed that equity is an underpinning principle for sustainability and health ‘meeting the needs of present without compromising the ability of future generations to meet their needs’ (WCED 1987). Case study participants’ understanding of health is that actions to promote and maintain health are essential but actions for sustainability are a choice. Social and health inequalities exist within and across all countries, but this social gradient is not a natural phenomenon, and are the results of unfair social policies and economic systems (CSDH 2008). This means that there are structural as well as behavioural barriers for achieving both health and sustainability that lie outside of the individual’s control.

In this case study, unless it is in reference to access to health care, equity was not a core issue. This way of thinking overlooks how vulnerable and disadvantaged populations and the other than human can gain equity to achieve health and sustainability. Definitions and actions did not incorporate ‘needs’ of children and young adults, and Aboriginal and Torres Strait Islander people, and other than humans, are silent in the social construction of a sustainable and healthy rural community.

Access to health care: Equity was not a core theme in the case study analysis except for access to health care. There were concerns regarding out of pocket costs, waiting lists, ongoing issues for recruitment and retention of medical practitioners and specialist care, and travel. Quality information and communications technology systems (IT) can provide access to specialist medical care for diagnostics and treatments via telehealth and telemedicine, reducing the need for rural people to

travel (Wakerman et al. 2006). But to provide this model of care requires quality IT system, investment from the limited rural health budget into infrastructure, training of health professionals in new ways of working and developing and securing partnerships and contractual arrangements with multidisciplinary care teams based in tertiary health services (Wakerman et al. 2006). This would also come out of the small rural health budget. This centralises the point of care and can improve care coordination and access to more clinicians. However, it can take away a rural health service's autonomy and ability to plan their own ways of working with their patients. It changes the dynamic between the person and health professionals and redirects scarce rural health resources from face to face clinical care to a distant tertiary care provider (Wakerman et al. 2006).

Benefits from IT are also confounded more broadly at the Exo and Macro level, by the increase in IT systems consumption and the impact on energy use, manufacturing, and disposing of devices and equipment (Williams 2011). The internet and social media are integrated into modern ways of living in such a way that it is difficult to undertake many tasks without using it. As such access to a reliable internet system to connect you to the global world is also integral to modern living. Providing internet access for example via the National Broad Band Network remains an ongoing political issue in Australia (King 2014).

From a sustainable and healthy population perspective, access to good IT contributes to quality of life, business and commercial enterprises contributing to economic wellbeing, and it connects people contributing to social capital and social health outcomes (NRHA 2010). However, on the South Coast approximately one quarter of households do not have access to the internet (24% Bega Alley and 26% in Shoalhaven and Eurobodalla) (PHIDU 2015) highlighting another metropolitan-rural inequity (NRHA 2010).

Children and young people: There are over 44,000 children and young adults (approximately 26% of the population) living on the South Coast (ABS 2011) and are the future generations central to the Brundtland definition of sustainable development (WCED 1987). The United Nations Convention on the rights of the child states that all children have a right to be free and grow physically and spiritually with dignity, have good food, medical care and free education (UN 1989);

an unsustainable world that does not provide these ecological and socially supportive conditions has implications for children's future health and wellbeing (UNEP n.d). In terms of sustainability issues, the unborn foetus and children are, for example, vulnerable to climate change impacts through increased risk of injury and displacement in times of natural disaster or war, infectious diseases, extreme weather events (heat or cool), air pollution and decreased food production and nutrition (Waterston & Lenton 2000).

Future livelihoods are also an issue for young people, (youth unemployment doubled since 2008) and underemployment, low skills and inexperience make young people vulnerable in the changing job market contributing to further health inequities (Carvalho 2015). Projects like the South Coast Leadership Forum (discussed in the previous chapter) attempts to address this gap, but this is one standalone program that is targeting a small number of adolescents in one location.

Globally, children and young people are becoming more connected through globalisation, social media, migration and transnationalism that will influence future cultural identity, social cohesion and global citizenship (de Block & Buckingham 2007). To bridge actions undertaken today for a future sustainable and healthy society, children and young people need to be included in decision making and their values and beliefs incorporated into actions to be taken (Heft & Chawla 2005, Kola-Olusanya 2012). Key findings of the Global Survey on Sustainable Lifestyles showed that young people want to be involved and participate in designing their futures, but need assistance in understanding the dynamics and practical implications of social economic and ecological sustainable development on their daily lives (UNEP 2011c).

Investing in children and young people's determinants of health and well-being has positive implications for social and economic sustainability and benefits can result in reduced anxiety and depression, higher earning capacity, lower crimes and violence (Gertler et al. 2013). From an ecological perspective, educating children and young people about environmental stewardship can foster stewardship and connection between local places and the essential role of ecosystems services (Netherwood et al. 2006).

Aboriginal and Torres Strait Islander people: Indigenous populations globally are faced with a double challenge of maintaining traditional sustainability practices and achieving social equity (Manitoba education and training 2000). Indigenous Australians understand health as a whole of life view that includes the cyclical concept of life-death-life and encompasses the social, emotional and cultural wellbeing of the whole community (National Aboriginal Health Strategy 1989). Many health inequities contribute to the gap between non-Indigenous Australians and Indigenous Australians, with differences in education, employment, smoking rates, poor nutrition and access to health care services (AIHW 2014).

Aboriginal people believe they are part of the natural world and have an ecological principle of ‘keep all alive’ (Sveiby 2009, p.8). Aboriginal people share space with humans and nature, share and construct their own knowledge system and have ethically bound rules of the right behaviour embedded with deep spiritual values that is integral to traditional ways of living (Johnstone 2007). Disconnection from country and culture, racism and social exclusion contribute to Indigenous Australians health inequities and decrease in wellbeing (Genat & Cripps 2013).

Valuing Indigenous knowledge and cultural beliefs and practices not only contributes to Indigenous Australian wellbeing but their knowledge on sustainable ways of living contributes to the sustainability discourse and has benefits for everyone (Osbourne 2013). Historical studies show that sustainable living methods, such as those used by the Ngunnabarra People to conserve fish stock by creating fish sanctuaries in rivers and creeks, or the use of fire to increase food and regrowth of eucalypts and other edible plants, sustained the Ngunnabarra People for thousands of years (Sveiby 2009). Working on country has proven to have social and emotional wellbeing benefits for Aboriginal and Torres Strait islander people and serves as a way to reconnect physical and spiritual wellbeing with the land (Kingsley et al. 2008). Again working in collaboration and valuing Indigenous cultural practices and knowledge of the land may have co-benefits for conservation and ecotourism (Arabena 2011), key issues for the South Coast of NSW.

Other than Humans: The connection to land and nature is still an essential part of Indigenous cultural life (WHO 2007), but for non-Indigenous cultures in western developed countries, the concept that humans are separate from nature has continued

to develop (Vining et al. 2008). Despite the inextricable link between people and their environment and people's health (WHO1986), western cultures have disconnected from nature physically (by living most of the time inside and in the built environment), psychologically (nature is seen as wild or a wilderness to be tamed or has aesthetic value) and politically (natural capital and sovereignty) (Pilgrim, Samson & Pretty 2010). Conflict and power play exists between world views of those who seek to exploit natural resources for profit and those that seek to limit their use to conserve for nature's own sake and not human benefit (Dryzek 2005).

On the South Coast the sense of place is a core theme. Topophilia is reflected in the connections people have to the neighbourhood and their relationships with each other, their memories, ways of living, and the landmarks and symbolic meanings that underlie people's attachment to place (Stedman & Ingalls 2014). In contrast, the affinity to other life forms (biophilia) in this sense of place is limited to aesthetic values and services that support human life (Wilson 1984).

Environmental equity describes the disproportionate of effects of environmental degradation on people and places (Cutter 1995). To promote ecological justice will require a paradigm shift where sustainability and health take on a redistributive function (Agyeman 2013). However, to achieve this means challenging the powerful promethean and cornucopian discourse of people, markets, prices, fossil fuel energy and technology. Natural resources and ecosystems in this paradigm are seen not as 'nature' but as matter and energy that can be used for economic growth and human development (Dryzek 2005).

Nature is a determinant of health and the foundation for sustainability and this requires linkages of natural ecosystems and social systems (Parkes et al. 2003). The lack of understanding of how the dynamic and interconnected ecological life support systems support biophysical health and spiritual, cultural wellbeing, means that challenging the dominant paradigm to seek ecological justice remains a challenge to sustainability and health (Tait et al. 2014).

8.3.4 Section summary

In this section, I discussed the concept of population and consumption, and equity. Increases in population are a double edged sword for rural communities. On one side

they need the critical mass to attract and maintain services and essential amenities. On the other side, population brings pressure for resources and infrastructure, pollution, social change and ecosystem degradation.

Social and health inequalities exist within and across all countries, but this is not a natural phenomenon and is the result of unfair policies and systems (CSDH 2008). Inequalities are evident between the South Coast rural communities and NSW for many social and health indicators. Aboriginal and Torres Strait Islander people are faced with inequalities in social and health status and to their traditional sustainability practices that are embedded as part of their cultural identity and social wellbeing. Their knowledge of the land and holistic view of health offers a way for non-Indigenous people to understand how the two concepts of health and sustainability are integrated as one.

Children and young people are the next generation, who will be vulnerable to ecological transitions, and need to be part of decisions made for their future world. But for their world to exist, (as we know it), there needs to be some ecological justice for the other than human and changes to political and economic systems that go beyond Gross Domestic Product (GDP) as measure of success and decoupling of growth and consumption (Agyeman 2013) to an equitably prosperous convivial society and a viable natural environment (Hancock 1993).

Health can be seen as a sustainable state (King 1990). Therefore, the issues of overpopulation and increased consumption have impact on sustainability and health. This in turn has implications for equity, particularly for children and young people, Aboriginal and Torres Strait Islander people and other than humans. Cognitive and strategic linkages need to be made, there will be no sustainability without equity (Porritt 2012).

8.4 Chapter Conclusion

In this chapter, I have discussed ecological public health transitions and how they relate to, and have an influence on, South Coast communities. Following on from this, I discussed the concept of population and consumption, and equity that were missing from case study participant's definitions and actions, but form part of sustainability and health.

The analysis of ecological public health transitions showed that the South Coast is influenced by demographic, economic, urban and democratic change. This change is effecting the culture, population size and demographic mix, employment and economic diversity. Epidemiological changes are also evident with increased rates of non-communicable disease and degenerative disease. Rural communities are also at risk of emerging vector borne and zoonotic disease that are emerging due to climate change, land clearing and biodiversity loss. Climate change, biodiversity loss, freshwater depletion and ocean acidification are also specific issues for the South Coast. All of these issues are being influenced by the increase in human population and consumption and uneven distribution of resources and power.

Finally, the literature review showed that equity is an underlying principle for sustainability and health. In this case study, equality and equity in access to health care was a core theme, but intergenerational and intergenerational equity in relation to children and young people, Aboriginal and Torres Strait Islander people and other than human was not.

CHAPTER 9 KNOWLEDGE EXCHANGE AND TRANSFER THEORIES AND STRATEGIES – ADVOCATING FOR ECOLOGICAL PUBLIC HEALTH

9.1 Introduction

In this chapter, I begin by discussing the limitations of the case study findings. Next, I synthesise the new knowledge gained from the case study analysis and summarise the key issues that can be used to inform a knowledge exchange and transfer strategy. I also draw on implementation science, participatory approaches and knowledge translation literature, to provide an approach to knowledge exchange and transfer advocating for ecological public health.

Ecological public health integrates new and old public health traditions and its focus is on interactions and understanding interplays between human communities, habitats, cultures, ecosystems, microbial activity, climate and environmental conditions (McMichael et al.2015). The key factor is that people are a part of, but not central to, ecological public health (Bentley 2014). To adopt an ecological public health approach requires a paradigm shift to move policy and practice to thinking and acting in eco-social terms.

Advocacy is ‘persuading decision makers of the need for change through identifying desired public health outcomes and effective and feasible methods of achieving that change’ (Moore et al.2013, p. 5) within public health political, economic, social systems and institutions (Cohen et al. 2001). To influence change advocacy must have a clear goal but does not have a prescribed method, as this needs to be tailored to the context (PHAIWA 2013). Advocacy is challenging because to bring about change is to question the *status quo*, entrenched values and social structures (PHAIWA 2013). Effective advocacy can result in changes to laws, regulations, food products and standards (Chapman 2001). It can also raise awareness of environmental and social issues and facilitate empowerment of public health professionals to enable systemic changes to service delivery, attitudes and behaviour (PHAIWA 2013). As no individual, group or network can change structural determinants, policies and curricula on their own (Moore et al. 2013) developing advocacy partnerships and alliances is one strategy to bring about change (Chapman 2001).

Healthy public policy has an ‘ecological perspective, multi-sectoral in scope and participatory in strategy (Milio 1988). Advocacy for ecological public health is within the scope of healthy public policy as it is already ecological in perspective. It therefore necessitates a multi-sectoral approach (Rayner & Lang 2012), with participation as a core element in health advocacy (Talbot & Verrinder 2010). As such the ‘push and pull’ of this knowledge exchange process (Lavis et al. 2003) is targeted at the public health discipline (policy makers, researchers and practitioners). Ecological public health is complex and there are multiple ways of knowing and understanding the phenomenon and this necessitates joining domains of practice across and within disciplines and sectors and identifying ways to cooperate and negotiate barriers to collaboration (Jansen et al. 2012).

This chapter aims to answer research Aim 3: *To explore how knowledge gained from the research findings can be useful, shared and put into public health policy, research and practice by (1) synthesising the findings from Aims 1 and 2 and establishing the knowledge to be shared; and (2) exploring potential knowledge exchange theories and identify the strategies to facilitate research transfer and translation.*

Public health policy makers, researchers and practitioners who intend to work with rural communities using an ecological public health approach first need to understand how ecological and social systems interrelate, listen to different viewpoints, and share knowledge to build capacity within the public health communities and broader society to facilitate change (Verrinder et al. 2003).

I start the chapter by discussing knowledge exchange theoretical perspectives and identify strategies to facilitate knowledge exchange and advocacy for ecological public health. Next, I consolidate the Reardon et al. (2006) steps for knowledge exchange and discuss the what, who, how and impact in the remaining sections of this chapter. However, before I summarise the key points for knowledge exchange and transfer, I would first like to explore limitations of the knowledge gained throughout the study.

9.2 Limitations of the case study findings

As previously outlined in Chapter 3, purposive sampling and snowballing techniques were used to recruit participants. Purposive sampling techniques do not seek to provide a representative sample that can be statistically analysed to make generalisations about a population. Purposive sampling techniques are selective and subjective, and seek to find cases of interest that will give in-depth insight and understanding enabling the researcher to answer the research question (Patton 2002). Given that there are limited numbers of studies that have investigated this phenomena of interest (sustainability and health in a rural setting) this exploratory case study can be seen as the first step in a new field of inquiry. As such, I interpret this to mean, I am testing the field by purposefully selecting cases that can give a flavour as to what is happening in these places, with these people, at this time. I selected cases that I believe are of relevance to the phenomena of interest and reflect what is occurring in the case study boundaries.

In addition to this, the number of participants that participated in focus groups or interviews, could be considered another limitation of the case study. Interviews and focus groups were conducted by following a qualitative research approach. In this methodology, the number of participants recruited to participate in the study is determined on achieving data saturation, and in this case study, this was achieved after 48 participants. Data was also triangulated by using the media review of over 200 online newspaper articles. Therefore, I feel that the choice of using purposive sampling and the snowballing techniques and qualitative research methods for this exploratory research was a strength in the study design, and these approaches enabled me to find cases of interest and explore sustainability and health on the South Coast of NSW.

However, another limitation of the study might be who participated in the interviews and focus groups. I did not go out into the field with the intention of recruiting people solely from one cohort of the population. However, participants tended to be urban migrants, older adults, educated, working in professional roles or were retired. The population social and health profile (as outlined in Chapter 4) shows the South Coast, compared to the NSW population, has a larger number of an older adults (ABS 2011). So perhaps the reality of trying to recruit participants in this research

landscape is that you are likely to get older or retired participants?

Being aware of what the sample group is, who is or is not included, or how to recruit the hidden or hard to engage members of the population, is a challenge for researchers (Braun & Clarke 2013). 'Beyond the usual suspects' (Braun & Clarke 2013, p. 58), there were, as far as I am aware, no long term established farming families in the sample, few young adults, and despite the South Coast having a larger proportion of the population who are Indigenous Australians, compared to the rest of NSW (ABS 2011) there was only one Indigenous Australian participant. My sampling strategy included purposive sampling and invitations were made to community groups and agencies that I know have funding to run Indigenous programs, or programs with farmers and landholders, or have young adult members. Braun & Clarke (2013) surmise that it is difficult to recruit participants from beyond the usual suspects even if you belong to these groups.

There are also other considerations to take into account if recruiting vulnerable or hard to reach populations, as they may require extra care in terms how you approach the research (Liamputtong 2009). As an example, the research study's ontology, epistemology, research design and axiology (a set of morals and ethics), would need to be carefully considered for research with Indigenous people (Hart 2010). As this case study's research design contained a *priori* criteria for the case study protocol, and indicators for case analysis, sourced from Hancock et al. (1999), to approach Indigenous Australians with a *fait accompli* design would not have been appropriate ontologically, epistemologically, or ethically.

Undertaking research with children and young people also requires considerations along the same lines as outlined above, but with particular attention to the issue of consent, privacy, the methodology, timing and appropriate ways to engage participants in a safe space (physically and psychologically) to conduct interviews (Harcourt & Einarsdottir 2011). Once in the field, researching with children and young people may also require continual adaption of the methodology in order to maintain their interest and engagement (Leyshon 2002).

Few young adults were amongst the research participants. The lack of participation from young adults is not a unique issue for this research study. A participant working in Shoalhaven City Council reflected on this point, that engaging young adults in

their sustainability projects was also a challenge:

‘We still find it extremely difficult, and I know that Eurobodalla does as well, to engage people between the ages of 20 and 50 because they are so busy, so busy working. And because people now work longer hours to fund their lifestyles and the kids and everything, that particular, age cohort is extremely difficult to engage. They are either at work all day or when they have down time they don’t come to community meetings... We don’t have any problem with the retirees. They are easy to engage’ (ED, Shoalhaven).

The majority of participants were also migrants from larger urban places and some had been living on the South Coast for less than five years. In rural Australia there is a colloquial saying that a newcomer or stranger would be considered to be a ‘blow-in’. This means that they ‘blew-in’ to the town on the wind (like blow flies) and then would ‘blow out’ again. The insinuation is that these newcomers or strangers were temporary visitors that will not stay long and will move on again as soon as the wind blows them out again. I think what this sample shows, is that the ‘blow-ins’ are not ‘blowing out’ again.

There is also limitation in the research question itself. For example, the responses participants gave to the question, ‘What is a sustainable community?’. The descriptions participants gave were very socially focused. Perhaps the use of the word ‘community’ itself (which is a socially oriented construct) influenced how participants responded. Maybe using the word ‘place’ instead of ‘community’ may have broadened the answers beyond the human community focus?

That long term farm families of old, Indigenous Australians, or younger adults, were not represented in the sample and I did not get the range of participants that I wanted is a limitation. The case study interview and focus group participants were older, educated, migrants, and this ultimately shaped the research findings. In terms of answering the research question ‘How are rural communities taking action to develop sustainable and healthy communities?’, I think that the research findings reflect the South Coast flavour and expose the demographic, urban and land use transitions that are occurring and influencing the changing nature of rural coastal landscapes and towns across the South Coast.

9.3 Knowledge exchange theoretical perspectives

9.3.1. Introduction

Knowledge transfer is a process where knowledge is pushed by researchers to users, differing from knowledge exchange which is the two-way communication process that needs to occur between researcher and knowledge user for successful uptake of research (Lavis et al. 2003). In advocacy for ecological public health both push and pull are required.

It has been argued that it is difficult to explain why knowledge exchange succeeded or failed because of the lack of theoretical underpinning in knowledge exchange and transfer (Nilsen 2015). The knowledge exchange process entails interaction between the user and the knowledge giver, who in turn act as an 'active problem-solver and a constructor of his or her own knowledge, rather than as a more passive receptacle of information and expertise' (Hutchinson & Huberman 1993, p 1). This co-creation and construction of knowledge aligns with constructivist theories (Armstrong et al. 2006).

In this section, my analysis suggests draws on complex adaptive systems thinking, diffusion of innovation and participatory approaches, such as deliberative dialogue provide theoretical perspectives and processes to guide knowledge exchange and transfer in advocating ecological public health approaches. Complexity thinking offers a theoretical perspective that acknowledges interconnections, uncertainty and non-linear emergent action (Plesk & Greenhalgh 2001). Diffusion of innovation provides a way to explain adoption of new ideas, attributes of people and the process (Rogers 2003). Deliberative dialogue provides a mechanism to engage stakeholders as way to diffuse and disseminate knowledge (Boyko et al. 2012).

9.3.2 Complex adaptive systems thinking

The synthesis of the literature review, case study analysis with models of ecological public health and sustainability show multiple interconnected systems and scales. These multiple connected systems create one whole complex system (Plesk & Greenhalgh 2001). Many issues associated with sustainability have been referred to as so complex that they are 'wicked problems' that create continually evolving issues (Rittel & Webber 1973). Wicked problems 'defie complete definitions' since there are no solutions to them, only the generation of new problems (Brown 2010 p.4).

Wicked problems are an integration of worldviews, colonial influences, they can be technical, place based or planet based and can integrate collective learning from all human knowledge in some way (Arabena 2010).

At the core of complex systems thinking is gaining an understanding of connections between entities that make up the systems, how they interact and achieve a common purpose (Peters 2014). The Ecological Public Health and Just Sustainabilities model may be useful here as it shows how the system levels are connected and dynamic parts of a whole. Complexity thinking sees causes of complex problems and their solutions within the structure and function of the system itself (Finegood et al. 2015). One approach to aligning complexity thinking with health has been by framing it as complex adaptive systems (Plesk & Greenhalgh 2001). Complex adaptive systems have diverse agents, are non –linear, interdependent and self-organizing (McDaniel et al. 2009). Table 34 provides examples from the literature of where this approach can be aligned with the Ecological Public Health and Just Sustainabilities Model.

Further linkages to health and complexity can be drawn through the concept of advocacy that underpins public health functions and health promotion frameworks (WHO 1986). Advocacy as a strategy and approach occurs in the complex systems of public health. Complex systems are not defined by their separate parts and this calls for a holistic approach that aligns methodologically with holistic and participatory approaches outlined in public health functions and frameworks, for example in health promotion (Tremblay & Richards 2011). Epistemologically, complexity can be seen to align ontologically with a relativist perspective because in seeking to understand the relationships between the constituent parts this requires integration of multiple ways of knowing that are dependent on observer and context, as opposed to ontological realism that seeks deterministic, reductionist and linear explanations (Tremblay & Richards 2011). Greenhalgh et al. (2005) demonstrate how complexity thinking and health is put into practice by applying the theory of diffusion of innovation, discussed further below (Greenhalgh et al. 2005).

Table 34 Example from the literature for linkages to complex adaptive systems and ecological public health transitions and ecosocial levels.

Ecological public health and sustainabilities system level	Focus	Key points
Transitions	Transitions to sustainable development	Grin et al. (2010) Describes how emergent behaviours and self-organising agents shift from one dynamic equilibrium to another leading to transitions.
Macro system	Global health governance	Hill (2011) describes global health governance as complex adaptive systems with multiple players, evolving relationship and changing dynamics of globalisation.
Exo system	Carbon cycle and low carbon health systems	Gell (2010) applied complexity thinking to demonstrate linkages between the carbon cycle, health system management and transformations of supply chains, pharmaceuticals and food for a low-carbon health economy.
Meso system	Organizational level resilience	Bergström and Dekker (2014) describe how systems perceptive can help bridge concepts of human resilience and ecological resilience by observing action at the organizational level (the meso level).
Micro system	Place and health as complex systems (from community level)	Castellani et al. (2015) describe complexities of place and link geographical, cultural and socioeconomic conditions at the community level concept of place.
Nano system	Human immune system level and exposure to avian flu	Elgazzar & Hegazi (2008) used complex adaptive systems in biology to observe avian flu epidemics around the world.

9.3.3 Diffusion of innovation and advocacy

An innovation is ‘an idea, practice or object that is perceived as new by an individual or other unit of adoption’ (Rogers 2003, p.12) and diffusion is the process by which an innovation is communicated through certain channels over time, among members of a social system (Rogers 2003). Spreading new ideas has four components; the innovation, communication channels, time and the social systems (Rogers 2003). How quickly an innovation is adopted is determined by its relative advantage (how advantageous the innovation is to them); compatibility, how compatible the idea is to culture and norms; complexity, how easy the innovation is to adopt; trialability, new ideas that can be trialled first can be more quickly adopted; and observability, if individual can observe the new idea in practice and self-evaluate to adopt an idea (Rogers 2003).

A continuous innovation causes less disruption to behaviour and consumption patterns (e.g. council recycling service as part of waste management). A dynamically continuous innovation involves changes in behaviour or consumption such as buying a kettle that uses less energy (Roberston 1971). Discontinuous innovation requires disruptive change with new behaviour and patterns of consumption, such as moving to zero waste lifestyle or bicycling instead of using a car (Roberston 1971).

Greenhalgh et al. (2005) differentiate between diffusion (the passive spread of the new idea), dissemination (active and planned) and sustainability (making the new change routine). Dearing (2009) reinforces the importance of contextual conditions and how innovations can be diffused and disseminated through intervention clusters (a logically related set of interventions), demonstration projects (experimenting or showcasing), opinion leadership, and adaptation-to-system-fit innovation with practice, programs, and policies (Dearing 2009). Greenhalgh et al. (2005) pose that system readiness that includes power balance (supporters and opposers), dedicated time and resources and processes to provide feedback and monitor change also need to be considered (Greenhalgh et al. 2005).

Adopting an innovation is a complex active process whereby people test out the new idea, give it meaning, challenge it, work around it or modify to suit (Greenhalgh et al. 2005). Individuals who adopt an innovation have been categorised as: innovators, early adopters, early majority, late majority and laggards (Rogers 1995). Further

detail on the categories and suggestions on how to work with adopters (Robinson 2012) are highlighted in Table 35.

Table 35 Diffusion of Innovation -How to work with adopters

Category	Description	Tips for working with adopters (Robinson 2012)
Innovators	Takes risk, creates and develops ideas (2.5% of the population)	Track them down and become their first follower, invite to be partners in designing innovation.
Early Adopters	Takes up new idea before most others do (13.5% of the population). Well connected and higher social status – useful as opinion leader.	Offer strong face to face support to trial new idea and promote as leaders, peer educators and maintain relationship and provide regular feedback Observe how they diffuse and disseminate and adapt ideas based on their trial of the innovation
Early Majority	Are pragmatist and influenced by mainstream ideas, cost sensitive and risk averse (34% of the population).	Stimulate buzz – promote to early majority through mainstream advertising and marketing and use credible opinion leaders, provide strong consistent quality support and redesign / simplify innovation
Late Majority	Conservative and pragmatic do not like to take risks, influenced by fears and opinions by laggards (34% of the population).	Focus in promoting social norms rather than the innovation benefits,
Laggards	The innovation poses a high risk or significant behaviour change. Can be critical of the innovation (16% of the population).	Maximise familiarity with the innovation but give them personal control over how, when and where they adopt new idea or behaviour.

However, an innovation can lead to inequities between those who have the capacity and capability to adopt an innovation (e.g. solar panels, internet and mobile phones) and those who do not. The innovation itself may be very compatible with the individual's world views but they may live / work in rural area where structural and economic issues prevent the innovation from being accessible to them (Röling et al. 1976).

Table 36 provides examples of diffusion of innovation approaches that can be applied to the dimension of the Ecological Public Health and Just Sustainabilities Model.

Table 36 Examples from the literature for linkages to diffusion of innovation and ecological public health transitions and ecosocial levels

Ecological public health & Just sustainabilities system level	Focus	Key points
Transitions	Fertility and demographic transitions	This paper applies the theory to fertility decline, how ideas spread and the effect of the media in shaping and diffusing ideas. Also highlights ecological nature of demographic transition that is interrelated with economic, historical and political transitions (National Research Council (US) 2001).
Macrosystem	Cultural transmissions values and beliefs.	Paper outlines how cultural attitudes change through social learning that contain biases: direct bias specific qualities of an idea; prestige bias, copy ideas from individuals with specific qualities or attributes; conformist bias, where people align with the preferences of the majority even when personal opinion will not be known by others (Henrich 2001).
Exosystems	Conceptual frameworks for sustainable supply chains	Paper outlines framework for business strengthening commitment to using sustainable supply chains includes how to respond to emerging changes to from energy, materials, regulations, waste and adopting new corporate responsibility methods to management, production and purchasing. (So et al.2012)
Mesosystem	Food policy and implementation of physical activity and food policies in schools	Paper discusses how diffusion of innovation theory is used an organizational change framework. Highlights how policy makers need to work with schools to monitor and facilitate uptake of new policies in schools and support those who are finding it difficult to adopt new ideas and practices (Mâsse et al. 2013).
Microsystem	Households using energy efficient lighting	Applies the diffusion of innovation theory to energy efficiency in households. The study examined at what point the diffusion of ideas were adopted e.g. was it after receiving information about a new product (Timmer et al. 2015).
Nanosystem	Knowledge exchange in nanotechnology theories	The diffusion of innovations theory was used as one method to assess system level change in spreading nanotechnology innovations in Turkey (Darvish & Yaşar 2016).

9.3.4 Deliberative dialogues

Deliberative dialogue is knowledge exchange strategy that seeks to generate discussion through a purposeful evidence informed conversation to bridge research to action (Boyko et al. 2012). It is a ‘directed discussion and less confrontational than a debate’ that seeks collaboration, common ground to work from, weighing up alternatives and being open to other’s views and perspectives (Buchanan & O’Neill 2001). Stakeholders are purposefully selected for their perspectives and knowledge to participate in facilitated dialogue (Boyko et al. 2012). This means that the deliberation is contextual and the perspectives may not be representative of the broader public health community (Lavis et al. 2014) and diverse or minority group interests may not be represented (Scrinis & Lyons 2010). It differs from a debate in that the process of deliberation is to come to consensus on a course of action rather than inquiry (Hitchcock et al. 2001) and is a way of thinking together (London 2016).

Deliberative dialogues bring together tacit knowledge and synthesis of empirical knowledge (Plamondon et al. 2015). The process allows participants ‘to receive and exchange information, to critically examine an issue, and to arrive at an agreement that informs decision making’ (Culyer & Lomas 2006). As the purpose is to deliberate and share knowledge this approach accommodates different ontological perspectives as relativist and realist perspectives in an ecological public health approach need to be brought to the table.

Deliberative dialogues are a form of participatory democracy where competing perspectives can be openly discussed in a decentralised decision making approach (Ife 2002). The deliberative process enables participants to discuss their issues and justify their perspective, form opinions and give decision makers other perspectives for consideration (Levine 2003).

Table 37 provides examples of how deliberative dialogue can be used as an approach to discuss ecological public health and sustainabilities.

Table 37 Examples from the literature for linkages to deliberative dialogues and ecological public health transitions and ecosocial levels

Ecological public health and sustainabilities system level	Focus	Key points
Transitions	Energy Transitions	Engaging community in developing energy transition strategy in Edmonton Canada. (MacKinnon et al. 2014)
Macrosystem	Worldwide views on Climate Change	Engaging global community in conversation about climate science, trust in climate scientists, insights into the extent to which people are willing to change /adapt their behaviour and potential for future engagement for addressing climate change (Involve 2009)
Exosystems	Disaster Mitigation Strategy	Canadian Government consulting with community to develop strategy to prevent disasters before they occur and promoting the development of disaster-resilient communities (Hwacha 2005)
Mesosystem	Community participation forums at catchment management and regional level	Dialogue aimed at ‘Naming, Framing and Taming Public Issues’ to engage community and scientists in discussion about managing land and water, aiming for bottom-up approach. Dialogue included historical, geographical and community stories (Bone et al. 2006)
Microsystem	Community Conversations for Sustainability and desert knowledge	The paper outlines the start of the process of ‘sustainability societalisation’ for a community of very diverse residents, Aboriginal people (4 language groups); newly resettled refugees, miners, fly in fly out professionals in a remote western Australian town. The dialogue is framed around thinking about the relevance of place and the long-term future of a desert settlement (Marinova et al. 2010)
Nanosystem	Tackling marine debris and micro plastics that lead to biological, social and cultural impacts.	Through deliberation the following were identified as issues for further action: (1) marine debris management, leadership, and coordination; (2) effectiveness of current measures and ways of monitoring; (3) quality of port reception facilities to deal with waste; and (4) effectiveness of marine debris managing e.g. fishing gear (National Research Council 2008)

9.3.5 Section summary

Advocating for ecological public health requires knowledge exchange and transfer amongst a broad spectrum of public health professionals, settings and institutions. Complex adaptive systems theory provides a theoretical perspective for knowledge exchange in complex environments. Diffusion of innovation provides additional theory as to how an idea is adopted, who adopts and what can increase the speed of adoption. For ecological public health approaches to work, advocacy begins with understanding what ecological public health is, understanding different perspectives and identifying how to facilitate change, and deliberative dialogue provides a mechanism for this exchange of knowledge.

Successful public health advocacy campaigns have characteristics that align with the above theories and approaches. First, the advocacy strategies were implemented within a complex social environment requiring action across a number of sectors (Gruszin et al. 2012). Second, the strategies demonstrated relative advantage and compatibility to adopters by focusing on an issue that will affect a large number of the population and this increased uptake amongst the majority of the population. As more people were adopting observed adopting the behaviour or trying it this gained support of the wider community and the late majority (Gruszin et al. 2012). Strategies incorporated the use of opinion leaders and public health champions to influence change and there was also clear evidence that public health efforts were making a difference supported by government actions (top down) and community change (bottom–up) and sustained over many years (Gruszin et al. 2012).

9.4. Key points from case study analysis to inform knowledge exchange and transfer strategies

9.4.1 Introduction

In this section I apply Reardon et al.'s (2006) steps to consolidate 'the what, who, how, whom, and impact' before integrating with the knowledge exchange literature and implementation theories (Reardon et al. 2006). This section outlines 'the what' and is presented as a summary key points from the case study analysis.

9.4.2 'The what' - A recap of knowledge gained from this case study to inform knowledge exchange and transfer strategies

This section outlines the key points from previous chapters that public health practitioners, policy makers and researchers may find useful when advocating for, teaching or sharing knowledge for ecological public health and working with rural communities.

First, the literature shows that there is growing awareness of how ecological and social determinants both relate to emerging public health issues (Canadian Public Health Association [CPHA] 2015). The health issues we are facing today have no precedent e.g. climate change, ozone layer destruction, contamination of water through fertilizers and pesticides (Kickbusch 1989). The issues are already starting to take effect in rural Australian communities.

These issues are creating a transition within the public health discipline and a call to revisit the 'ecological' in public health (Rayner & Lang 2012). This requires building on public health traditions and implementing a mix of new interventions that address biological, material, social and cultural dimensions (Rayner & Lang 2012).

Ecological public health theories and frameworks align with the dimensions of sustainable development and sustainability and this provides a way to explain and demonstrate linkages between the two concepts, health is an outcome of sustainability and vice versa (Kjærgård et al. 2014). From a public health intervention perspective synergies exist, as an example, when strategies are aimed at mitigating climate change. These eco-beneficial strategies could contribute to reducing health risks for: infectious and chronic disease, household energy and transport sources and use, food and agriculture and greenhouse gas pollutants (Friel et al. 2009, Haines et al. 2009).

Second, sustainability is as much about the mindset through which the world is seen as it is about the activities taken to support it (McEwan & Schmidt 2007). In this case study participants' understanding of sustainability took a stance influenced by their worldview, but social constructions of health aligned. Actions to promote and maintain health are seen as essential and unnegotiable, but actions for sustainability are a choice. As constructions of the determinants for health and for sustainability

align and health is seen as fundamental, health can be used as the bottom line integrator (McMichael 2013).

Third, in this case study, social sustainability (promoting conviviality, sense of place and support networks) (Hancock et al. 1999), is the first step in any sustainable development and health project (Cuthill 2009). The context is an essential consideration and in this case study the rural voice and sense of place underpin motivations for actions (Hancock et al. 1999).

Fourth, equity is a shared principle that underpins public health policy and practice (Baum 2015) and sustainability pillars, this includes intergenerational and intragenerational equity, social and environmental justice (WCED 1987).

Fifth, the complexity of sustainability and health can be understood as levels or scales from micro to macro (Bronfenbrenner 1979) or from nano to planetary systems (Stanger 2011). Each level and actions within them need to be seen as interconnected parts and addressed concomitantly (Elhrlich & Elhrlich 2013). Public health interventions often revert to lifestyle drift by focusing on individual behaviour change and high risk groups (Popay et al. 2010). An ecological public health approach requires addressing the whole and moving to a new paradigm where the poles of sociology and biology connect (Kickbusch 1989).

Sixth, the complexity of sustainability and health require multiple ways of knowing and a transdisciplinary approach with shared modes of inquiry and collaborative partnerships (Brown et al. 2010). Engaging community leaders and community participation is essential. In this case study for example, this could be health professionals, who are highly respected and well connected in small town communities (Farmer & Kilpatrick 2009, Prior et al. 2010) and can facilitate engagement of other community leaders and potential social entrepreneurs (Wallace 2005) to assist knowledge transfer. Community participation, leadership and empowerment are essential to create conditions for a healthy and sustainable rural place (WHO 1986).

9.5 Advocating for ecological public health ‘The Who’

9.5.1 Introduction

The focus of this knowledge exchange and transfer is advocating for ecological public health approach within the public health discipline and this includes researchers, policy makers and practitioners. Public health research, policy and practice is not a continuous homogenous field, there are different paradigms, interests and inter-field differences that can create conflicts (Magalhães Bosi & Gastaldo 2011). With its diverse range of disciplines, systems and sectors advocating for change in public health is challenging (Chapman 2010). However, shifting attitudes and cultures to sustainable and equitable pathways creates the need to join forces and work together (Hancock 2011).

9.5.2 Rationale for the Who

My rationale for focusing on advocacy as a way to exchange knowledge is based on my understanding that although there are academics, policy makers and practitioners who have contributed much to the discourse for sustainability and health, the biomedical model embedded in an old public health paradigm still dominates public health thinking (Baum et al. 2009). Furthermore, at some point in the research continuum, knowledge needs to be shared within the public health discipline itself. It has also been argued that, despite the recent focus on social determinants, environmental determinants and ecological justice are yet to be addressed fully in policy, leading to practice that is ecologically blind (Hancock 2015). However, ecological public health approaches do not seek to discard knowledge and traditions that have contributed much to health improvement and quality of life. Ecological public health approaches will build on this knowledge to create systems and structures necessary to safeguard health (Horton & Lo 2015). Ecological public health approaches also must integrate knowledge, particularly community knowledge and build on and work with other disciplines who have been working in this paradigm for decades (Hancock 2015).

Two issues that can affect how policy makers, managers and practitioners translate research into practice. The first relates to how relevant the research is to the decisions being made at the time or easily accessible the research is. The second, relates to how difficult the research / or concept is to interpret and visualise and understand how it

fits in to their way of thinking and practice (Lavis et al. 2005). The role of advocacy would be to raise awareness of ecological public health, open up debate, create opportunities to collaborate and cooperate in identifying strategies for change (PHAIWA 2013).

Public health policy makers, managers and practitioners are often faced with financial constraints and are at the whim of politically motivated short term funding cycles. They also have their own ways of learning, which means that indirect ways of shaping policy and mediating dialogue between stakeholders may have more impact on research dissemination and diffusion than passive methods of sharing knowledge such as emails and list serves (Elliott & Popay 2000). As with any institutional change, quality of relationships and networks that build trust and confidence are key factors in diffusing and disseminating research, yet many policy makers and practitioners may not be involved in research networks or ever have contact with researchers (Armstrong et al. 2006).

9.5.3 The Who

An ecological public health approach needs to include Indigenous knowledge, be transdisciplinary and relevant to Australian health research context and public health practice (CPHA 2015).

Indigenous voices – As this research study results showed, Indigenous voices are not prominent in the sustainability and health discourse. Furthermore, a limitation of the study is that there was only one Aboriginal participant. However, developing partnerships and ways to engage Aboriginal and Torres Strait Islander peoples and the organisations that support and promote their health and wellbeing, through land councils, community controlled medical services and academic institutions, is a core requirement for ecological public health thinking. Not only from an inter- and intra-generational equity perspective but also for the holistic knowledge and wisdom Indigenous people have for nature and sustainable living (IFAD 2003).

The rural voice- The analysis of this case study showed the importance of sense of place and the rural voice. Any deliberative dialogue that is discussing rural health issues must have rural people represented.

Transdisciplinary approaches - The Health in all Policies approach that has been

trialled in South Australia sought to integrate thinking about health impacts across all government sectors in a whole of government approach (Baum et al. 2014). This approach provides an example of how to bring together a diverse range of government sectors with the aim of working together to minimise and reduce harms to health in South Australia (Baum et al. 2014). This approach can provide a rationale for inviting health and non-health sector government policy and decision makers to participate in knowledge exchange. The Ecological Public Health Approach and Just Sustainabilities Model necessitates participation of people with expertise and knowledge for veterinary science, economic and environmental issues, demography, urban planning, natural and applied science, pharmaceutical and chemical engineering.

Public health practice is governed by State and Territory level legislation through Public Health Acts. Engaging practitioners in discussion about ecological public health and the relevance to their practice could be linked to legislation that outlines the scope of public health functions within the State. For example, the Victoria Public Health and Wellbeing Act 2008's objective is to achieve the highest attainable standard of public health and wellbeing by:

‘(a) Protecting public health and preventing disease, illness, injury, disability or premature death; (b) promoting conditions in which persons can be healthy; (c) reducing inequalities in the state of public health and wellbeing’ (Victorian Government, Public Health and Wellbeing Act 2008)

Another way to engage public health practitioners and establish relative advantage and compatibility is to align ecological public health thinking with the language of prevention and cause and effect. For example, Butler (2010) uses the terminology of primary, secondary and tertiary health effects as a way to classify emerging global health issues relating to climate change (Butler 2010). Krieger (2008), promotes replacing the use of proximal and distal casual pathways with eco-social terminology that describes casual links from levels, pathways and power (Krieger 2008). An argument could also be put forward to adapt the language of prevention to include the eco-social as the foundation for the prevention continuum, reinforcing the concept of primary, secondary and tertiary prevention (National Public Health Partnership 2006) but starting from an ecosystem perspective as the primary

prevention step.

Establishing relative advantage and compatibility is also facilitated by education. Patrick and Smith (2011) outline skills and competencies for health promotion practitioners that can be useful when working with others to mitigate and adapt to climate change (Patrick & Smith 2011). As the scope of ecological public health goes beyond one professional group and climate change, I argue that to advance ecological public health, public health professionals require skills and competencies to be eco-literate (McBride et al. 2013), including how to work with others to address the emerging public health challenges and develop resilient communities (Folke 2006).

Researchers- Using the dimensions outlined in the Ecological Public Health and Just Sustainabilities Model could assist researchers to align their work to the National Health and Medical Research Council (NHMRC) strategic directions for major health issues (NHMRC Corporate Plan 2015 – 2016). For example, by linking any of the major health issues to an ecological transition such as obesity could be linked with nutrition transitions. Public health academic institutions can use the Public Health Act and NHMRC plans to inform curriculum and health research in health science undergraduate and post graduate studies. They do this by reframing the objectives of the Act and the corporate plans in terms of 21st century public health issue relating to ecological public health developing competencies and skills for the future workforce. Furthermore, the recent appointment of a new Chief Scientist who is promoting ‘advancing science for a healthy, sustainable and prosperous Australia’ (Australia’s Chief Scientist n.d.) creates a policy window and opportunities to engage with decision makers, researchers and policy entrepreneurs (Kingdon 2003) at the Exosystem level.

The United Nations Sustainable Development Solutions Network are also calling on academic institutions to join in partnership to share their knowledge and work together to take action to address the global sustainable development goals. This creates another policy window at the Macro level that can advocate for change on a global scale (UNAI 2016).

Partnerships with agencies and organisation that are already working in this ecological public health space also need to participate in deliberative dialogues. This

can include groups such as the Public Health Association of Australia, the National Rural Health Alliance, Climate Change and Health Alliance and Doctors for the Environment. A way to include health services could be through the Global Green and Healthy Hospitals network that aim to address ecological public health issues such as chemical contamination, water and air pollution that can occur from health sector waste and management (Global Green and Healthy Hospitals 2016). The Victorian health sector have been incorporating corporate sustainability measures and are demonstrating cost savings from procurement, waste management and energy and water use sustainable plans. These early adopters and leaders in the field could assist in knowledge transfer of how and resources required to implement these changes (Western Health Sustainability Report 2013-2014, Austin Health Sustainability Report 2013-2014).

9.5.4 Section summary

In summary, the nature of ecological public health brings together brings together a heterogeneous group with a broad range of technical expertise that includes (and this is not limited to): Aboriginal and Torres Strait Islander social and health services, health promotion, medicine, biochemistry, pharmaceuticals, urban planning, demography, engineering, geography, epidemiology, anthropology, ecology, environmental sciences and veterinary sciences. To bring public health policy makers, researchers and practitioners together to advocate for ecological public health approaches requires a shared vision, well developed policy positions, relationships and networks, partnerships and persistence (Moore et al. 2013).

9.6 ‘The How and Impact’ using deliberative dialogue as a strategy for implementing knowledge exchange and transfer

9.6.1 Introduction

Advocacy is a core function of public health organisations and has many different approaches that aim to implement strategic actions to shift opinions, instigate change and identify and address conditions to create and enable healthy communities (CPHA n.d.). An overarching advocacy aim is to constructively engage others, which can be direct and confrontational or subtle and informal (CPHA n.d.). The aim of this strategy is to share knowledge, but also to raise awareness of ecological public health and the linkages between sustainability and health, and how this approach can assist

in addressing ecological and social determinants in rural settings.

In this section, I first outline a strategy for advocating for ecological public health by adapting the approach used by Moore et al. (2013) and then I outline a knowledge exchange and transfer strategy using deliberative dialogue as a knowledge exchange tool as part of the advocacy process.

9.6.2 Advocacy strategy for ecological public health

Advocacy strategies align with the Reardon et al.'s (2006) approach to knowledge exchange and transfer the what, who, whom how and impact, as they need an overarching vision, or problem recognition and a clear position statement (i.e. the what). The strategy needs flexible but identified goals and objectives, a specific target group for the strategy (the who). A range of approaches are required to diffuse and disseminate key messages including opinion leaders, experts and others people of influence (the how and whom), and ways to evaluate the impact of the advocacy approach.

Moore et al. (2013) provide steps to guide and evaluate a public health advocacy strategy based on Kotter's 8-step change model (Kotter 1996, Moore et al. 2013). This can be integrated into the deliberative dialogue approach.

This approach also aligns with complexity theory and diffusion of innovation. The steps are: create a sense of urgency; form powerful coalitions; communicate the vision; empower action; create quick wins; build on the change and make it stick (Kotter 1996); build long-term, fruitful relationships; and be opportunistic (Moore et al. 2013) as outlined in Table 38.

Table 38 Steps to guide advocacy for ecological public health

Advocacy Steps	Potential Strategies
<p>1. Create a sense of urgency</p>	<ul style="list-style-type: none"> • Demonstrate limitations of current public health approaches (curriculum, health policies and legislation) and how these can be enhanced by introducing ecological public health approaches • Present tacit and empirical knowledge as evidence of ecological public health issues and how they are impacting on vulnerable communities in Australia now and in the future. • Prepare a report/ position paper to guide discussion and use as an advocacy document, use the media, write to politicians and decision makers in industry and community consumer groups, use organisation’s newsletters and meetings as vehicles to promote position statement (Moore et al. 2013)
<p>2. Form powerful coalitions</p>	<ul style="list-style-type: none"> • Assemble a group with decision making power and status to influence change (Kotter 1996). • Key personnel invited to create a ‘guiding coalition’ to inform other stakeholders and share the vision (Moore et al. 2013)
<p>3. Communicate the vision</p>	<ul style="list-style-type: none"> • Develop a strategy and set goals to guide change efforts • Frame the message to focus attention– have key messages clearly stated and repeated often. • Target audiences and tailor message to audience • Use coalition networks to disseminate and gain feedback • (Moore et al. 2013)
<p>4. Empower action</p>	<ul style="list-style-type: none"> • Involve stakeholders in decision making, planning and implementing action • Provide resources (time, resources and skills) to enable change • Provide workshops and community education to raise awareness and increase quality of decision making (Bierle 1999)
<p>5. Create quick wins</p>	<ul style="list-style-type: none"> • Can be measured by: • Media presence • Meetings with officials and ministers, • Consideration of the issues by government and parliamentary inquiries and • By changes to political platforms and government plans (Moore et al. 2013 p.10)
<p>6. Build on the change</p>	<ul style="list-style-type: none"> • Use credibility of actions to further influence change • Recruit people who share and can implement the vision

	<ul style="list-style-type: none"> • Continue to evaluate and reinvigorate project with new themes and change agents (Kotter 1996)
7. Incorporate changes into the culture	<ul style="list-style-type: none"> • A plan for how the ongoing commitment to advocating for ecological public health approaches will be required as opposers of the approach will use their power and status to undo advocacy wins (Moore et al. 2013).
8. Building long-term, fruitful relationships	<ul style="list-style-type: none"> • In tandem with creating coalitions, developing and maintaining influential relationships will be required to ensure advocacy gains are maintained and that when new and emerging issues arise relationship are already established and based on trust and collective action providing a basis for ongoing relationships. • (Moore et al 2013)
9. Be opportunistic	<ul style="list-style-type: none"> • Advocacy rarely occurs in a linear way so once the strategy and key message and target group have been established the advocacy coalition need to be ready to take any opportunities to promote the key messages in media, workshops, forums and government inquires and submissions. (Moore et al. 2013)

9.6.2 Knowledge exchange strategy for ecological public health

In this section I provide a strategy that integrates all of the knowledge and theories presented in this chapter. The strategy is outlined in Table 39 and outlines the inputs, outputs, short, medium and long-term outcomes. For an effective outcome of deliberative dialogue Boyko et al. (2012) suggest the following need to be considered: an appropriate environment, appropriate use of research; and an appropriate mix of participants (Boyko et al. 2012).

An appropriate environment -includes the venue for the deliberative dialogue but also the social, cultural and politic environment. For example, do participants have adequate resources, commitment, time, skills, understand rules of engagement, and is the dialogue occurring at time that will influence policy windows to get the issue on the political agenda (Kingdon 2003). Pre- and post-event work includes other advocacy strategies such as media releases, disseminating a position paper outlining evidence and purpose of deliberative dialogue, networking meeting as coffee and a chat (Moore et al. 2013).

An appropriate use of research- to ensure that the discussion addresses the current issues for ecological public health The Ecological Public Health and Just Sustainabilities Model developed with this case study can be used to guide the types of research required to facilitate understanding of the issues and how they can and

are impacting on rural communities (Boyko et al. 2012). Dialogue can be framed around these three questions: 1. What is the ecological public health problem? 2. What is the best way to communicate best practices with stakeholders and implement the ecological public health approach? And, 3. How can ecological public health approaches be implemented within the current political climate? (adapted from Costanza et al. 1997).

Appropriate mix of participants- The complexity of ecological public health means that there will be a mix of interests, tacit knowledge and experience in the room (Boyko et al. 2012). To achieve fair representation stakeholder mapping should be undertaken prior to the event (Lavis et al. 2009). Facilitation of the dialogue to ensure participants that come from a wide range of backgrounds are encouraged to present their perspective, share ideas and innovative thinking requires a skilled and knowledgeable facilitator who can support participant's engagement (Boyko et al. 2012).

Table 39 Deliberative dialogue knowledge exchange strategy

AIM of DELIBERATIVE DIALOGUE	
To raise awareness of ecological public health and identify strategies for collaboration and implementing change (PHAIWA 2013).	
POSITION/ VISION STATEMENT	
In its organised response to protect and promote health and prevent illness, injury and disability (National Public Health Partnership 1998) public health incorporates into policy, practice and research ecological public health approaches that lead to and maintain ecological and social conditions for health and equity, for both human and other living systems (Horton et al. 2014).	
GOALS	
<ul style="list-style-type: none"> • Change knowledge attitudes values and behaviours • Build partnerships and coalitions • Identify opinion leaders and experts to facilitate knowledge dissemination • Strengthen base of support amongst public health networks • Identify what needs to be changed in policy and legislation and develop strategies to implement change • Identify what needs to be changed in public health education to develop skills and competencies and develop strategies to implement change (PHAIWA 2013) 	
DELIBERATIVE DIALOGUE APPROACHES (Boyko et al. 2012)	
An appropriate meeting environment	<ul style="list-style-type: none"> • Adequate resources for the meeting • Participant commitment (time and resources transparency of process and knowledge sharing) • Timeliness of policy issue (e.g. is it an election year?) • Group size – needs to be manageable and facilitate dialogue) • Rules of engagement – to establish trust and transparency • Pre and post event activities – media releases, position statement working groups and steering committees • A good facilitator
Appropriate research evidence	<ul style="list-style-type: none"> • Clear rationale for using research • Using Ecological Public Health and Just Sustainabilities Model to guide sources of evidence required. • Tacit and empirical knowledge must be included.

<p>Appropriate mix of participants</p>	<ul style="list-style-type: none"> • Rural community representatives and community groups • Across government and public service sectors • Aboriginal and Torres Strait Islander people representation • Health service delivery • Researchers and policy makers • Decision makers in academic institutions • Representation for economic and environmental perspectives, demography, urban planning, engineering. • Advocacy groups and agencies- PHAA, National Rural Health Alliance, Climate and Health Alliance and Doctors for the Environment and Global Green and Healthy Hospitals network.
<p>IMPACT / EVALUATION INTENDED EFFECTS (Boyko et al. 2012)</p>	
<p>Short term - at the Micro level/ individual level</p>	<ul style="list-style-type: none"> • There is a sense of empowerment • Capacity is strengthened to address policy issue • There is mutual understanding of the alternative ways of thinking about the problem and collaboration on developing ways to implement change. • There is new thinking about the problem.
<p>Medium term- Meso level- organizational and community level</p>	<ul style="list-style-type: none"> • Community/ organisation's capacity is strengthened to participate in setting policy/ change agenda, • develop alternative approaches to influence policy maker's / decision makers • Community/ organisation is ready to take actions when policy window opens.
<p>Long term: Exo system level</p>	<ul style="list-style-type: none"> • Strengthened public health system capacity to integrate ecological public health approach across the system level and make evidence informed decisions based on tacit and empirical knowledge
<p>Macro level</p>	<ul style="list-style-type: none"> • Ecological public health approaches are embedded into social norms and public health policy practice and research.

9.7 Chapter Conclusion

In this chapter, I brought together the new knowledge from the case study analysis and summarised with theories and processes to inform knowledge exchange and transfer. To consolidate the steps for knowledge exchange, I used Reardon et al.'s (2006) steps to frame the what, who how and impact and integrated these steps into the knowledge exchange strategy.

I explored potential theoretical perspectives of knowledge exchange to underpin knowledge exchange strategies. Ecological public health is complex and unpredictable and has a diversity of interdependent and self-organizing agents. Complexity thinking acknowledges interconnections, uncertainty and non-linear emergent action (Plesk & Greenhalgh 2001) and aligns with an ecological public health perspective. Diffusion of innovation provides a way to explain adoption of new ideas, attributes of people and the process (Rogers 1995) and deliberative dialogue provides a mechanism to engage stakeholders as way to diffuse and disseminate knowledge (Boyko et al. 2012).

To advocate for an ecological public health approach requires clear goals, targeted engagement of stakeholders and strategic plan that outlines approaches, tools and key messages and requires ongoing commitment (Moore et al. 2013). It also requires that the knowledge exchange process merges the content of knowledge with the quality of the relationships (Potvin 2007) to facilitate the co-construction of new knowledge. This new knowledge is based on a shared understanding of the problem, social positions and competing interests, negotiating of roles and aligning interests, mobilising and stabilising action (Clavier et al. 2012) and can be reached through deliberative dialogue.

To expand the concept of public health to incorporate an equitable focus on ecological determinants of health requires advocating for change in attitudes, values, institutional operations and structures and different ways of working and thinking. This will require developing skills and competencies and education programs that can equip the current and future public health workforce with skills and capacity to adapt to the emerging and transitioning health issues and embrace knowledge from other's experiences and work in partnership to create new knowledge to meet the challenges of 21st century public health practice.

CHAPTER 10 CONCLUSION

‘A sustainable life is a healthy life. But a healthy lifestyle, well that may not be sustainable’ (AK, Eurobodalla Case Study Participant)

This quote expresses the equality between sustainability and health and the incongruence of what constitutes a healthy lifestyle in a rural area in a developed country. I think it is a good way to close this dissertation. Living a sustainable life means to live within limits in an ecologically sustainable, convivial and equitably prosperous world, which when addressed equally leads to health. A healthy lifestyle is often depicted as one where people are physically active, drink water, eat healthy nutritious food, achieve and maintain a healthy weight, and look after their mental health. This image ignores the fact that there are structural and ecological determinants influencing health which require the means and capacity to achieve this lifestyle (e.g. money, education, safe environment). It also requires freshwater, clean air, waste management systems to decrease toxins and pollution, ethical production of goods that does not exploit people or resources, and clean renewable energy to fuel the modern life.

The quote demonstrates to public health policy makers, researchers and practitioners the need to move beyond an individualistic focus, the lifestyle drift and an old public health thinking and to reassert ‘the new public health call for stable ecosystems and sustainable resources’, integrating equity for ‘social *and* environment’ [emphasis in original] and intersectoral collaborations (WHO, 1978, WHO 1986; Hancock et al. 1999, Bentley & McDougall 2016, p.200).

I would like to believe that the concept of sustainability is ‘an idea whose time has come’ (Victor Hugo 1802-1885) and what this case study has shown is that there are examples of community level interventions being undertaken in rural areas of Australia.

However, what this study also showed is that participants tended to be educated, older, urban migrants. How to enable all members of the community to contribute to sustainability and health and how to address social inequalities that prevent or create barriers to people taking action for sustainable development is a challenge for all countries (Pinto 2013). The social gradient tells us that those at the lower

end of the gradient tend to be less healthy, have more disability, poorer quality of life, lower life expectancy, lower education attainment and income (Wilkinson & Pickett 2009). If whole of communities are to take part and contribute to developing a sustainable and healthy community, then supportive environments need to be created, community action needs to be strengthened, and the community (and health professionals alike) need to be supported to develop sustainability focused personal skills and knowledge (WHO 1986).

To address social inequalities and inequities, the Commission on Social Determinants of Health recommend; improving daily living conditions, tackling unequitable distribution of power and wealth; and measuring and understanding the problems that inequalities present (CSDH 2008). Baum and Fisher (2010) emphasise that to address ecological determinants will also require addressing underlying social stratification that can promote or inhibit peoples' exposure to factors that threaten health, and their capacity to live lifestyles that are environmentally sustainable (Baum & Fisher 2010). Public health practitioners, policy makers and researchers need to work in collaboration with communities, governments and key decision makers to reorient health systems from the bias towards a behaviour change and medical model paradigm. Collaborators will need to work together to build a healthy public policy that will reduce vulnerability and promote resilient communities (WHO 1986, Baum & Fisher 2010). This approach will and simultaneously address the determinants of ecological and social health (WHO 1986) creating ecosocial solutions.

In September 2015, the United Nations endorsed the Global Sustainable Development Goals (SDGs) agreeing to work together to address poverty, hunger, ecological land and water degradation and to promote peace and justice. These goals all relate to the ecological public health dimensions presented in this dissertation. The SDGs clearly demonstrate to the public health discipline how health and sustainable development are parts of the same whole. One month after this endorsement, world leaders again convened at the convention on climate change (COP21) in Paris. One hundred and ninety-five nations agreed to take action and invest in a low carbon, resilient and sustainable future. Linkages between climate change and health are emerging issues which enable discussion of broader sustainability and health issues. This dissertation shows climate change

is one part of a large complex picture and in ecological terms it would make no sense to address climate change on its own.

This mixed method multiple case study examines actions rural people are taking to contribute to developing a sustainable and healthy rural community. The concept of sustainable development and the theoretical underpinnings for ecological public health are explored in a narrative literature review. Although the concept of equity was not a core theme for interview participants or in the online media, the synthesis of the literature reaffirmed the need for an ecological approach to sustainability and health founded on the principles of equity. As the analysis of social, economic and population health data showed, inequalities and inequities in social and health outcomes between the case study populations and the New South Wales population already exist. With emerging ecological public health risks and rural communities increased vulnerability to ecological transitions this gap may increase further.

Based on the literature review, an Ecological Public Health and Just Sustainabilities Model was developed and integrated the concepts of sustainability and health. This model can be useful to public health policy makers, researchers and practitioners in that it provides a way to understand and explain linkages between determinants for sustainability and health. It also shows how ecological public health transitions are emerging determinants influencing the Nano to planetary system levels.

When using the Hancock et al. (1999) population health indicators as a framework to analyse data and carry out a thematic analysis of interview transcripts and media articles, the need to add categories became apparent in order to reflect the rural voice and include contemporary sustainable development issues. Participant understanding of health and sustainability aligned determinants for sustainability and health and also identified determinants for one as determinants for the other. However, health is seen as essential and sustainability as a choice. Discussion of sustainabilities revealed opposing world views but concepts of health aligned. Analysis also showed that social sustainability is the foundation for any sustainability and health action. Health then is a bottom line integrator and social sustainability forms the process. Together they become the outcome.

Case studies were selected that focused on: sustainability, through community energy; conviviality actions that purposefully bring the community together; and economic development, at different levels of the community from youth, to a town and a region. Population and consumption, equity for children and young people, Aboriginal and Torres Strait Islander people and the other than human living forms unless providing services for humans (e.g. food and aesthetics of the natural environment) were missing from participants' definitions and actions.

Ecological public health approaches must begin with an understanding of what ecological public health is and that there are different perspectives and many different forms of knowledge. This is why using a strategic approach that defines the what, how, who and impact for knowledge exchange and transfer is an important part of ecological public health thinking (Reardon et al. 2006). By using the Reardon et al. (2006) steps to knowledge exchange and transfer throughout the dissertation it was possible to identify the what, how, who and whom, to inform knowledge exchange strategies. Exploration of the knowledge translation literature and theoretical perspectives identified theories and methods that aligned with an ecological public health approach. As this theoretical perspective calls for a holistic approach and acknowledges interconnections, uncertainty and non-linear emergent action, synergies were identified with complexity thinking (Plesk & Greenhalgh 2001). The diffusion of innovation theory provides a way to explain characteristics of new ideas, attributes of people and the process of change and uptake of new ideas (Rogers 2003).

Advocating for change in public health requires a strategic approach. Use of an Ecological Public Health and Just Sustainabilities Model provides a way for public health policy makers, researchers and practitioners to share knowledge and work together to develop sustainable healthy rural communities. Use of a deliberative dialogue provides a mechanism to do this as it assists in bridging the knowledge to action gaps by engaging stakeholders in a purposeful evidence informed conversation (Boyko et al. 2012). By providing an appropriate environment for the deliberative dialogue to take place, the appropriate use of research and fair selection of participants, deliberative dialogues can result in a mutual understanding of the alternative ways of thinking about ecological public health and identify ways to collaborate to implement change.

Before I close, I would like to reiterate a quote I referred to earlier in the dissertation, that crafting a theory to reimagine public health ‘in a way that acknowledges humans as part of the ecosystem, not separate from it, though not central to it’ (Bentley, 2014) requires integrating sustainable development and ecological public health principles, dimensions and transitions.

Finally, I’d like to end the dissertation with a quote from one of the Bega Valley participants, as I think that this quote summarises the sense of place, the concept of distance and symbolism associated with country Australia.

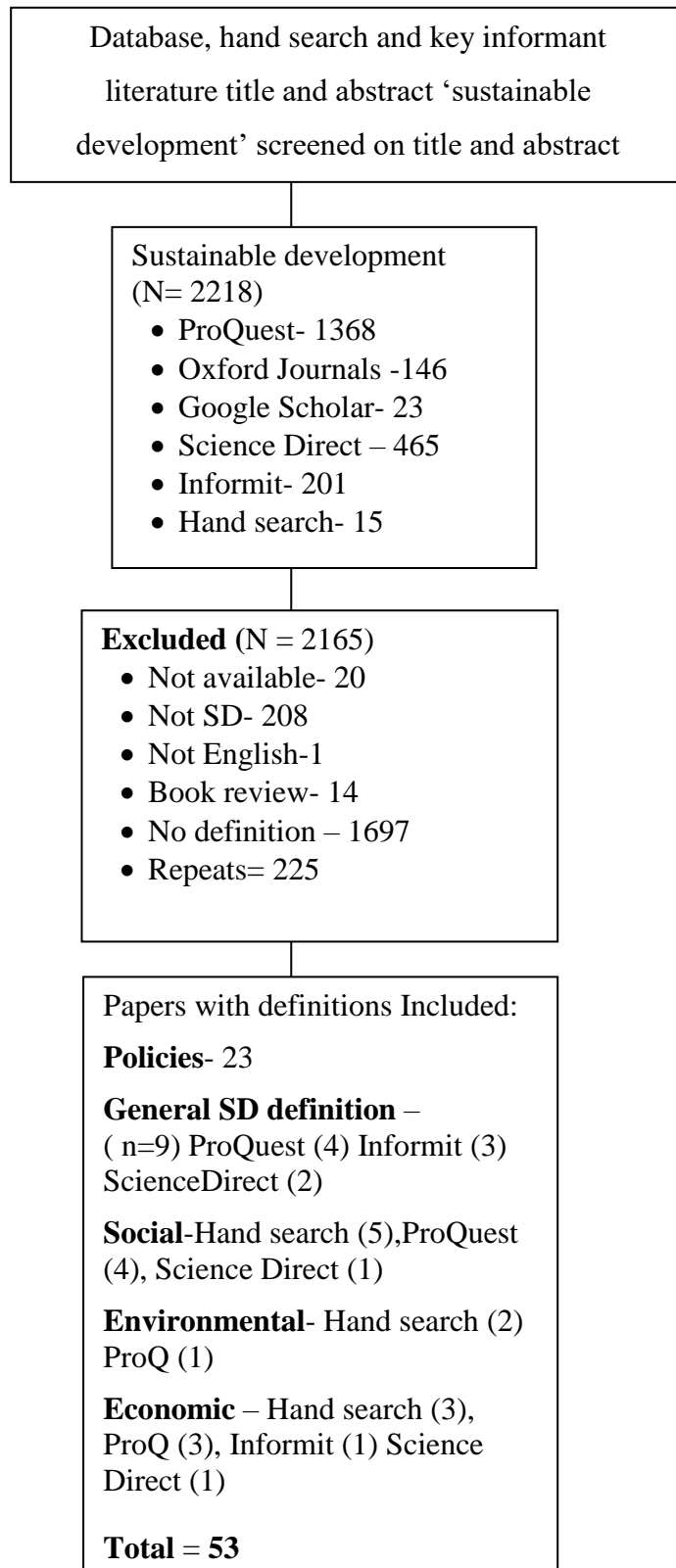
“...you know the first day that I went into Bega, when I moved here {from Sydney} and people said, “How can you move there, when you are six hundred miles from anyone you know?” And there was this little old man walking up the road. A very typical countryman, with a very big hat...and big smile. We made that flash of eye contact, and then, he tipped his hat. {participant demonstrates tipping hat action}, And I thought, “Ahh, I am home”.

APPENDICES

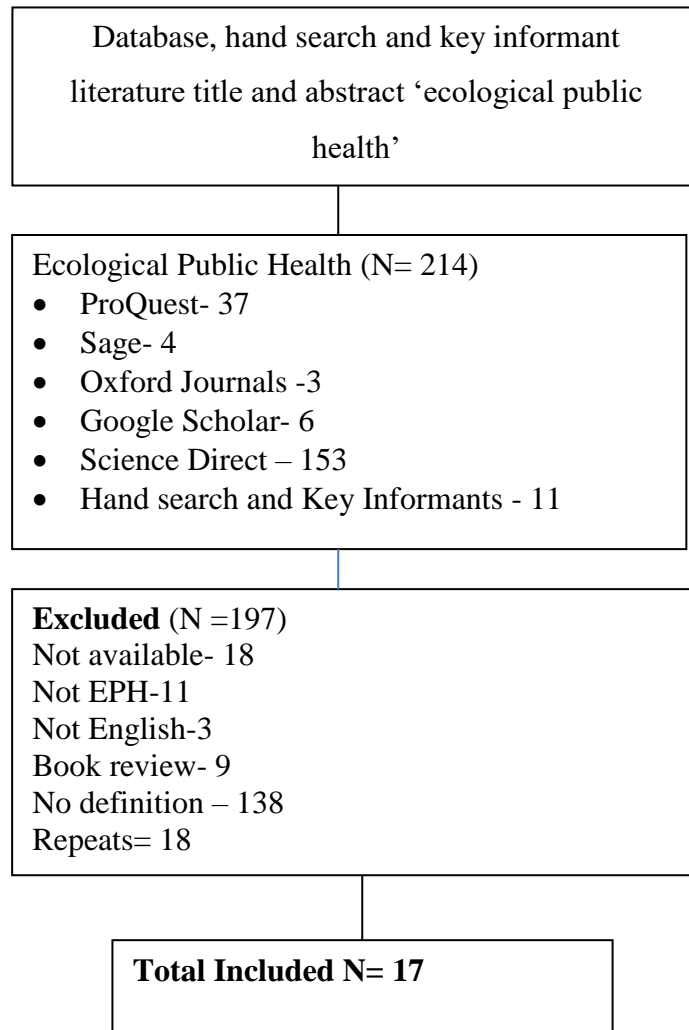
Appendix 1 Literature search strategy search terms

Search terms for test run – definitions of sustainable development	“Definitions of sustainable development” OR “sustainability”, “sustaina*”, AND / OR “environment*”, finance*, ecosys*, natur*, econo*, poverty*, green, growth, green economy, social, people, culture, communit*, population, places, spaces, settings, urban, rural, regional, country, govern*
Search terms for definitions of Ecological Public Health	“ecological public health”, “ecological AND public health”; “eco* AND “public health”, “health and ecology” AND sustainable development OR sustainability, “public health” “definitions of ecological”
Sources and Databases used	ProQuest, Science Direct, Oxford University Journals, Informit and Google Scholar, government websites and hand search of reference lists and key informants
Timeframe	After the World Commission on Environment and Development 1987 report when the term sustainable development became mainstream internationally.
Language	English only

Appendix 2 Literature Search Process and Strategy Results for sustainable development



Appendix 3 Literature Search Process and Strategy Results for Ecological Public Health



Appendix 4 History of Sustainable Development 1972-2015

Year	Document name	Definition / Theory/ Key message
1972	UN Conference of the Human Environment in Stockholm (United Nations 1972)	The rights of the human family to a healthy and productive environment (the natural and the man-made environments) that are essential to well-being and to the enjoyment of basic human rights the right to life itself.
1980	World Conservation Strategy: Living Resource Conservation for Sustainable Development (IUCN 1980)	Humans in quest for economic development and enjoyment of the riches of nature must come to terms with the reality of resource limitation and the carrying capacities of ecosystems and must take into account the needs of future generations. Called for global actions and responsibility.
1987	UN Commission on Environment and Development “Our Common Future” (WCED 1987).	The Brundtland Commission- Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.
1991	IUCN/UNEP/WWF 1991, Caring for the Earth: A Strategy for Sustainable Living, Gland, Switzerland, 1991, p.10	Sustainable development is “Improving the quality of human life while living within the carrying capacity of supporting ecosystems” (IUCN/UNEP/WWF 1991, p.10)
1992	UN Conference on Environment and Development Rio Earth Summit Agenda 21 (UNCED 1993)	The environment does not exist as a sphere separate from human actions, ambitions, and needs, and therefore it should not be considered in isolation from human concerns. The environment is where we all live; and development is what we all do in attempting to improve our lot within that abode. The two are inseparable.
2002	UN World Summit on Sustainable Development Johannesburg, (WSSD 2002)	“...we assume a collective responsibility to advance and strengthen the interdependent and mutually reinforcing pillars of sustainable development — economic development, social development and environmental protection — at the local, national, regional and global levels”. (WSSD 2002, para 5)

2000	The Earth Charter	We must join together to bring forth a sustainable global society founded on respect for nature, universal human rights, economic justice, and a culture of peace
2000	UN Millennium declaration (2000, 1.6)	Values and principles – Fundamental values considered to be essential to international relations in the twenty-first century. These include: Freedom, equality, solidarity, tolerance, respect for nature, shared responsibility.
2002	UN Millennium Development Goals (2002)	Goals 1. Eradicate extreme poverty and hunger. 2. Achieve universal primary education. 3. Promote gender equality and empower women. 4. Reduce child mortality. 5. Improve maternal health. 6. Combat HIV/AIDS malaria and other disease 7. Ensure environmental sustainability 8. Global partnerships for development.
2008	UN Environmental Program (UNEP) 2008	A green economy as one that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities.
2012	UN Rio +20 Summit 2012, 'The future we want', (UN 2012)	People are at the centre of sustainable development. "we strive for a world that is just, equitable and inclusive, and we commit to work together to promote sustained and inclusive economic growth, social development and environmental protection and thereby to benefit all", (Chapter 1 para 6)
2015	UN 2015, 'Transforming our world: the 2030 Agenda for Sustainable Development' (UN 2015)	There are 17 Sustainable Development Goals (SDGs) goals and 169 targets This Agenda is a plan of action for people, planet and prosperity. It also seeks to strengthen universal peace and freedom, recognises that eradicating poverty in all its forms and dimensions, including extreme poverty, is the greatest global challenge and an indispensable requirement for sustainable development.

Appendix 5 List of United Nations Sustainable Development Goals

GOAL 1	End poverty in all its forms everywhere
GOAL 2	End hunger, achieve food security and improved nutrition and promote sustainable agriculture
GOAL 3	Ensure healthy lives and promote well-being for all at all ages
GOAL 4	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
GOAL 5	Achieve gender equality and empower all women and girls
GOAL 6	Ensure availability and sustainable management of water and sanitation for all
GOAL 7	Ensure access to affordable, reliable, sustainable and modern energy for all
GOAL 8	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
GOAL 9	Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation
GOAL 10	Reduce inequality within and among countries
GOAL 11	Make cities and human settlements inclusive, safe, resilient and sustainable
GOAL 12	Ensure sustainable consumption and production patterns
GOAL 13	Take urgent action to combat climate change and its impacts*
GOAL 14	Conserve and sustainably use the oceans, seas and marine resources for sustainable development
GOAL 15	Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss
GOAL 16	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels
GOAL 17	Strengthen the means of implementation and revitalize the global partnership for sustainable development

Source: Adapted from: United Nations 2016, Sustainable Development Goals, viewed January 10th 2016, <http://www.un.org/sustainabledevelopment/sustainable-development-goals/>

Appendix 6 Definitions of sustainable development in Australian National and NSW State policy documents

Nation, State or Local Government policy document	Definition
National Level	
The National Strategy on Ecologically Sustainable Development (ESD) 1992	'using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased'. (Ecological Sustainable Development Steering Committee, 1992)
Australian Government Department of Environment and Heritage 2005 'Educating for a Sustainable Future', Commonwealth of Australia.	"Sustainability" acknowledges the economic, social and political pressures that can inhibit or support the capacity of individuals, communities or the nation to properly care for the environment. Sustainability also seeks to promote stewardship of the environment, encouraging everyone to assume the responsibility of being a caretaker or custodian for the environment. (Commonwealth of Australia 2005, p. 4)
Australian Government Department of the Environment, Water, Heritage and the Arts 2010, 'The guide for curriculum developers and policy makers'.	Sustainability is "reducing our ecological footprint, while simultaneously improving the quality of life that we value—the 'liveability' of our society" (Department of the Environment, Water, Heritage and the Arts 2010, p.4)
Australian Government Department of Sustainability, Environment, Water, Population and Communities 2011 'Sustainable Australia—Sustainable Communities—a Population Strategy for Australia'	Sustainable Australia is "...a nation of sustainable communities which have the services, jobs and education opportunities, affordable housing, amenity and natural environment that make them places where people want to work, live and build a future" (Australian Government 2011, p. 5)
Department of Sustainability, Environment, Water, Population and Communities 2011, Fact	Sustainable regional communities are "places that meet the needs of their current residents while considering the needs of future communities" (Department of Sustainability, Environment, Water, Population and

Sheet, 'Sustainable Regional Development Program'	Communities 2011, p.1)
NSW State level	
NSW Government 'Protection of the Environment Administration Act 1991'	Sustainability in the NSW public sector means addressing the needs of current and future generations through the integration of social justice, economic prosperity and environmental protection in ways that are transparent, accountable and fiscally responsible.
NSW Government Environmental Education Plan 2007-2010 (NSW Council on Environmental Education 2006, Learning for Sustainability: NSW Environmental Education Plan 2007-2010),	The definition refers actions being achieved through ecologically sustainable development. It refers to the ability to continue an activity into the future or maintain a state or condition undiminished (or enhanced) over time. Sustainability involves integrated ecological, personal and social (including economic) goals and implies changes in behaviour and practices by individuals and organisations.
NSW Government, Office of Environment & Heritage 2011, 'Building sustainable communities-ideas for inclusive projects'.	The document draws on the definition of a sustainable community from the Western Australian Council of Social Services (WACOSS) that, 'Social sustainability occurs when the formal and informal processes; systems; structures; and relationships actively support the capacity of current and future generations to create healthy and livable communities. Socially sustainable communities are equitable, diverse, connected and democratic and provide a good quality of life.' (2011, p.4).

Appendix 7 Definitions of Sustainable Development

White (2013)	'sustainability is employed by at least two communities, one focusing on sustainable development and the other on sustainability science'
Foladori (2005)	Describes economic sustainability as a synonym for economic growth, social sustainability as "social participation and the increase in the capacity of people to construct their future", and ecological sustainability as species conservation and genetic stock that is resilient to external shocks, maintenance of 'abiotic natural resources' and 'climate integrity'.
Costanza and Patten (1995)	Refer to 'sustainable systems', which is "one which survives or persists" and a system is deemed sustainable not when it has an infinite lifespan but when the lifespan is consistent with its time and space scale.
Vos (2007)	Refers to sustainability as an emergent property of a complex system 'that is a journey, not a fixed destination' and is related to ontology of nature, substitutability of resources, economic growth, population growth, role of technology, and social equity.
Williams et al. (2011)	Local Governments sustainability defined as "an integrated approach to reporting to stakeholders that focuses on the environmental, social and economic activities undertaken that seek to achieve specific objectives in the pursuit of sustainable development by the local government authority"
Shaharir (2012)	sustainability "is a state of being achieving a <i>wusta</i> (moderate, middle way, balanced and just) level of physical, social, political, economic, science-knowledge, cultural and religio-spiritual needs of the present man without sacrificing the all relevant resources and all beings created by the God so that future generations will be able to enjoy at least the same level of happiness in this world and hereafter as the present generation".

Appendix 8 Definitions of economic Sustainable development

Goodland (2002)	Goodland describes economic sustainability as ‘maintaining economic capital... or keeping capital intact’ and also defers to John Hicks (1939) definition of income that “the amount one can consume during a period and still be as well off at the end of the period defines economic sustainability, as it devolves on consuming value-added (interest), rather than capital”.
Reinhardt (2000)	A sustainable macro-economy is a strategy or development path and the path is sustainable if “it involves no net decrease in total assets (human made roads and factories or natural resource stocks (forest and oil) or, equivalently, if it involves the creation of value”.
Gowdy (2005)	A sustainable economy is one that “exhibits dynamic efficiency and a non-declining stream of maximized social welfare over time”.
UNEP (2010)	A green economy is one that has “improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities”.
UN Rio+20, 2012, Blue Economy Concept Paper 2012’viewed 10 th Aug 2015, https://sustainabledevelopment.un.org/content/documents/2978BEconcept.pdf	“Blue Economy- the Blue Economy approach is founded upon the assessment and incorporation of the real value of the natural (blue) capital into all aspects of economic activity (conceptualization, planning, infrastructure development, trade, travel, renewable resource exploitation, and energy production/consumption”. (UN Rio+20, 2012, <i>Blue Economy Concept Paper 2012</i> Pg 3.
Powell, WW and Snellman, K 2004, ‘The knowledge economy’, <i>Annual Review Sociology</i> , vol.30, pp.199–220	Defines knowledge economy as “production and services based on knowledge-intensive activities that contribute to an accelerated pace of technical and scientific advance, as well as rapid obsolescence. The key component of a knowledge economy is a greater reliance on intellectual capabilities than on physical inputs or natural resources”.
Matofska, B (n.d.) ‘What is the Sharing Economy?’, viewed 10 th Aug 2015, http://www.thepeoplewhoshare.com/blog/what-is-the-sharing-economy/#sthash.tBmqvNok.dpuf	The Sharing Economy is a “socio-economic ecosystem built around the sharing of human and physical resources. It includes the shared creation, production, distribution, trade and consumption of goods and services by different people and organisations”.

Appendix 9 – Definitions for social sustainability

<p>Barren & Gauntlett (2002)</p>	<p>Social sustainability is, “The impact of formal and informal systems, structures, processes and relationships on the current and future livability and health of communities. Socially sustainable communities are equitable, diverse, connected and democratic and provide a good quality of life”.</p>
<p>McKenzie (2004)</p>	<p>Social sustainability is: a life-enhancing condition within communities, and a process within communities that can achieve that condition</p>
<p>Dillard, Dujon & King (2009, p. 4)</p>	<p>Social sustainability should be understood as both the process that generates social health and wellbeing now and in the future and those social institutions that facilitate environmental and economic sustainability now and in the future.</p>
<p>Polese and Stren (2000, p.15-16)</p>	<p>Social sustainability... “is development that is compatible with the harmonious evolution of civil society, fostering an environment conducive to the compatible cohabitation of culturally and socially diverse groups while at the same time encouraging social integration, with improvements in the quality of life for all segments of the population”.</p>
<p>Woodcraft et al. (2011)</p>	<p>A process for creating sustainable, successful places that promote wellbeing, by understanding what people need from the places they live and work. Social sustainability combines design of the physical realm with design of the social world infrastructure to support social and cultural life, social amenities, and systems for citizen engagement and space for people and places to evolve.</p>

Appendix 10 Definitions of Ecological Public Health

<p>Kickbusch (1989)</p>	<p>Public health is the science and art of promoting health, and does this based on the understanding that health is a process engaging social, mental, spiritual, and physical wellbeing. It bases its actions on the knowledge that health is a fundamental resource to the individual, the community and to society as a whole and must be supported through sound investment into conditions of living that create, maintain and protect health, through advocacy, enabling communities and mediating between different interests.</p>
<p>McLaren & Hawe (2005)</p>	<p>A way of characterising the new public health, which emerged in response to a shift in risk patterns of industrialised societies. Because contemporary risk patterns and health consequences do not fit within simple models of causality and intervention, there is a need to consider interdependence between humans, health, and their physical and social environments.</p>
<p>Nurse (2010)</p>	<p>‘The science and art and politics of promoting human and environmental health and wellbeing’ by enhancing networks, partnerships, cycles, balance, energy and diversity.</p>
<p>Morris (2010)</p>	<p>EPH embraces biological complexity, the ecological complexity of society and the interconnections between the two.</p>
<p>Rayner & Lang (2012)</p>	<p>‘In the 21st century, the pursuit of public health requires the analysis of the composite interaction between material, biological, social and cultural dimensions of existence. This demands a new mix of interventions and actions to alter and ameliorate the determinants of health; the better framing of public and private choices to achieve sustainable planetary, economic, societal and human health; and the active participation of movements to that end. Ecological public health is about shaping the conditions for good health for all’. (Rayner & Lang 2012, p.353).</p>

Appendix 11 Ecological Public Health Included Literature

Citation	Summary of Key Points
Kickbusch (1989)	<ul style="list-style-type: none"> • Discusses that health problems for 21st century are unprecedented and include, Ozone layer destruction, pollution and groundwater depletion contribute to this. • Provides definition of EPH. Draws on Hancock's models and developed principles for EPH: Conviviality, Equity, Global Responsibility, Sustainable development.
McMichael (1993)	<ul style="list-style-type: none"> • This book is aimed at the public health discipline. • It discusses how global environmental change and the erosion of earth's life support systems are a threat to health and survival. • Discusses that overloading the biosphere from pollution and over population will reduce the stability of natural systems to support life. • Addressing these global issues means addressing some impediments. 1. The conceptual blocks- the time scale for observing impacts from over population and ecological disruption are slow moving so people do not feel a threat. Thus, they do not perceive health hazards; in addition, they do not understand the limitations of neoclassical economics; and 2. The unequal relationships between the rich and poor countries and the power relations in the 'global commons'.
Chu, C & Simpson, R (eds) (1994)	<ul style="list-style-type: none"> • The concept of ecological public health is introduced building on Kickbusch's 1989 definition, Labonte's 'Econology and Hancock's models. • The book uses case studies to explore the concepts in a predominantly urban setting
McMichael (2001)	<ul style="list-style-type: none"> • This book explores the 'evolutionary, historical and cultural dimensions of the patterns of human health, disease and survival' (p. xii) • Looks at health risks from an ecological framework and broadens the dialogue from the biomedical model and germ theory. • Discusses the interaction of humans with ecosystems, dependency on a functioning ecosphere and the impact of changes to human biology • Discusses the health impact from population, migration, technological change and the impact of industrialisation and prehistorical human transitions e.g. humans becoming meat eaters and farmers.
McLaren & Hawe (2005)	<ul style="list-style-type: none"> • Paper provides a Glossary to discuss human ecology. Provides definition of EPH. • Outlines where use of terms overlaps e.g. activity setting, adaptation, context, eco-epidemiology, ecological perspective (health promotion). • List these contributors to ecological thinking- Roger Barker, Jim Kelly, Urie Bronfenbrenner, and Rudolph Moos.
Rayner & Lang (2012)	<ul style="list-style-type: none"> • Develops theory of ecological public health based on four dimensions of existence (material, biological, social and cultural) and 10 transitions microbiological, epidemiological ecological, urban, democratic, demographic, economic, nutrition, energy and culture. Provides definition of EPH.

Lang & Rayner (2012)	<ul style="list-style-type: none"> • Provides rationale for need to move ecological approach ‘look back to look forward’ through the 5 models of public health sanitary-environmental, biomedical, social behavioural, techno-economic and ecological public health. • Discusses the need to resist evolutionary theory (e.g. Darwin) and original definition of ecology by Ernst Haeckel, include complexity theory. Critical of Bronfenbrenner.
Bentley (2014)	<ul style="list-style-type: none"> • Discusses EPH theoretical background and develops a conceptual model (depicting relationships of conviviality, equity, global responsibility and sustainability) building on approaches by Dahlgren and Whitehead, Barton and Grant, Kickbusch 1989 and Hancock 1993. • Brings in concept of Resilience as a way to understand concept of sustainability. Discusses Kickbusch’s 4 principles of EPH – conviviality, equity, sustainability and global responsibility.
Rayner & Lang (2015)	<ul style="list-style-type: none"> • Builds on previous work, retraces public health history and prominent epidemiological models portraying these as leaders and movements in public health for their time. Links epidemiology with EPH - epidemiology evolved to become social epidemiology and now ecological epidemiology. • Emphasises the need for ecological thinking to become central with core argument the interconnection of human-ecosystems; climate change, land, water, air, microbial activity.
Douglas et al. (2011)	<ul style="list-style-type: none"> • Discusses how car dependence is a threats and risks to health. Links the issue to the tensions public health has had with the tobacco industry and links with human health and global sustainability. • The EPH approach the authors advocate is frame around ‘risk’ and the complex interplay of physiological, physical, social and cognitive influence at individual and, community and global level and the relationship between human health and sustainability.
Coutts et al. (2014)	<ul style="list-style-type: none"> • Discusses how nature and natural environments are portrayed in public health models. The Natural environment is identified as type of determinant of health yet is usually conceived as physical things that surround people and does not take into account the reciprocity between environment and people. • Draws on Hancock and Perkins Mandala of Health and other models - Hancock 1993, Barton and Grant’s 2006 health map. Demonstrates that presence or absence of natural environment can be directly influence health.
Tarowski (2009)	<ul style="list-style-type: none"> • Discusses patterns of health and disease and the need to consider social and physical environments particularly the notion of biological evolution interacting with social and environmental determinants.
McMichael, Butler & Dixon (2015)	<ul style="list-style-type: none"> • The EPH framed at population level (as opposed to current individualist approach) and relationships with natural environment, human communities and habitats, culture, food ecosystems, microbial activity, the climate. • Uses Climate change and type 2 diabetes as a way to link concepts of overconsumption and ecological problems that do not conform to convention environmental health hazards approach

Nurse (2010)	<ul style="list-style-type: none"> • Discusses how health impacts of climate change will affect people with mental illness, outlines links with nature and health, green space, urban design and a therapy. • Defines EPH and develops set of principles and provides a social ecological model to demonstrate humans as part of ecosystem
Morris (2010)	<ul style="list-style-type: none"> • Sees EPH as an integrated approach to biological and social complexity and ‘when it comes to health everything matters’. Discusses that targeted policies fail to deliver outcomes because they have had a narrow focus and health inequalities are ‘never solely about behaviour, place or social context’
Goodman (2014)	<ul style="list-style-type: none"> • Discusses climate change in terms of the disagreements that are underpinned by the uncritical acceptance of neoliberalist political economy and growth capitalism. Arguments are framed eradicating poverty and address social determinants. Goodman states what is need is policy that addresses social, economic and politic determinants. • Draws on theory from IPCC AR5, Rockström et al 2009, Barton and Grant’s health map and the manifesto from public to planetary health.
Raworth (2013)	<ul style="list-style-type: none"> • Raworth integrates the concepts of planetary boundaries with dimension of social wellbeing (water, income, education, resilience, voice, jobs, energy, social equity, gender equality, health and food. • Founded on human rights and environmentally safe and socially just space for humanity The Doughnut, also integrates with sustainable development

Appendix 12 Models and frameworks underpinning Ecological Public Health

Citation	Key Points
Bronfenbrenner (1979, 1986, 1993)	<ol style="list-style-type: none"> 1. Human development is a complex interaction between active evolving bio-psychological humans, objects and symbols in nested structures Micro (individuals and immediate environments e.g. home , family), Meso (linkages two or more settings e.g. home and school) , Exo (linkages between 2 or more settings the does not contain the developing person but has influence e.g. parents workplace relationship), Macro (overarching cultures/ subcultures e.g. class structures) Chrono - change in characteristics of the person and environment where they live over time). 2. Ecological Transitions – timing of events and developmental impact, historical events, changes in roles and the new state after the transition
Dahlgren & Whitehead (1991 pg. 11)	<ol style="list-style-type: none"> 1. Presents a Social model of health concept shows main determinants of health focusing on equity within and across each level (from individual, lifestyle, community networks, general socio-economic environment, cultural and environmental conditions (agriculture and food, education, work environment, living conditions, unemployment, water and sanitation, Health care Services) that threaten health, promote health or protect health. 2. Humans at the centre.
Barton & Grant (2006)	<ol style="list-style-type: none"> 1. Adaptation of Dahlgren and Whitehead’s main determinants model. 2. Adds in ecosystems, climate change and biodiversity. Comes from an urban perspective seeking to emphasise that the environment is a major determinant of health as part of urban development design and planning. 3. Humans at the centre and surrounded by global ecosystem biodiversity and climate change.
Stanger (2011)	<ol style="list-style-type: none"> 1. Adaptation of Bronfenbrenner’s ecology of human development to refocus on eco-social not social ecological. 2. Brings in concept of Nano system as an additional level. Levels are the ‘Eco-social’: Nano Micro, Meso, Exo, Macro and Chrono systems.
Hancock (1993)	<ol style="list-style-type: none"> 1. Three EPH models- <ol style="list-style-type: none"> 1. The Mandala of health - humans at the centre. Brings

	<p>in concepts of Gaia theory and the living earth and interconnections to culture and environment.</p> <p>2. Human development model has a focus on sustainable development, interacting circles; health, environment and economy, health replaces social pillar</p> <p>3. Community and ecosystems model- for community level health and sustainable development outcomes. Brings in dimensions of conviviality, liveability, viability, equity and sustainability. Circles are social, environmental and adequately prosperous economy.</p>
Hancock et al. (1999)	<p>1. Develops set of indicators to measure community or population health and sustainability outcomes include: sustainability, viability, liveability, conviviality, equity, prosperity, education, governance and health status.</p>

Appendix 13 Phases of research design

Phase	Aim	Objective	Method
Phase 1	1. To determine the range of terms being used in the literature to explain sustainable development and ecological public health.	(1) To establish the range of terms being used in the literature to describe these terms specifically exploring the meanings of ecological, social and economic sustainable development. (2) To explore and establish theoretical underpinnings for ecological public health. (3) Critically examine their meanings in the context of rural community health using an ecological public health model.	Narrative Literature Review Descriptive analysis of social and health statistics
	2. To examine in what ways rural communities perceive of, understand and take action on ecological, social and economic sustainability and health	(1) To explore rural communities' perceptions and understandings of ecological, social and economic sustainability and health (2) investigating what actions rural communities are taking to address ecological, social and economic sustainability and health in their community	Semi- Structured open ended focus groups and interviews Scoping review of online media Document analysis Semi- Structured open ended focus groups and interviews Scoping review of online media
Phase 2		(3) Analysing in what ways these actions contribute to ecological public health.	Thematic analysis Case study Narrative summary
Phase 3	3. To explore how rural communities and public health policy makers, researchers and practitioners can share knowledge and work together to develop sustainable healthy rural communities	(1) synthesising the findings from Aims 1 and 2 and establishing the knowledge to be shared; (2) To explore potential knowledge exchange theories and strategies to facilitate research transfer and translation.	Thematic analysis Narrative Summary
Phase 4			

Appendix 14 Flinders University Social and Behavioural Research Ethics Committee approval email

Dear Joanne,

The Chair of the [Social and Behavioural Research Ethics Committee \(SBREC\)](#) at Flinders University considered your response to conditional approval out of session and your project has now been granted final ethics approval. Your ethics final approval notice can be found below.

FINAL APPROVAL NOTICE

Project No.:

6437

Project Title:

How are rural communities taking actions to develop sustainable and healthy communities in coastal South East New South Wales?
--

Principal Researcher:

Mrs. Joanne Walker

Email:

joanne.walker@flinders.edu.au
--

Approval Date:	4 April 2014	Ethics Approval Expiry Date:	31 December 2018
----------------	--------------	------------------------------	-------------------------

The above proposed project has been **approved** on the basis of the information contained in the application, its attachments and the information subsequently provided.

RESPONSIBILITIES OF RESEARCHERS AND SUPERVISORS

1. Participant Documentation

Please note that it is the responsibility of researchers and supervisors, in the case of student projects, to ensure that:

- all participant documents are checked for spelling, grammatical, numbering and formatting errors. The Committee does not accept any responsibility for the above mentioned errors.
- the Flinders University logo is included on all participant documentation (e.g., letters of Introduction, information Sheets, consent forms, debriefing information and questionnaires – with the exception of purchased research tools) and the current Flinders University letterhead is included in the header of all letters of introduction. The Flinders University international logo/letterhead should be used and documentation should contain international dialling codes for all telephone and fax numbers listed for all research to be conducted overseas.
- the SBREC contact details, listed below, are included in the footer of all letters of introduction and information sheets.

This research project has been approved by the Flinders University Social and Behavioural Research Ethics Committee (Project Number 'INSERT PROJECT No. here following approval'). For more information regarding ethical approval of the project the Executive Officer of the Committee can be contacted by telephone on 8201 3116, by fax on 8201 2035 or by email human.researchethics@flinders.edu.au.

2. Annual Progress / Final Reports

In order to comply with the monitoring requirements of the [National Statement on Ethical Conduct in Human Research \(March 2007\)](#) an annual progress report must be submitted each year on the **4 April** (approval anniversary date) for the duration of the ethics approval using the annual / final report pro forma available from [Annual / Final Reports](#) SBREC web page. *Please retain this notice for reference when completing annual progress or final reports.*

If the project is completed *before* ethics approval has expired, please ensure a final report is submitted immediately. If ethics approval for your project expires please submit either (1) a final report; or (2) an extension of time request and an annual report.

Student Projects

The SBREC recommends that current ethics approval is maintained until a student's thesis has been submitted, reviewed and approved. This is to protect the student in the event that reviewers recommend some changes that may include the collection of additional participant data.

Your first report is due on **4 April 2015** or on completion of the project, whichever is the earliest.

3. Modifications to Project

Modifications to the project must not proceed until approval has been obtained from the Ethics Committee. Such matters include:

- proposed changes to the research protocol;
- proposed changes to participant recruitment methods;
- amendments to participant documentation and/or research tools;
- change of project title;

- extension of ethics approval expiry date; and
- changes to the research team (addition, removals, supervisor changes).

To notify the Committee of any proposed modifications to the project please submit a [Modification Request Form](#) to the [Executive Officer](#). Download the form from the website every time a new modification request is submitted to ensure that the most recent form is used. Please note that extension of time requests should be submitted prior to the Ethics Approval Expiry Date listed on this notice.

Change of Contact Details

Please ensure that you notify the Committee if either your mailing or email address changes to ensure that correspondence relating to this project can be sent to you. A modification request is not required to change your contact details.

4. Adverse Events and/or Complaints

Researchers should advise the Executive Officer of the Ethics Committee on 08 8201-3116 or human.researchethics@flinders.edu.au immediately if:

- any complaints regarding the research are received;
- a serious or unexpected adverse event occurs that effects participants;
- an unforeseen event occurs that may affect the ethical acceptability of the project.

Kind regards,

Mikaila

[Mrs Andrea Fiegert and Ms Mikaila Crotty](#)

Ethics Officers and Joint Executive Officers, Social and Behavioural Research Ethics Committee

Telephone: +61 8 8201-3116 | Andrea Fiegert (Monday, Tuesday and Wednesday – all day)

Telephone: +61 8 8201-7938 | Mikaila Crotty (Wednesday, Thursday and Friday - mornings only)

Email: human.researchethics@flinders.edu.au

Web: [Social and Behavioural Research Ethics Committee \(SBREC\)](#)

Manager, Research Ethics and Integrity – Dr Peter Wigley

Telephone: +61 8 8201-5466 | email: peter.wigley@flinders.edu.au

[Research Services Office](#) | Union Building Basement Flinders University Sturt Road, Bedford Park | South Australia | 5042 GPO Box 2100 | Adelaide SA 5001

CRICOS Registered Provider: The Flinders University of South Australia | CRICOS Provider Number 00114A This email and attachments may be confidential. If you are not the intended recipient, please inform the sender by reply email and delete all copies of this message.

Appendix 15 Advert for Local Papers



Invitation to participate in a local research project

Researchers at Flinders University are doing a study on Sustainable and healthy rural communities in the Shoalhaven, Eurobodalla and Bega Valley Local Government Areas.

We are looking for community members, groups, organisations, businesses, industries or services that are doing things to help make the community a more sustainable and healthy place to live.

Who can participate? Anyone who is:

- currently living in the Shoalhaven, Eurobodalla or Bega Valley Local Government Areas and
- over 18 and
- doing things to help make the community a more sustainable and healthy place to live.

If you would like to learn more about this project or would like to participate, please contact

Jo Walker Email: joanne.walker@flinders.edu.au or on mobile phone number: INSERT Flinders University mobile number

This study has ethics approval from the Social and Behavioural Research Ethics Committee, Flinders University REFERENCE NUMBER: INSERT NUMBER

Appendix 16 Participant Consent Form



CONSENT FORM FOR PARTICIPATION IN RESEARCH BY INTERVIEW OR FOCUS GROUP

How rural communities are taking actions to develop sustainable and healthy communities in coastal South East New South Wales

I being over the age of 18 years hereby consent to participate as requested in the..... for the research project on....

.....

1. I have read the information provided.
2. Details of how the research will be conducted and any risks to my participation have been explained to my satisfaction.
3. I agree to audio recording of my information and participation.
4. I am aware that I should retain a copy of the Information Sheet and Consent Form for future reference.
5. I understand that:
 - I may not directly benefit from taking part in this research.
 - I am free to withdraw from the project at any time and am free to decline to answer particular questions.
 - While the information gained in this study will be published as explained, I will not be identified, and individual information will remain confidential.
 - Whether I participate or not, or withdraw after participating, will have no effect on any status of employment or my standing in the organisation or community.
 - I may ask that the recording/observation be stopped at any time, and that I may withdraw at any time from the session or the research without disadvantage.
6. I have had the opportunity to discuss taking part in this research with a family member or friend.

Participant's signature.....**Date**.....

Researcher: I certify that I have explained the study to the volunteer and consider that she/he understands what is involved and freely consents to participation.

Researcher's signature.....**Date**.....

Appendix 17 Participant Information Sheet

Professor Colin MacDougall
Faculty of Health Sciences
PO Box 2100, Adelaide 5001 SA
Tel: 08 7221 8412
colin.macdougall@flinders.edu.au
CRICOS Provider No. 00114A



INFORMATION SHEET

Individual and Focus Groups Interviews

Title: How are rural communities taking to action to develop sustainable and healthy communities in coastal South East New South Wales?

Investigators:

Mrs Joanne Walker
Professor Colin MacDougall
Dr Michael Bentley
Faculty of Health Sciences (Public Health)
School of Medicine, Flinders University
(Joanne Walker Phone: 0448409247 Flinders Mobile Number)

Description of the study:

This study is part of the project entitled '**How are rural communities taking to action to develop sustainable and healthy communities in coastal South East New South Wales?**' The research study is specifically looking at how rural communities are taking action to develop sustainable and healthy communities and to investigate in what ways these actions can contribute to improvements in the health and wellbeing of rural communities.

Objectives:

- To clarify the meanings of sustainable / sustainability in a rural Australian context
- To find out in what ways rural communities understand and take action to develop a sustainable and healthy community by:
 - (1) Exploring rural communities' perceptions and understanding of the term sustainable or sustainability and healthy communities;
 - (2) Investigating what actions they are taking to develop a sustainable and healthy community; and
 - (3) Analyse how these actions may contribute to improving health and

wellbeing in the community.

What will I be asked to do?

You are invited to attend one of the following:

- a focus group (with a group of other community members or your own community group, organisation, industry or service); or
- an individual interview (face to face or via telephone)

Interviews will be conducted by a local researcher and Doctorate in Public Health candidate, Joanne Walker. Joanne would like to ask you questions about your understanding of the term sustainable and sustainability and about any activities you are doing that may contribute to sustainability and also to consider if any of these activities contribute to improving health and wellbeing. With your permission, Joanne would like to record the interview using a digital voice recorder. Joanne will then type up word for word what has been discussed in your interview. Your recorded interview and transcript will then be stored as a computer file and then destroyed once the results have been finalised. However, if you do not wish to have your interview recorded Joanne can take extensive hand written notes.

Interviews will take about 1 hour to complete.

Please note that your ***participation in the interviews or focus group is voluntary.***

What benefit will I gain from being involved in this study?

The sharing of your experiences may improve the planning and delivery of future programs and linkages across environmental, social, economic and health sectors and may lead to benefits for rural communities now and in the future.

Will I be identifiable by being involved in this study?

The researcher does not need to include your name in the research report and you will be anonymous, any comments that you make will not be linked directly to you. Due to the size of the community and location of participants being asked to participate in this research study true anonymity cannot be guaranteed. However, the researcher will endeavour to maintain anonymity of participants as much as possible. Any information that could identify a participant will be removed and the typed-up file will be stored on a password protected computer that only the primary researcher (Joanne Walker) will have

access to.

Are there any risks or discomforts if I am involved?

The investigator anticipates no risks from your involvement in this study. Interviews and focus groups will be conducted in publicly accessible place, in daylight hours.

However, if you have any concerns regarding anticipated or actual risks or discomforts, please raise them with the researcher.

What types of feedback will I receive on the research?

If you participate in the interviews you will be sent a copy of your interview for you to provide comments and to ensure that your words have been and interpreted and transcribed accurately.

When the project has been completed the outcomes from the research will be summarised in a report. A copy of the summary report will be sent to you if you wish.

How do I agree to participate?

Should you wish to participate you will be asked to read, complete and sign the consent form that accompanies this information sheet and contact the researcher (contact details below) but please note:

- Your participation is voluntary;
- In interviews: you may answer 'no comment' or refuse to answer any questions;
- You are free to withdraw from the research at any time without effect or consequences.

Should you wish to participate you can contact the researcher via email or via a Flinders university mobile phone as follows:

- Email: joanne.walker@flinders.edu.au
- Mobile **0448409247**

Appendix 18 Letter of Introduction



Professor Colin MacDougall
School of Medicine
PO Box 2100, Adelaide 5001 SA
Tel: +61 8 7221 8412
colin.macdougall@flinders.edu.au

Letter of introduction

This letter is to introduce **Joanne Walker** who is a Doctorate candidate in the discipline of Public Health, in the School of Medicine at Flinders University, South Australia.

The candidate is undertaking a research project in your area covering the local government areas of: Shoalhaven; Eurobodalla; and Bega Valley. The research is being conducted on the topic of sustainable and healthy rural communities. More specifically, the research will look at how rural communities are taking action to develop sustainable and healthy communities and to investigate in what ways these actions can contribute to improvements in the health and wellbeing of the community.

The candidate would be grateful if you would volunteer to assist in this project by agreeing to participate in an interview or focus group. At the interview or focus group participants will be asked about their understanding of the term sustainable / sustainability and healthy communities, the kinds of activities they are doing that they believe contributes to (or do not contribute to): environmental, social or economic sustainability in a rural community; and how these activities may contribute to health and wellbeing in that community. Interviews will be conducted for up to one hour.

Be assured that any information provided will be treated in confidence and no participants will be individually identifiable in the resulting final thesis report. The information may also be used in publications in health and social science journals. You are, of course entirely free to discontinue your participation at any time or decline to answer particular questions.

Prior to your participation in the research project the candidate will ask you to read the research information sheet, offer you opportunities to ask any questions about the research and ask you to read, complete and sign the consent form.
Any enquiries you may have concerning this project should be directed to me at the address given above or by telephone on 08 7221 8412 or by email colin.macdougall@flinders.edu.au

Thank you for your attention and assistance.

Yours Sincerely,

Professor Colin MacDougall
Doctorate Candidate Supervisor

*This research project has been approved by the Flinders University Social and Behavioural Research Ethics Committee (Project Number **6437**). For more information regarding ethical approval of the project the Executive Officer of the Committee can be contacted by telephone on 8201 3116, by fax on 8201 2035 or by email human.researchethics@flinders.edu.au*

Appendix 20 Map of Eurobodalla Local Government Area

Profile areas

Eurobodalla Shire



Compiled and presented in profile.id by .id, the population experts.

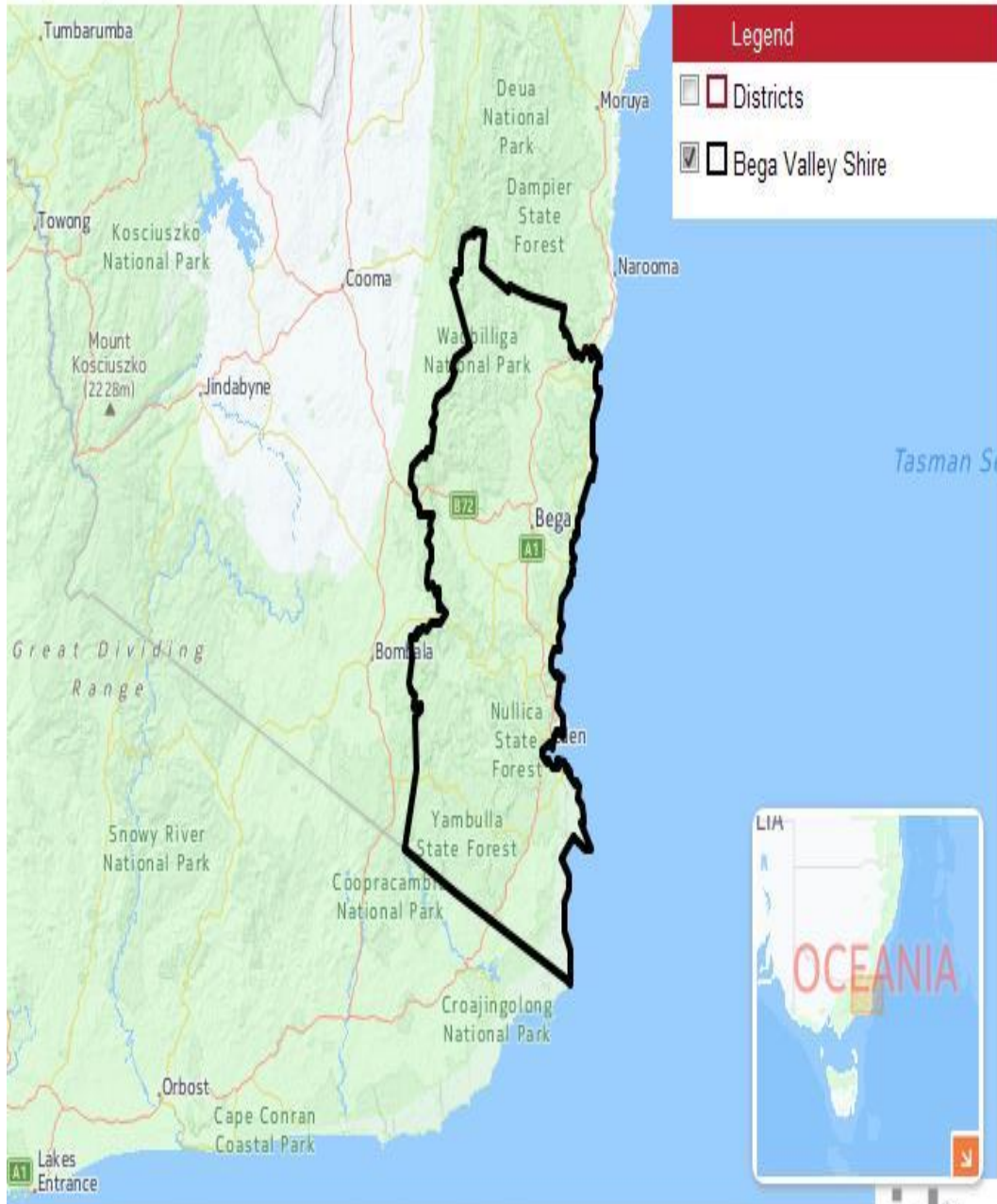
.id
the population experts

Source: profile.id viewed 15th January 2016, <http://profile.id.com.au/eurobodalla>

Appendix 21 Map of Bega Valley Local Government Area

Profile areas

Bega Valley Shire



Compiled and presented in profile.id by .id, the population experts.



Source: profile.id viewed 15th January 2016, <http://profile.id.com.au/bega-valley>

Appendix 22 South Coast Geographical and Bioregional information

Case study boundary	Shoalhaven		Eurobodalla and Bega Valley
Bioregion	Sydney Basin Region	Southern Highlands	South East Corner
Location	Approximately 3,624,008 ha Lies on the central east coast of NSW	Approximately 8,749,155 ha Lies inland from South East Corner and the Sydney Basin bioregions, bounded by the Australian Alps and South Western Slopes bioregions to the south and west.	Approximately 1,302,141 ha. Extend in to Victoria. NSW part borders Sydney Basin Bioregion to the north and the South Eastern Highlands Bioregion to the west and small outlying fragment lies between the Australian Alps and South Eastern Highlands.
Climate	Temperate Mean Annual Temperature 10-17	Temperate Mean Annual Temperature 6-16	Temperate Mean Annual Temperature 7-16
Topography	<ul style="list-style-type: none"> - Landscapes of cliffs, beaches and estuaries. - The geological basin has near horizontal sandstones and shales of Permian to Triassic age that overlie older basement rocks of the Lachlan Fold Belt. 	<ul style="list-style-type: none"> - Covers the dissected ranges and plateau of the Great Dividing Range - Extends to the Great Escarpment. - Formed of Palaeozoic granites, metamorphosed sedimentary rocks and Tertiary basalts 	<ul style="list-style-type: none"> - Covers the eastern fall from the Great Dividing Range across the Great Escarpment to the coast. - Includes the upper catchment of the Deddick River and Lower Snowy River gorge - Most of the bioregion is folded and metamorphosed Ordovician to Devonian sedimentary rocks
Examples of Biodiversity (Plant communities)	Coastal and dune Plant Species – <ul style="list-style-type: none"> • Teatree • Coast wattle • Coast Banksias • Grass tree • Lomandra Common coastal trees <ul style="list-style-type: none"> • Blackbutt, • Grey ironbark • Black ash, 	Mid-Shoalhaven woodlands- <ul style="list-style-type: none"> • Broadleaved peppermint, • Snappy gum • Forest oak • Banksia marginata • Banksia integrifolia 	Coastal headlands support heaths <ul style="list-style-type: none"> • Hakea • Melaleuca • Coast rosemary • Dwarfed red bloodwood Inland vegetation changes with altitude <ul style="list-style-type: none"> • Red bloodwood and spotted gum 100-200m • Yellow Stringybark,

	spotted gum and bangalay		grey ironbark, Woollybutt, above 200m
Significant Flora	Endangered Species including: <ul style="list-style-type: none"> • Bynoe's Wattle • Bomaderry Zieria • Spider Orchid • Nowra Heath Myrtle 100 Vulnerable species: <ul style="list-style-type: none"> • Budawang Bush Pea • Illawarra Greenhood • East Lynne Midge Orchid 	Endangered Species include: <ul style="list-style-type: none"> • Australian Saltgrass • Coast Groundsel • Budawang cliff heath Vulnerable species: <ul style="list-style-type: none"> • Black gum • Bodalla Pomaderris 	
Significant Threatened Fauna	Endangered species <ul style="list-style-type: none"> • Eastern Quoll, • Beach stone curlew, Broad headed snake, Dugong, • Eastern Bristle bird Vulnerable species including: <ul style="list-style-type: none"> • Eastern Pygmy Possum, • Glossy black Cockatoo, • Great White Shark 	Endangered <ul style="list-style-type: none"> • Orange bellied parrot • Hooded Plover • Australasian Bittern Vulnerable species: <ul style="list-style-type: none"> • Gang-Gang • Black flacon • Sperm Whale 	

Source: NSW National Parks and Wildlife Service (2003) The Bioregions of New South Wales: their biodiversity, conservation and history NSW National Parks and Wildlife Service, Hurstville; NSW Government office of environment and heritage <http://www.environment.nsw.gov.au/threatenedspecies/index.htm>

Appendix 23 Snapshot of Case Study Population Social Characteristics

Local Government Area	Shoalhaven	Eurobodalla	Bega Valley
Estimated Residential Population	99,016	37,643	33,468
Average annual population growth	1.9%	0.8%	1.1%
Population predicted to increase 2031	108,150	40,650	36,450
Population density	163.9 person per sq./ km Part A Shoalhaven with 14.3 persons / sq. km	0.10 person per hectare	0.50 person per hectare
Male	49.3%	49.2%	49.1%
Female	50.7	50.8 %	50.9 %
Aboriginal or Torres Strait Islander	4.7%	5.1%	2.8%
Australian born	81%	80%	83.1%

Source: NSW department of Planning estimates 2010, Profile.id 2015, ABS 2011, ABS 2014

Appendix 24 South Coast SEIFA Scores

Case Study Area	Participant Location/ township	SEIFA
Shoalhaven	Bangalee	1083
	Berry and surrounds	1070.4
	Vincentia	1014
	Huskisson	1007
	Milton	980.8
	St Georges Basin	966.7
	Ulladulla	917.6
	Sanctuary Point	866
	Nowra	815
Eurobodalla	Deua	1037
	Mossy Point	1011
	Broulee	992
	Moruya Heads	964
	Tuross Head	953
	Narooma	928
	Bodalla	898
	Akolele	601
Bega Valley	Tathra	990
	Bega	968.7
	Brogo	976
	Quaama	929
	Bermagui	916
	Cobargo	885

Appendix 25 South Coast Employment, workforce participation and main industries

Indicator	Shoalhaven	Eurobodalla	Bega Valley	Regional NSW
Workforce participation rate	47%	45.4%	52.6%	55.9%
% not in Labour force	45.9%	48.6%	42.4%	38.6%
Full time workers	56%	51%	50.4%	56.5%
Part time workers	42%	46%	41.6%	33.8%
Main occupations	<ul style="list-style-type: none"> • Technicians and trade workers (17.2%) • Professionals (16.7%) • Community and personal service workers 13%. 	<ul style="list-style-type: none"> • Technicians and trade workers (16.5%) • Professionals (15.8%) • Clerical and Administrative Workers (12.6%.) 	<ul style="list-style-type: none"> • Professionals (16%), • Technicians and trade workers (15.1%) • Managers 14.2%. 	<ul style="list-style-type: none"> • Professionals (16.3%) • Technicians and trade workers (15.4%) • Managers (14.5%).
Main industries	<ul style="list-style-type: none"> • Health care and social assistance 14.1% (4784 people), • Retail 12.8% (4327 people) • Public Administration and safety 10.3% (3482 people). 	<ul style="list-style-type: none"> • Retail trade employed 16.5% (1814) • Health Care and Social Assistance 14.8 % (1630 persons) • Accommodation and food service 12.6% (1389 persons) 	<ul style="list-style-type: none"> • Health Care and Social Assistance employed 13.1% (1707 persons) • Retail trade 12.3% (1603 persons) • Accommodation and food service 11.1% (1454 persons) 	<ul style="list-style-type: none"> • Retail Trade (12.3%) • Health Care and Social Assistance employed (11.5%), • Manufacturing (9.2%)

Source: Profile.id Shoalhaven, Eurobodalla and Bega Valley Community profiles, Employment status, Occupations, Industries and Workforce participation, Available from:

<http://profile.id.com.au/shoalhaven>, <http://profile.id.com.au/eurobodalla>, <http://profile.id.com.au/bega-valley>.

Appendix 26 Estimated number of Births 2014 and Avoidable deaths 2009-2012

Measure	Shoalhaven	Eurobodalla	Bega Valley	NSW
Total Births in 2014 ⁷	860	260	268	91,074
Total Fertility Rate ⁸	2.09	2.09	2.08	1.87
Median age at death ²	81 years	81 years	81 years	81 years
Number of Avoidable deaths from cancer 0-74 years 2009-2012 and Average annual ASR/100,000 ²	28.4	24.4	26.2	24.2
Avoidable deaths from diabetes, persons aged 0 to 74 years ²	6.1	10	8.3	5.9
Avoidable deaths from circulatory system diseases, persons aged 0 to 74 years ASR/100,000 ²	42.7	46	41.6	40
Avoidable deaths from suicide and self-inflicted injuries, persons aged 0 to 74 years ASR/100,000 ²	19.3(**)	10.7	11	9.3
Avoidable deaths from transport accidents, persons aged 0 to 74 years ASR/100,000 ²	10.4(**)	12.7(*)	8.6	6

Source: ABS 2012; PHIDU 2015⁹

Data which are statistically significant at the 95% confidence level, have been marked with a single asterisk symbol (*). ** Data which are statistically significant at the 99% confidence level have been marked with a double asterisk symbol (**). (PHIDU 2016, Statistical Information, <http://phidu.torrens.edu.au/help-and-information/about-our-data/statistical-information#HoIrbCgh2VTmd2tR.99>).

⁷ ABS cat. 3301.0 - Births, Australia, 2014

⁸ Except where otherwise stated, all age-standardised rates and ratios presented in the maps, data or graphs are based on the Australian standard. PHIDU 2016 http://phidu.torrens.edu.au/current/data/sha-aust/notes/phidu_data_sources_notes.pdf

⁹ Except where otherwise stated, all age-standardised rates and ratios presented in the maps, data or graphs are based on the Australian standard. PHIDU 2016 http://phidu.torrens.edu.au/current/data/sha-aust/notes/phidu_data_sources_notes.pdf

Appendix 27 Case Study burden of chronic conditions 2011-2013

Chronic Illness		Shoalhaven	Eurobodalla	Bega Valley	NSW
Estimated population, aged 18 years and over, with diabetes mellitus (Type 2 Diabetes)		5.1	4.8	4.6	3.5
Estimated population, aged 18 years and over, with high blood cholesterol		32.6	33	33.6	32.4
Estimated population with hypertensive disease (ASR/ 100)		10.3	10.2	10.1	10.5
Estimated population, aged 2 years and over, with circulatory system diseases		18.9	18.9	17.8	17.8
Estimated population with chronic obstructive pulmonary disease (COPD)		3.1	2.6	2.9	2.3
Estimated population with Asthma		11.5	10.3	10.3	9.5
Estimated population with arthritis		18.1	17.2	15.8	15.3
High/ Very High Psychological distress (ISR/100)		12.7	12.5	11.4	10.5
Mental health behavioural problems	Male	11.8	12.8	11.7	10.2
	Female	13.3	13.5	12.7	11.8
Mood (affective) problems (ISR/100)	Male	6.9	7.6	6.8	6.1
	Female	9.1	9.1	8.5	8.5
Persons aged 18 years and over with profound /severe /moderate /mild core activity restriction		13.3	13.4	12.9	11.5
Persons aged 18 years and over with self-assessed health status of fair/poor ASR/100		19.6	19.1	17.6	16.6

Source: PHIDU 2015².

Appendix 28 Admissions to South Coast Public hospitals 2011-2012 by principal diagnosis

Principal diagnosis	Shoalhaven	Eurobodalla	Bega Valley	NSW
Infectious and parasitic diseases - Public hospitals ASR 100,000	723.1(**)	760(**)	739(**)	510
All cancers –Public hospitals ASR/100	1112(**)	1817(**)	1778(**)	1139
Mental health related conditions - Public hospitals ASR 100,000	921.7(*)	1887(**)	1394(**)	847
Circulatory diseases - Public hospitals ASR / 100,000	2004(**)	2266(**)	1834(**)	1545
Respiratory diseases - Public hospitals ASR / 100,000	1754(**)	1712(**)	1903(**)	1441
Musculoskeletal diseases - Public hospitals ASR / 100,000	949	1183(**)	1267(**)	796
Injury and poisoning - Public hospitals ASR / 100,000	2986(**)	2880(**)	3155(**)	2125

Source: PHIDU 2015²

Data which are statistically significant at the 95% confidence level, have been marked with a single asterisk symbol (*).

** Data which are statistically significant at the 99% confidence level have been marked with a double asterisk symbol (**). (PHIDU 2016, Statistical Information, <http://phidu.torrens.edu.au/help-and-information/about-our-data/statistical-information#HoIrbCgh2VTmd2tR.99>).

Appendix 29 Interview and focus group participant's locations and SEIFA Scores

Case Study Area	Participant Location/ township	SEIFA	Number of Participants
Shoalhaven	Bangalee-Cambewarra	1078.5	1
	Berry	1070.4	1
	West Nowra	990	2
	Milton	980.8	1
	Mollymook	980.7	1
	St Georges Basin	966.7	1
	Mogood / Shallow crossing	964	1
	Ulladulla	917.6	1
Eurobodalla	Deua	1037	2
	Potato Point	1014	1
	Mossy Point	1011	1
	Long Beach	1008	1
	Bingie	1003	2
	Broulee	992	1
	Central Tilba	977	1
	Moruya Heads	964	2
	Tuross Head	953	10
	Kianga	939	1
	Dalmeny	923	1
	Narooma	928	2
	Bodalla	898	1
	Bega Valley	Tathra	990
Bega		968.7	2
Brogo		976	3
Quaama		929	3
Bermagui		916	2
Cobargo		885	1

Source: Profile.id Shoalhaven, Eurobodalla and Bega Valley Community profiles, Available from: <http://profile.id.com.au/shoalhaven>, <http://profile.id.com.au/eurobodalla>, <http://profile.id.com.au/bega-valley>.

Appendix 30 Summary of participant current / past employment and occupations

Employment status/ Occupation	Shoalhaven	Eurobodalla	Bega Valley
Currently Employed	8	13	9
Retired	1	13	3
Not stated	-	1	-
Occupations			
Tourism and hospitality	3	2	1
Environmental management / natural resource management	2	2	2
Manufacturing	1	0	0
Food industry	0	0	2
Academic institution	1	0	0
Local government	1	5	3
Health / social care provider	0	3	1
Religious Institution	0	1	0
Not stated	0	1	0
Retired	1	13	3
Total	9	27	12

Appendix 31 In-Depth Interviews / Focus Group Question Guide

1. Introduction -Ice breaker

Tell me a bit about yourself to set the scene, where you live, how long you've lived there, a bit about your community.

Or - can you tell me a bit about your community group / business/ industry?

2. Sustainable vs Sustainability

- When I say the word sustainable, what do you think about? What does it mean to you?
- When I say the word sustainability what do you think about? Does it mean the same as sustainable? OR Is there a difference between sustainable and sustainability?

3. Sustainable Community?

- What does a sustainable community look like?
- What does an unsustainable community look like? OR If you looked out of the window and were looking at a sustainable community, what kinds of things would they be doing?
- Do you think this is a sustainable community?

4. Sustainability and activities

- What kinds of activities are you doing that you think are contributing to a sustainable community?
- What supports / enables this activity?
- What doesn't help / support enable?

5. Sustainability and health

- What does health mean to you?
- What's a healthy community? What does this look like to you?
- Do you think this is a healthy community? Why? / Why Not?
- Can you see a link between a sustainable and healthy community? If so where do you see the linkages?

6. Summary Question:

- What would be on your wish list for a sustainable and healthy community?
OR If you had a wish list for a sustainable and healthy rural community what would be on it?

7. Anything else you'd like to add?

Appendix 32 Scoping Review Results with adapted Hancock et al. (1999) analysis.

Citation - title, author, journal / newspaper	Sustainable development / health issues	Population/setting/ location	Assumptions / key messages	Evidence used
Sustainability				
Latham, D 2012, 'Chef's Hat caps off a great year', <i>South Coast Register</i> , 10 th January, viewed April 11th 2015, http://www.southcoastregister.com.au/story/1018478/chefs-hat-caps-off-a-great-year/	Local food Production Diverse economy Waste production Local Control Sense of place Education	Urban- tourism, slow food local food movement	Regional Economic development and Tourism Hospitality Promoting Sustainability through local organically grown food. "Hungry Duck is treading lightly on this earth by using local organic meats, vegetables, and composting all kitchen waste".	Local Business owner's opinion
Crawford, R 2013, 'Sheep on the menu at Bellawongarah', <i>South Coast Register</i> , 20 th March, viewed 11th April 2015, http://www.southcoastregister.com.au/story/1376070/sheep-on-the-menu-at-bellawongarah/	Local produce Local food Production Diverse economy Local Control Sense of place	Shoalhaven	Promoting Local, Innovation, Tourism/ Hospitality industry, Economic / business Agriculture "We just saw it as an alternative way of making the new venture sustainable," Mrs Hamilton said. "With nowhere commercially to sell the lambs ..."	Local business owner
'Forget fast, slow food is the way to go' 2013, <i>South Coast Register</i> , June 10, Viewed April 11th 2015, http://www.southcoastregister.com.au/story/1561222/forget-fast-slow-food-is-the-way-to-go/	Local food Production Diverse economy Adult Education Local Control Sense of place	Young adults Shoalhaven community	Article shows community partnerships as work. TAFE partnership with Shoalhaven Slow Food and Cupitt's Winery, students put their knowledge to the test to cook up a menu using environmentally friendly, fresh produce which supports the notion of fair farming and consumerism.	TAFE course leaders and slow food movement creator
Crawford, R 2014, 'Origin blue: Bomaderry gets its own cheese', <i>South Coast Register</i> , June 22, Viewed April 11th 2015, http://www.southcoastregister.com.au/story/2368118/origin-blue-bomaderry-gets-its-own-cheese/	Local produce Local food Production Diverse economy Local Control Sense of place	Bombaderry Shoalhaven region	Promoting local food production. "We are passionate about making good, wholesome home produce with sustainable methods, using local ingredients. Tourism/ Hospitality Economic/ Social/ Food	Local business person

Wright, A 2012, 'Farm puts many in funds fight', <i>South Coast Register</i> , Sept 21, 2012 Viewed April 11th 2015, http://www.southcoastregister.com.au/story/349817/farm-puts-many-in-funds-fight/	Local Production Diverse economy Local Control	Shoalhaven	Promoting local employment through Green jobs and Agriculture also links in the local economic / Environment link. 'It was something that promised 200 jobs and sustainable vegetable production, and ticked all the green boxes'.	Local business person
Latham, D 2012, 'Students beef up their local knowledge', <i>South Coast Register</i> , Dec 17, Viewed April 11th 2015, http://www.southcoastregister.com.au/story/1190314/students-beef-up-their-local-knowledge/	Local Production Diverse economy Local Control Education	Young people in Shoalhaven / Farmers	Promoting local Green jobs and the local Agriculture sector-links in the local Economy / Environment with the young people who are being educated about productive and sustainable farming. Promotes the concept of Agribusiness as a way to sustainable livelihoods in the region.	Local School children
Kruger, C 2013, 'Woolworths goes direct to farm gate', <i>South Coast Register</i> , Mar 28, viewed April 11th 2015, www.southcoastregister.com.au/story/.../woolworths-goes-direct-to-farm-gate /	Local Production Diverse economy Local Control Education	Shoalhaven Farmers Local business	Agriculture / dairy farmers/ Economic / Producers (milk). Article goes direct to the farm gate and promotes the dairy to the local markets and consumers, hoping to tap in to social preferences for local food. Promotes local milk as a sustainable industry that will be achieved by securing longer-term contracts. This will give confidence to others to invest in the businesses for a sustainable future.	Corporate rep- Woolworths
Crawford, R 2013, 'New branding to put South Coast oysters on map', <i>South Coast Register</i> , May 22, Viewed April 11th 2015, www.southcoastregister.com.au/.../new-branding-to-put-south-coast-oysters-on-map/	Local Production Diverse economy Local control Sense of place	Shoalhaven Oyster Farmers	Local networks links with Fisheries and Economic development of Oyster farmers. The industry had been working towards environmentally sustainable practices for some time and has now developed the south coast brand. They did this by working together to promote the product, joining forces (instead of being in competition with each other) for marketing and production and undertaking environmental audits for water quality.	Local Oyster farmer
Long, J 2014, 'Shoalhaven oyster season the best yet', <i>South Coast Register</i> , Nov. 11, viewed April 11th 2015, www.southcoastregister.com.au/story/.../shoalhaven-oyster-season-the-best-yet/	Local Production Sense of place Local control Diverse economy	Shoalhaven Tourists	Fisheries, local produce and tourism link. Oyster industry won an award for their environmental estuary management practices.	Local business person – Oyster Farmer
Condie, K 2014, 'Seaweed inspires coastal cookbook', <i>South Coast Register</i> , April 2, viewed April 11th 2015, www.southcoastregister.com.au/story/.../seaweed-inspires-coastal-cookbook/	Local Production Education Sense of place	Shoalhaven	Environment/ social/ food. Article is promoting a local book to appeal to people's "growing appetite for every day sustainable and gourmet wholefood".	Local business owner/ chef marine scientist Dr Pia Winberg

Letters to the editor 2012, 'Evolution of cheese', <i>Bega District News</i> , Oct. 9, viewed 10 th April 2015, http://www.begadistrictnews.com.au http://www.begadistrictnews.com.au/story/1954134/letters-to-the-editor/	Local food production Diverse economy Sense of place Globalisation and trade	South coast	Resident saw local cheese product in Dubai. Promoting the local brands but also sense of place. Also show influence on global markets and trade agreements that the cheese is available in the middle east.	Local resident
Idato, M 2013, 'Self-sufficient from farm to table' <i>Bega District News</i> , June 20, viewed 10 th April 2015, http://www.begadistrictnews.com.au/story/2235830/river-cottage-a-beacon-for-community/	Local food Agriculture- Food systems	Tilba Tilba	River Cottage TV show promoting local food movement. Agriculture and local community networks and local produce.	Celebrity chefs
'Oyster farmers upgrade for estuary health' 2012, <i>Eden Magnet</i> , July 25, viewed April 5 th 2015, www.edenmagnet.com.au/story/.../oyster-farmers-upgrade-for-estuary-health/	Local Production Diverse economy Ecosystem health Employment Sense of place	Wonboyn Lake and Pambula	Wonboyn Lake and Pambula oyster farmers have received \$35,000 to improve estuary health and assist the industry to be more sustainable.	Southern Rivers Catchment Management Authority oyster farmers
Long, J 2013, 'Farmer's president drops in unannounced', <i>Eden Magnet</i> , Dec. 19, viewed April 4 th 2015, www.edenmagnet.com.au/story/.../farmers-president-drops-in-unannounced/	Local Production Diverse economy Perception of government leaders Sense of place	Pambula	Aquaculture industry and politics. Social networks beyond the region. "Oyster producers from Far South Coast estuaries were paid a surprise visit by NSW Farmers president Fiona Simson and CEO Matt Brand last Wednesday"	NSW Farmers Association Oyster Committee NSW Farmers
Gorton, S 2012, 'Cheese making set to return to Tilba', <i>Narooma News</i> , April 11, viewed 4 th April 2015, www.naroomanewsonline.com.au/.../cheese-making-set-to-return-to-tilba/	Local Production Sense of place, Culture Sustainable agriculture and Diverse economy-tourism	Tilba	Connecting sustainable practice with tourism and economic prosperity for the region also cultural heritage of dairy farming.	Local farm family
'Food in focus in the Bay' 2014, <i>Bay Post</i> , May 27 th , viewed 10 th May 2015, ww.batemansbaypost.com.au/story/2310978/food-in-focus-in-the-bay/	Local production	South coast	Promoting local food and food festival "Food for thought"	Local resident

Carless, S 2012, 'Residents, visitors relocate stingray', <i>Milton Ulladulla Times</i> , July 25, viewed April 5 th 2015, www.ulladullatimes.com.au/story/.../residents-visitors-relocate-stingray/	Ecosystem health Sense of place Perception of government leaders	Lake Tabourie Shoalhaven	Caring for nature promoted. Article discusses how locals have taken matters into their own hands, enlisting the help of visitors and using a tarp to relocate a stingray from the mouth of Lake Tabourie. Critical of council for not responding to locals request to save the sting ray.	Local person
McKnight, A 2014, 'Mimosa Rocks Bioblitz creates enjoyment for many', <i>Bega District News</i> , Nov. 9, viewed 10 th April 2015, http://www.begadistrictnews.com.au	Ecosystem Conservation Biodiversity Diverse economy Education	Mimosa Rocks Bermagui Bega Valley	Conservation groups educate and undertake projects in local forest and estuaries e.g. the Koala count. The aim of these events was to encourage nature tourism and promote conservation awareness issues.	Bioblitz organiser
Regional Botanic Gardens plans for the future Bay Post www.batemansbaypost.com.au/.../regional-botanic-gardens-plans-for-the-future/	Ecosystem health	Eurobodalla residents	Promoting awareness of botanical garden volunteers and the garden exhibits. Promoting volunteering and conservation of the natural environment.	Botanic Gardens worker
McKnight, A 2014, 'Bega River pathway a link to better health', <i>Bega District News</i> , May 23, viewed 10 th April 2015, http://www.begadistrictnews.com.au	Ecosystem health Environmental health	Bega	Money for a project to clean up this stretch of the Bega river, has been provided by Bega Valley Shire Council under their environmental grants program in conjunction with the NSW Environmental Trust.	Bega River and Wetlands Landcare (BRAWL) Mayor Rotary
'Bird rescued from jaws of goanna and returned to Nadgee State Forest' 2014, <i>Eden Magnet</i> , Dec. 1, viewed 5 th April 2015, www.edenmagnet.com.au/story	Ecosystem health Sense of place	Nadgee state forest Bega Valley	A wedge-tailed eagle chick has been nursed back to health by a local vet and WIRES volunteers and released back into its nest by volunteer tree climbers. Shows community networks at work.	State forest reps WIRES Vets
Oyster growers improve the health of their estuaries 2012, <i>Narooma News</i> , May 23, viewed 4 th April 2015,	Ecosystem health Local production' Sense of place and culture	Oyster farmers	Southern Rivers Catchment Management Authority (CMA) working with oyster farmers to develop sustainable estuary management practices for oyster crops. Article shows how the farmers work with the CMA in a collaborative approach aiming to include all local oyster growers.	WONBOYN, Pambula, Merimbula and Wapengo oyster growers

Gorton, S 2012, 'Fireweed added to national noxious list', <i>Narooma News</i> , April 24,	Ecosystem health Education	South coast	Weed control promotion and raising awareness of conservation management and biodiversity issues.	NSW Department of Primary Industries
Barton, E 2013, 'Regional Botanic Gardens plans for the future', <i>Bay Post</i> , Dec 23 rd , viewed 10 th May 2015, www.batemansbaypost.com.au/.../regional-botanic-gardens-plans-for-the-future/	Ecosystem health Voluntarism Perception of government	Eurobodalla residents	Promoting investment by Eurobodalla Shire council for botanical gardens and support local volunteers.	Botanic Gardens worker and volunteers
Wright, A 2014, 'RET reduction would hurt a sustainable solar industry', <i>South Coast Register</i> , Oct 9, viewed April 11th 2015, http://www.southcoastregister.com.au/story/2614750/shoalhaven-solar-installer-warns-of-job-losses/	Energy Renewable energy Diverse economy Sense of place Local control Perception of government	Shoalhaven	Local Small Business - Energy services promoted as business model and employer. Mark Simms, built Nowra-based company Simmark up to employ 14 staff, in the solar industry potential threat from changes in government policy will impact on business and local employment.	Local business person
Latham, D 2013, 'New group harnesses community energy for power to the people', <i>South Coast Register</i> May 8 th , Viewed April 11th 2015, http://www.southcoastregister.com.au/story/1486272/new-group-harnesses-community-energy-for-power-to-the-people/	Energy Renewable Energy Diverse economy Sense of place Local control Community leadership Education	Shoalhaven	Showcasing local community energy project- shows local innovation and entrepreneurship. "Repower Shoalhaven's focus is to create local renewable energy projects for the benefit of community members".	Renewable energy community group Repower Shoalhaven
Letters to the editor 2012, 'Wind rebuttal' <i>Bega District News</i> , March 26 th , viewed 10 th May 2015, http://www.begadistrictnews.com.au/story/161397/letters-to-the-editor/	Energy	Bega Valley	Article discusses the Wind farm energy debate. A local resident critiques the Federal Government's target for renewable energy.	Local resident comprehensive critique by JA Halkema Federal Government target for renewable energy
Bartlett, J 2013, 'Tathra solar farm, imagine the possibility', <i>Bega District News</i> , 17 th December, viewed May 10 th 2015, http://www.begadistrictnews.com.au/story/1977358/tathra-solar-farm-imagine-the-possibility/	Energy	Tathra	Solar energy community owned project promoting potential partnership with Council.	Members of Clean Energy for Eternity (CEFE)

Smyth, B, 2014, 'Tathra solar farm a shining light for community', <i>Bega District News</i> , 12 th April, viewed 10 th May 2015, http://www.begadistrictnews.com.au/story/2215105/tathra-solar-farm-a-shining-light-for-community/	Energy	Tathra	Promoting local community energy projects. This article promotes the Tathra community owned Solar farm.	Local community and council
Smyth, B 2012, 'Powering ahead' <i>Bega District News</i> April 30, viewed 10 th April 2015, http://www.begadistrictnews.com.au/story/161481/powering-ahead/	Energy	Bega Valley	Promoting local community energy project- Local council using solar energy for its properties and facilities.	Local council staff and MP Andrew Constance
Letters to the editor- 2012, 'Power Shock', <i>Bega District News</i> , Dec. 14, viewed 12 th April 2015,	Energy	Bega Valley vs rural areas	Raising awareness of energy prices and regional disparities. E.g. the price of energy in the Bega Valley compared to other regions.	Local resident
Editorial: 'Carbon tax: It's about politics' 2012, <i>Eden Magnet</i> , Aug. 6, viewed April 4 th 2015, www.edenmagnet.com.au/story/.../editorial-carbon-tax-its-about-politics/	Energy Perception of government	Bega Valley	Editorial presenting dissenting view to Gillard government on carbon tax, energy and fossil fuels, and climate change.	Newspaper editor
'Plan to set up aquaculture industries in Jervis Bay' 2012, <i>South Coast Register</i> , Nov 5th, Viewed April 11th 2015, http://www.southcoastregister.com.au/story/572759/plan-to-set-up-aquaculture-industries-in-jervis-bay/	Renewable resource consumption Sense of place Regulation law Local control Diverse economy Aboriginal culture place link	Shoalhaven Aboriginal culture	Article promoting local production through aquaculture project. "Aquaculture farmers from NSW and interstate, along with local indigenous groups, have approached Fisheries NSW about setting up enterprises in Jervis Bay, prompting a Fisheries NSW proposal to establish three aquaculture leases" Fisheries and Local Economic development. Promotes Aquaculture farms as a way to ensure a 'healthy and sustainable fisheries industry'.	Fisheries NSW
Letters to the editor 2012, 'Lies and exaggerations', <i>Bega District News</i> Oct. 9, viewed 10 th April 2015, http://www.begadistrictnews.com.au/story/423186/letters-to-the-editor/	Renewable resource Conservation vs Timber	Bega Valley	Article demonstrates the tension between conservationist and anti-conservationist views.	Local resident

Letters to the editor 2012, 'Reflex reaction', <i>Bega District News</i> , March 26, viewed 10 th April 2015, http://www.begadistrictnews.com.au/story/3800824/letters-to-the-editor/	Renewable resource Conservation Biodiversity Land use	Bega Valley	Article discusses the impact of colonialism and European style farming. "In the 200 years since European settlement in Australia, 90 per cent of our native forests have disappeared. What is left must be protected. Biodiversity is essential to agriculture, water quality and pollination".	Local resident
Smyth, B 2012, 'Tanja forest 'demolition plan', <i>Bega District News</i> , July 26, viewed 10 th April 2015, http://www.begadistrictnews.com.au/story/176808/tanja-forest-demolition-plan/	Renewable resource Land use Conservation //	Tanja Forest Bega Valley	Article demonstrates the tension between conservationist and anti-conservationist views "Despite vocal opposition to the logging of Tanja State Forest, Forests NSW has released the harvest plan for the area, signalling an imminent start to work".	Forests NSW. Local resident action group
Letters to the editor, 2012, 'Setting record straight' <i>Bega District New</i> , Dec. 14, viewed 10 th April 2015, http://www.begadistrictnews.com.au/story/1427231/letters-to-the-editor/	Renewable resource Ecosystem Conservation vs Land use	Bega Valley – Tanja forest	Article demonstrates the tension between conservationist and anti-conservationist views. Koala threatened- tension between residents who are trying to protect them and this resident who is arguing about the methods to count Koalas	Local resident
Schwarz, D 2012, 'Pellet mill again on agenda', <i>Bega District News</i> Jan. 16, viewed 10 th April 2015, http://www.begadistrictnews.com.au/story/1081182/eden-pellet-plant-still-in-limbo/	Renewable resource Diverse economy Timber industry Employment	Eden	Development of a pellet plant, at the South East Fibre Exports (SEFE) Woodchip Mill in Edron Rd, Eden was approved by the council in June, but the Land and Environment Court subsequently found this decision was invalid. Shows tension between conservation and development.	BEGA Valley Shire Council chambers South East Fibre Exports (SEFE) Land and Environment Court
Smyth, B 2012, 'Eden pellet plant granted approval', <i>Bega District News</i> , Feb. 9, viewed 10 th April 2015, http://www.begadistrictnews.com.au/story/1081473/eden-pellet-plant-granted-approval/	Renewable resource Diverse economy Timber industry Employment Timber industry	Eden	The controversial wood pellet fuel plant in Eden has been approved- With a number of conditions relating to Ecologically Sustainable Development attached, the DA was re-submitted to the council. Article demonstrates the tension between conservationist and anti-conservationist views.	Bega Valley Shire Council South East Fibre Exports general manager
'Chip mill gets green tick' 2012 <i>Eden Magnet</i> , March 14, viewed April 5 th 2015, www.edenmagnet.com.au/story/173028/chip-mill-gets-green-tick/	Renewable resource consumption Regulation law Diverse economy Sense of place Employment	Eden	Independent auditor NCS International praised South East Fibre Exports (SEFE) for its efforts in continuing to comply with three environmental standards after carrying out an audit of the Eden wood chip mill's operation. Shows how industries must comply with standards for practice in sustainable industries.	Independent auditor NCS International

‘South Coast abalone poachers face serious penalties’ 2014, <i>Eden Magnet</i> , Feb. 21, viewed April 5 th 2015, www.edenmagnet.com.au/.../south-coast-abalone-poachers-face-serious-penalties/	Renewable resource consumption Sense of place Culture history	South coast	Conservation Natural resources - Fishing Poachers fined. Possession and size limits are in place to help protect the sustainability of the fisheries resources.	NSW Marine Area Command
‘Fishers lift game for improved compliance with seabird rules 2012, <i>Narooma News</i> , July 12, viewed 4 th April 2015, www.naroomanewsonline.com.au/.../fishers-lift-game-for-improved-compliance-with-seabird-rules/	Renewable resource Ecosystem-Conservation Sustainable fishing	Narooma Fisherman	Article shows how the legislation on conservation is put into action each year as at this time of year several species of albatross and other vulnerable birds such as the Antarctic Skua become a common sight in local waters off Narooma and Bermagui. The birds are protected species. This article is promoting how compliance levels of recreational and commercial fishing vessels are lifting and showed that the fishers are taking their responsibilities for sustainable fishing seriously.	Australian Fisheries Management Authority (AFMA) South East Trawl Fishing Industry Association (SETFIA)
Gorton, S 2012, ‘Fishers wanted for ramp projects at Narooma,’ <i>Narooma News</i> , June 20, viewed 4 th April 2015, www.naroomanewsonline.com.au/.../fishers-wanted-for-ramp-projects-at-narooma/	Renewable resource Sustainable fishing and conservation	Fishermen	Promoting conservation and biodiversity of marine systems-Community engagement on planting tube stock around the Durras boat ramp. Region has 4 environmental priority areas in the Eurobodalla to benefit from a Recreational Fishing Trust Fish Habitat Action Grant	Eurobodalla Shire Council environmental project officer Tom Dexter
Saving the Far South Coast’s koalas; impacts on logging 2012, <i>Narooma News</i> , May 16, viewed 4 th April 2015, www.naroomanewsonline.com.au/.../saving-the-far-south-coasts-koalas-impacts-on-logging/	Renewable resource use vs ecosystems and land use.	Eurobodalla / South coast	Tension between conservation and local loggers and timber industry - conservation vs Timber industry.	State Forest NSW environment minister The Greens
Gorton, S 2012, ‘Indigenous fishing rights protest on Far South Coast’, <i>Narooma News</i> , Dec. 12, viewed 4 th April 2015, http://www.naroomanewsonline.com.au/story/1181289/indigenous-fishing-rights-protest-on-far-south-coast/	Renewable resource Indigenous culture Sense of place Diverse economy	Aboriginal people	Prompting awareness of the need for sustainable fishing practices from Indigenous Australians perspective. “We need to stage a mass protest about how our resources are being abused by Fisheries in NSW and how Fisheries in NSW portray Aboriginal people to be criminals for exercising their traditional rights.”	LOCAL indigenous families NSW Marine Park Authority
Gorton, S 2012, ‘Commercial fishers digest industry shake-up’, <i>Narooma News</i> , May 30, viewed 4 th April 2015, http://www.naroomanewsonline.com.au/story/191347/commercial-fishers-digest-industry-shake-up/	Renewable resource Regulation and law Sense of place and culture. Sustainable fishing industry	South coast Narooma Bermagui	Governance for sustainability and links with industry stakeholders. Article reports that there is a New State government report about fishing rules, rights, governance and the consultation process is now open.	Bermagui Fisherman’s Cooperative NSW Primary Industries Minister

Letter: Have a look for yourself 2012, <i>Bay Post</i> , Oct 17 th , viewed May 7 th 2015, www.batemansbaypost.com.au/story/.../letter-have-a-look-for-yourself/	Renewable resources Ecosystem Community safety environment	Eurobodalla	Article discusses the damage done to forest from logging industry and increase in road kill.	local resident
'Fishing lessons for kids to be held the Bay', <i>Bay Post</i> , Dec 21, viewed 10 th May 2015, www.batemansbaypost.com.au/.../fishing-lessons-for-kids-to-be-held-the-bay/	Renewable resources sustainable fishing Education Sens of place Culture	Eurobodalla families and children	Promoting education for sustainable fishing and linking fishing skills to safety and ecosystem health, ultimately for sustainable fishing.	local resident
'From the Editors desk' 2013, <i>Bay Post</i> , March 1, viewed 10 th May 2015, www.batemansbaypost.com.au/story/1334697/from-the-editors-desk/	Land use	South coast	Discussion of housing development, eco-tourism and sustainable produce.	Paper editor
Gidney, J 2014, 'Letter We support development – Leslight', <i>Bay Post</i> , July 4 th , viewed 10 th May 2015, www.batemansbaypost.com.au/story/.../we-support-development-leslight/	Land Use	Eurobodalla	Councillor promoting housing development.	Councillor
'Bay is no place for big business' 2013, <i>South coast Register</i> , Dec 11, Viewed April 11th 2015, www.southcoastregister.com.au/story/.../bay-is-no-place-for-big-business/	Land use / ocean use Ecosystem health Diverse economy Local decisions regulation and law	South coast	Conservation- Environment/ economic tensions. Local opinion about setting aside areas for fish and marine life to recover and rebuild habitats raising awareness that doing this will complement rather than competes with sustainable fisheries management.	Local community spokesperson
Nicholls, S 2013, 'Land-clearing laws set for shake-up', <i>South Coast Register</i> , June 14, Viewed April 11th 2015, reprint from http://www.smh.com.au/nsw/landclearing-laws-set-for-shakeup-20130614-2o85v.html	Land use regulations and law Ecosystem health	Farmers Land holders	Environment/ Economic perspective of land use reform	Deputy Premier and NSW Nationals leader NSW environment minister Robyn Parker

Smyth, B 2012, 'Zoning plan raises ire of Bega residents', <i>Bega District News</i> , May 25, viewed 10 th April 2015, http://www.begadistrictnews.com.au/story/161570/zoning-plan-raises-ire-of-bega-residents/	Land use Governance – Community leadership and engagement sense place culture and history.	Bega Valley	Draft Bega Valley Comprehensive Local Environmental Plan (CLEP) up for discussion. Major points of contention included opposition to heritage listing, “excessively high” average lot sizes, and the restricted possibility of future development of sites – for example subdivision – given the new zoning regulations	Mayor
Letters to the editor. 2012, Save koala habitat <i>Bega District News</i> , Aug. 6, viewed 10 th April 2015, http://www.begadistrictnews.com.au/story/177694/letter-save-koala-habitat/	Land use Conservation/	Bega Valley	Conservation / anti-conservation tension. “While agreeing that a rational and sustainable approach to keeping koalas from extinction is preferred (BDN 27/7), koalas are an environmental issue and unless the community forces them to do otherwise, governments are more likely to be swayed by economic and social considerations”	Local resident
Foden, B 2014, 'When fresh is always best' <i>Eden Magnet</i> , Oct. 8, viewed April 4 th 2015, www.edenmagnet.com.au/story/2611171/w-hen-fresh-is-always-best/	Land use and Local Production of Food Sense of place	Nethercote markets School children Families	Promoting local food and permaculture, the farmer’s markets and the ‘Grow for Eden program’ at Sprout	Nethercote Markets organisers
LETTER: ‘Log Jam’ 2012, <i>Eden Magnet</i> , Aug. 6, viewed April 5 th 2015, www.edenmagnet.com.au/story/174940/letter-log-jam/	Land use Employment’ Sense of place Culture history	Bega Valley	Conservation vs Timber Industry. Article outlines concern what Forests NSW intend to do re logging the Tanja State Forest. Concern is that there has been a recent discovery that a small number of koalas are living within a compartment that is scheduled to be logged.	Local resident
Powell, C 2012, 'Hopes for historic horse track network', <i>Narooma News</i> , July 11, viewed 4 th April 2015, www.naroomanewsonline.com.au/.../hopes-for-historic-horse-track-network/	Land use - sharing the landscape	Horse riders- Eurobodalla’ Cooma, the Southern Tablelands and the Shoalhaven	NSW Office of Environment and Heritage (OEH) has published “Draft strategic directions for horse riding in NSW national parks and reserves”,	Lobby group “Access For All” (AFA)
Gorton, S 2012, 'State Government trials horses riding in national parks', <i>Narooma News</i> , Nov. 12, viewed 4 th April 2015, www.naroomanewsonline.com.au/.../state-government-trials-horses-riding-in-national-parks/	Land Use Diverse economy Governance	Far South Coast	NSW Government making changes to national parks rules. Shows tensions between conservation and tourism.	Member for Bega Andrew Constance NSW Environment Minister
'Anglers to have say on new fishing regulations' 2013, <i>South Coast Register</i> , May 8, viewed April 11 th 2015,	Ecosystem health Renewable resource consumption	Shoalhaven Tourism	Conservation – Fisheries- Community engagement process to raise awareness about fishing regulations. “The periodic review of fishing rules is essential to ensure our fisheries are	Department of Primary Industries

www.southcoastregister.com.au/.../anglers-to-have-say-on-new-fishing-regulations/	Diverse economy Sense of place		harvested at sustainable levels and make sure the rules are easy to follow”	
\$100,000 available for land projects 2014, <i>South Coast Register</i> , March 28, viewed April 5 th 2015, http://www.southcoastregister.com.au/story/2180693/100000-available-for-land-projects/	Ecosystem health voluntarism sense of place	Shoalhaven	promoting the Conservation volunteering grants. Article also promoting Landcare groups and how they support sustainable agriculture. Article discusses native animal corridors and linkages to neighbouring ecological ranges.	Landcare Federal government
‘Survey to look at fishing habits’ 2013, <i>South coast Register</i> , March 25, Viewed April 11th 2015, www.southcoastregister.com.au/story/.../survey-looks-at-fishing-habits/	Ecosystem health Renewable resource consumption Diverse economy Sens of place		Conservation- Fisheries/ Conservation - “A survey will be undertaken to ensure the state's valuable fisheries resources continue to be managed on a sustainable basis”.	Department of Primary Industries
Hutchinson, A 2012, ‘Coastal erosion survey focuses on Seven Mile Beach’, <i>South Coast Register</i> , July 23, viewed April 11th 2015, http://www.southcoastregister.com.au/story/138119/coastal-erosion-survey-focuses-on-seven-mile-beach/ ,	Ecosystem health Land Use – Water and soil quality	Shoalhaven Heads Seven Mile Beach	Rural Environment planning and design of built environments. Article draws on seven-mile beach erosion plan 2011. Australia’s population living within the coastal zone of the country, coastal erosion can have a massive impact on the lives of locals. Coastal erosion can have a massive impact on the lives of locals – ecosystem and human built environments	Australian Research Council University of NSW and Macquarie University NSW Office of Environment and Heritage’s Local knowledge-
Thomas, M 2012, ‘Wild dogs are most likely uncontrolled domestic animals’, <i>South Coast Register</i> , Sept. 26, viewed April 11th 2015, http://www.southcoastregister.com.au/story/359501/wild-dogs-are-most-likely-uncontrolled-domestic-animals/	Ecosystem health Land use- local production	Shoalhaven farmers	Biodiversity issues and Rural Environment management Conservation Feral animals. Article discusses that it is wild dogs and not dingoes are responsible for damage to stock/ agriculture.	Livestock Health and Pest Authority (LHPA)
Tonkin, S 2014, ‘Man who killed great white shark in Sussex Inlet thought he was doing a good deed’, <i>South Coast Register</i> , Oct. 24, viewed April 11th 2015, http://www.southcoastregister.com.au/story/2649351/guilty-verdict-stands-in-great-white-shark-killing-at-sussex-inlet/	Ecosystem health Sense of place Regulation and law Culture and place	Sussex Inlet	Environment / sustainability- Promotes awareness that some sharks are protected species. Uses example of man who killed a juvenile Great White Shark thinking he was making people safe. The article uses this to demonstrate lack of awareness and understanding and the Legal / environmental regulations.	Local community Judge

Carless, S 2012, 'Residents, visitors relocate stingray', <i>Milton Ulladulla Times</i> , July 25, viewed April 5 th 2015, www.ulladullatimes.com.au/story/.../residents-visitors-relocate-stingray/	Ecosystem health Sense of place Perception of government leaders	Lake Tabourie Shoalhaven	Caring for nature promoted. Article discusses how locals have taken matters into their own hands, enlisting the help of visitors and using a tarp to relocate a stingray from the mouth of Lake Tabourie. Critical of council for not responding to locals request to save the sting ray.	Local person
Kelleher, S 2013, 'Free e-waste tipping means there's no excuse', <i>South Coast Register</i> , July 8, Viewed April 11th 2015, http://www.southcoastregister.com.au	Waste management Sense of place	Shoalhaven	Environment armament and waste: TSR E-Waste promote waste reduction and recycling to dispose of electronic equipment.	Council
'Letters to the editor August 23' Rubbish heaped on council' 2012, <i>Eden Magnet</i> , Aug. 23, viewed April 4th 2015, th, www.edenmagnet.com.au/story/.../letters-to-the-editor-august-23-2012/	Waste management Sense of place Perception of government	Bega Valley	Letter re concern re council not dealing with waste appropriately.	Local resident Eden
Viability				
Wright, A 2012, 'Wood smoke blamed for health issues', <i>South Coast Register</i> , Jan. 31, Viewed April 11th 2015, http://www.southcoastregister.com.au/story/1019433/wood-smoke-blamed-for-health-issues/	Air Quality and Health Status. Community safety- environment risk	Shoalhaven City Council	Environmental Health risk – Respiratory disease and air quality –Fuel / Energy / Environment predicts wood smoke could add \$8 billion to the health budget by 2030 Shoalhaven is in a fortunate position with a mild climate, lower population and a geography that does not trap wood smoke.	environmental consultant AECOM
Wright, A 2012, 'Oyster farmers vow to keep it clean', <i>South Coast Register</i> , April 8Viewed April 11th 2015, http://www.southcoastregister.com.au/story/102977/oyster-farmers-vow-to-keep-it-clean/	Water quality, ecosystem health Local Production	Farmers in Shoalhaven Greenwell Point	Environment- oyster conservation- disease prevention. Oyster farmers receive a government grant to support their Environmental Management System which is designed to protect the river and, in turn, their industry.	Southern Rivers Catchment Management Authority (CMA) and Ocean Watch
'Aslings Beach: One of the cleanest' 2014, <i>Eden Magnet</i> , Oct. 23, viewed April 10th 2015, http://www.edenmagnet.com.au/story/2645540/aslings-beach-one-of-the-cleanest/	Viability water quality Community safety – environment Sense of place	Bega Valley	Environmental – ocean and human health connection. 'Tourism Beachgoers can head back to the surf or their favourite swimming spots with confidence as the beaches of the Bega Valley Shire are among the cleanest in NSW'	NSW Government Annual State of the Beaches Report Office of Environment and Heritage. Council Senior environmental health officer

Smyth, B 2012, 'NBN contract will 'cost a bomb', <i>Bega District News</i> , Nov. 26, viewed 10 th April 2015, http://www.begadistrictnews.com.au/story/1146009/nbn-contract-will-cost-a-bomb/	Toxic production Governance Technology Ecosystems Community safety	Bega Valley Wolumla	Environmental health risk- Concerns over potential CWF leachate contamination. The parcel of land to be sold to NBN Co is, in part, where potential irrigation and disposal of leachate was to occur.	Members of the Wolumla Residents Action Group (WRAG)
Liveability				
'Estate work begins' 2014, <i>South Coast Register</i> , April 7, viewed April 11th 2015, http://www.southcoastregister.com.au/story/2200589/estate-work-begins/	Liveability – urban design housing Perception of government Culture and history	Nowra region	Infrastructure & Development Economic Development 'Jerberra Estate is known as a paper estate where land was sold to people without being zoned for dwellings' new plan for urban design and infrastructure going ahead.	Shoalhaven Mayor Joanna Gash
Ellard, G 2012 'Concerns for girl's health if Telstra tower goes up', <i>South Coast Register</i> , Oct. 26, viewed April 11th 2015, http://www.southcoastregister.com.au/story/423120/concerns-for-girls-health-if-telstra-tower-goes-up/	Liveability- Community safety- environment Healthy public policy Regulation and law	Shoalhaven families	Concern that mobile phone towers will cause health issues.	Local Family
Sharpe, K 2012, 'You call that a flood? - Potential is there for another big one', <i>South coast Register</i> , March 11, Viewed April 11th 2015, http://www.southcoastregister.com.au/story/102634/you-call-that-a-flood-potential-is-there-for-another-big-one/	Community safety- environment Land Use Culture and history	Shoalhaven	Rural Environment Natural disasters and Land use. Article draws on older resident's memories of previous floods. AN attempt to counter argument about climate change and sea level rise.	Local knowledge
'Shoalhaven flood update: road closures and minor inundation' 2013, <i>South Coast Register</i> , June 25, Viewed April 11th 2015, http://www.southcoastregister.com.au/story/1595122/shoalhaven-flood-update-road-closures-and-minor-inundation/	Community safety- environment Sense of place Networks	Shoalhaven Residents	Article discusses how floods are a Rural Environment health risk after the natural disaster. The health risks posed by floodwater, health risk and disease e.g. polluted water and injury are discussed.	Shoalhaven City Council's Environmental Services
'Mosses and mould are the unwelcome companions of rain' 2012, <i>South Coast Register</i> , March 6, Viewed April 11th 2015, http://www.southcoastregister.com.au/story	Community Safety- environment risk Sense of place	Shoalhaven	Rural environment risk – Environmental health. Article discusses local issues and potential risk from Mosquitoes and mould. Mosquitoes and the diseases they spread are one concern Kunjin virus	Shoalhaven Local Health District Public Health Unit

/102581/mossies-and-mould-are-the-unwelcome-companions-of-rain/				
Carless, S 2012, 'Pleas unanswered', <i>Milton Ulladulla Times</i> , April 18, viewed April 10th 2015, www.ulladullatimes.com.au/story/187513/pleas-unanswered/	Community – environment safety Perception of government leaders Diverse economy Local control Voluntarism	Shoalhaven Dolphin Point and Bawley Point.	Promoting need to protect safety at the beach- Tourists and locals' safety at the beach may be in jeopardy if not enough lifeguards after drownings at Dolphin Point and Bawley Point. Council's plans to extend paid lifeguard services in the Shoalhaven were not approved.	South Coast Branch of Surf Life Saving
Gorton, S 2012, 'Task Force 1 RFS volunteers return from flood zone', <i>Narooma News</i> , March 14, viewed 4 th April 2015, www.naroomanewsonline.com.au/.../task-force-1-rfs-volunteers-return-from-flood-zone/	Community safety- environment Voluntarism Sense of place Social support networks Culture Social cohesion and Safety	Narooma region	Article shows the importance of connections to bush fire brigades in rural communities.	Bush fire brigade
Gorton, S 2014, 'Lyme disease hotspot forming South East NSW', <i>Narooma News</i> , May 7, viewed 4 th April 2015, http://www.naroomanewsonline.com.au/story/2264841/lyme-disease-hotspot-forming-south-east-nsw/	Community safety environment- Environmental health – humans	Narooma – South East Coast	Environmental risk - South East NSW is becoming recognised for Lyme disease with the number of diagnosed cases doubling in the last 12 months. Article promotes awareness of the tick-borne diseases and highlights that they are not fully understood by the majority of the healthcare sector.	Narooma and Tuross Lyme disease sufferer
Gorton, S 2012, 'Risk assessment for hunting in NSW National Parks', <i>Narooma News</i> , Dec. 26, viewed 4 th April 2015, http://www.naroomanewsonline.com.au/story/1204964/risk-assessment-for-hunting-in-nsw-national-parks/	Community Safety Environment	Narooma Eurobodalla Murrumbidgee national park	Community safety- NSW Government proposing changes to national parks- A Risk assessment in process to develop the best controls and conditions for the supplementary pest management program and the Wadbilliga National Park west of Narooma and will be the first to be opened to recreational hunting in the region. Locals will be warned to wear fluorescent vest if going bush walking. Safety of humans rather than problem for animals being hunted.	NSW Environment Minister Robyn Parker National Parks and Wildlife Service (NPWS) Game Council
Smyth, B 2012, 'Caution urged amid south coast tick boom warnings' (first reported in <i>Bega District News</i>), <i>Narooma News</i> , Sept. 26, viewed 4 th April 2015, http://www.naroomanewsonline.com.au/story/359912/caution-urged-amid-south-coast-tick-boom-warnings/	Community safety- Environmental health – humans and pets	Narooma – South East Coast	Environmental health risk- 'Boom' in paralysis ticks pose risks to pets and warning given to people to be vigilant as risk of being infected by tick with the controversial Lyme disease – controversial as Australian health authorities refuse to acknowledge its existence in Australian ticks. Article offers no explanation given for increase in ticks though is thought to be related to climate change	Local person

Eurobodalla water safety message 2014, <i>Narooma News</i> , Dec. 8, viewed 4 th April 2015, http://www.naroomanewsonline.com.au/story/2749551/eurobodalla-water-safety-message/	Community safety- environment Water quality Soil erosion Environmental health – humans	Narooma – South East Coast	Environmental health and community safety risk- Article discusses water management after heavy rain and how the Runoff from pastures, forests and urban catchments goes into swimming holes, beaches, small urban creeks and waterways. Risks posed from turbid waters and the possibility of pollutants which may affect swimmers' health.	Eurobodalla Shire Council
Condie, K 2012 ‘Tabourie properties inundated’ <i>Milton Ulladulla Times</i> June 20, www.ulladullatimes.com.au/story/187742/tabourie-properties-inundated/	Community Safety- environmental risk / natural disaster	Tabourie	Environmental health and community safety risk – Article discusses how the flooded lake levels rose following high rainfall with high tides and flooding in low lying areas still at risk. Article warns locals that Lake Conjola and Burrill entrances pose a risk of flooding.	Council’s floodplain manager
Carless S, 2012, ‘Opportunity to comment on draft coastal management plan’, <i>Milton Ulladulla Times</i> , July 11, viewed April 10 th 2015, www.ulladullatimes.com.au/.../opportunity-to-comment-on-draft-coastal-management-plan/	Community safety – environment risk Land use planning Governance Sense of place	Community	Local residents have an opportunity to comment on Shoalhaven City Council’s Draft 2012 Coastal Zone Management Plan at a community forum. The Plan is to make clear links to existing estuary and flood management plans, and provide clear strategic direction for all issues on a local level.	Council Mayor
‘Baptism of bushfire’ 2012, <i>Milton Ulladulla Times</i> , viewed April 5 th 2015, www.ulladullatimes.com.au/story/1230771/baptism-of-bushfire/	Community Safety – environment risk Education Sense of place	South coast community	Communicating to public the risks from bushfires and need for disaster planning. Two years of rainy La Nina weather cycles that promoted forest growth, followed by a four-month, record-smashing dry spell. ‘The nation was packed with fuel’.	Academics Rural fire service Farmers
Smyth, B 2012, ‘Tragedy waiting to happen’, <i>Bega District News</i> , March 1, viewed 10 th April 2015, http://www.begadistrictnews.com.au	Community Safety – environment Ecosystem health Environmental health -	Tathra	Community safety- Debate about shark fishing at Tathra Wharf. Risk of shark attack for swimmers. But the sharks are endangered species (such as a grey nurse shark) and carries a maximum penalty of \$220,000 and/or two years’ jail if sharks are caught, injured and killed.	Tathra Surf Life Saving Club Senior ranger NSW Department of Primary Industries
‘Bush Fire Danger Period starts Monday’ 2014, <i>Eden Magnet</i> , Aug. 27, viewed April 1 st 2015, www.edenmagnet.com.au/story/.../bush-fire-danger-period-starts-monday/	Community safety and security - environment Voluntarism	Bega Valley	Community safety and Natural disaster Bush fire risk assessment. Article promotes the need for education and taking action to promote safety. Promotes local connections and networks and the importance of volunteer fire brigade to rural communities. Bush Fire Survival Plan	Bega Valley RFS Superintendent
‘New climate change predictions released’ 2014, <i>Eden Magnet</i> , Dec. 16, viewed April	Community safety – environment	Bega Valley	Conservation Climate change NSW Government and NARCLiM research partnership report shows south-eastern	NARCLiM research partnership

4 th 2015, www.edenmagnet.com.au/story/new-climate-change-prdctions/	Viability		NSW climate change information down to the nearest 10km allowing them to build resilience to extreme events and plan for future	
‘South east swelter predicted long term’ 2014, <i>Bay Post</i> , Dec 9 th , viewed 10 th May 2015, www.batemansbaypost.com.au/story/.../south-east-swelter-predicted-long-term/	Community safety-environment	South coast residents	Promoting awareness of local climate change data through the NARCLiM research partnership between the NSW and ACT governments and Climate modellers at the University of NSW.	Office of Environment and Heritage
‘Flying foxes pose no health risk: NPWS’ 2012, <i>Bay Post</i> , June 20 th , viewed 8 th May 2015, www.batemansbaypost.com.au/story/.../flying-foxes-pose-no-health-risk-npws/	Community safety-environment	Batemans bay residents	Article shows the tension between urban living and nature.	NSW National Parks Ranger Vet
Gidney, J 2012, ‘Chicken link to dog paralysis?’, <i>Bay Post</i> , Sept. 5 th , viewed 9 th May, viewed 9 th May 2015, www.batemansbaypost.com.au/story/303879/chicken-link-to-dog-paralysis/	Community safety-environment	Eurobodalla dog owners	Environmental health issues and risks from bacteria in chicken linked to dog illness.	Vet
McIntosh, C 2014, ‘Gerondals’ offer to cede land rejected’, <i>Bay Post</i> , Jan 1 st , viewed 9 th May 2015, www.batemansbaypost.com.au/story/.../gerondals-offer-to-cede-land-rejected/	Community safety-environment	Eurobodalla	Canberra couple sued for toxic waste on land risk to locals. Show impact of urban migrants and absentee landlords.	local resident
‘Crime statistics fall across Eurobodalla Shire’ 2014, <i>Bay Post</i> , May 7 th , viewed 9 th May 2015, www.batemansbaypost.com.au/.../crime-statistics-fall-across-eurobodalla-shire/	Community safety-crime	Eurobodalla	Local crime report shows low levels of crime.	Police
Winkler, E 2012, ‘Patrols stepped up in Sanctuary Point’, <i>South Coast Register</i> , July 30, Viewed April 11th 2015, http://www.southcoastregister.com.au/story/150868/patrols-stepped-up-in-sanctuary-point/	Community safety-people	Justice system	Social harmony and safety in low socioeconomic areas- “Sanctuary Point residents continue to express concerns about the level of crime and antisocial behaviour in the area”	Local community
‘Crime on the rise’ 2014, <i>Milton Ulladulla Times</i> , April 15 th , viewed April 10th 2015, www.ulladullatimes.com.au/story/2220871/crime-on-the-rise/	Community safety -crime	Shoalhaven	Community safety from crimes- Shoalhaven has recorded increases in crime in 10 of the 17 reported areas in the latest quarterly crime report released by the NSW Bureau of Crime Statistics and Research. Crimes include Fraud, sexual	NSW Bureau of Crime Statistics and Research

			assaults and robbery with a firearm all recorded significant increases	
Bartlett, J 2013, 'Bega police pleased with latest crime stats', <i>Bega District News</i> , May 28, viewed 10 th April 2015, http://www.begadistrictnews.com.au/story/1531692/bega-police-pleased-with-latest-crime-stats/	Community safety-crime	Bega Valley	Local Police crime report. Show low rates of crime.	Police
Foden, B 2014, 'Asbestos awareness hits Eden' <i>Eden Magnet</i> , Nov. 24, viewed April 4 th 2015, http://www.edenmagnet.com.au/story/2718443/asbestos-awareness-hits-eden/	Housing Community safety – built environment Health status Health promoting	Eden	Environmental –and human health concern from asbestos in homes. Information provided from the 'house on wheels' that visited Eden to educate local residents.	Promotion volunteer WorkCover NSW
'Mr Fluffy asbestos: Free testing for Bega Valley homes' 2014, <i>Bega District News</i> , Aug. 20, viewed April 4 th 2015, http://www.begadistrictnews.com.au/story/2500846/mr-fluffy-asbestos-free-testing-for-bega-valley-homes/	Housing Community safety – built environment Health status Health promoting	Eden	Environmental –and human health Bega Valley residents concerned about the possibility of having loose fill asbestos insulation in their ceiling space. They now have the option of applying for free testing and risk assessments through the NSW Government	Bega Valley Shire Council representatives NSW WorkCover
Keg Fest celebrates Justin's life 2012, <i>Narooma News</i> , Oct. 10, viewed 4 th April 2015, http://www.naroomanewsonline.com.au/story/388321/keg-fest-celebrates-justins-life/	Community safety – people alcohol	Quaama Cobargo	Local boy killed by hit and run near Cobargo.	Locals and family
Narooma drug dealer jailed 2012, <i>Narooma News</i> , June 27, viewed 4 th April 2015, http://www.naroomanewsonline.com.au/story/191470/narooma-drug-dealer-jailed/	Community safety – crime	Narooma	Crime and social cohesion – Convicted Eurobodalla drug dealer to remain behind bars for his role in a drug enterprise that he led at Narooma	Police
Wachsmuth, L & Geiger, D 2014, 'Mental health patient 'killed with guitar' at Shellharbour Hospital', <i>Narooma News</i> , July 31, viewed 4 th April 2015, http://www.naroomanewsonline.com.au/story/2455629/mental-health-patient-killed-with-guitar-at-shellharbour-hospital/?cs=12	Community safety – crime	Shellharbour south coast	Article reports on a murder committed by a mental health patient. Article also shows health inequities that exist in rural hospital low staffing and governance structure. Local community are now in fear and do not have trust in local health services	Police
Crawford R 2013, 'Train wreck', <i>South Coast Register</i> , May 1, viewed April 11 th 2015,	Transportation	Shoalhaven	Transport infrastructure- train inequity between city maintenance and rural stations.	Local family

http://www.southcoastregister.com.au/story/1469833/train-wreck/				
Bega Bypass: The road to change, 2012, <i>Bega District News</i> , June 14 th , viewed 10 th April 2015, http://www.begadistrictnews.com.au	Transport & infrastructure Diverse economy Employment	Bega	Road development seen as an important investment.	Federal Minister Infrastructure and Transport And Local Federal member
Law, J 2012 ‘Months before mountain reopens’ <i>Eden Magnet</i> , March 7, viewed April 4 th 2015, www.edenmagnet.com.au/story/172999/months-before-mountain-reopens/	Liveability transportation Sense of place	Bega / brown mountain	Road closure will impact on tourism. Highlights importance of road systems and safety of travel on rural roads and infrastructure	Local transport operator Roads and Maritime services
Gorton, S 2012, ‘Update: Victoria Creek highway project south of Narooma’, <i>Narooma News</i> , June 20, www.naroomanewsonline.com.au/.../update-victoria-creek-highway-project-south-of-narooma/	Transport and road infrastructure	South coast	New road under \$15 million is allocated in the 2012/13 NSW Government budget to complete construction	Roads and Maritime Service (RMS)
Gorton, S 2012, ‘Brown Mountain to open, Bega bypass a go’, <i>Narooma News</i> , April 4, viewed 4 th April 2015, www.naroomanewsonline.com.au/.../brown-mountain-to-open-bega-bypass-a-go/	Transport and infrastructure- roads	Far South Coast- Bega to Cooma	Road closure impact on sustainability of the region for trade and transport. Also the frailty of the landscape- landslides due to erosion.	ROADS and Maritime Services
Nash, K 2013, ‘Straw home a tourist attraction’, <i>South coast Register</i> , Sept. 15. Viewed April 11th 2015, http://www.southcoastregister.com.au/story/1777200/straw-home-a-tourist-attraction/	Housing	Shoalhaven Tourists New residents	Promoting green building / Environment friendly homes.	Local business
Long, J 2014, ‘Local creativity shines at design awards’, <i>South Coast Register</i> , Oct. 28, Viewed April 11th 2015, http://www.southcoastregister.com.au/story/2656812/local-creativity-shines-at-design-awards/	Housing Sense of place	Shoalhaven	Environment Architecture/ design/ housing ... “We created a modern, sustainable home incorporating the original wooden structure of the house and made best use of wood materials”	Local business
Conviviality				
‘Local tourism operators bring home awards for their efforts’ 2013, <i>South Coast Register</i> , Dec. 2, Viewed April 11th 2015, http://www.southcoastregister.com.au/story	Sense of place Diverse economy. Culture and history	Shoalhaven	Tourism awards and links to local Economic development – Article promotes that business is booming, that there is success in the region and tourism is good for the region.	Local business persons

/1944049/local-tourism-operators-bring-home-awards-for-their-efforts/				
'Feedback sought on Mundamia growth area', 2014, <i>South Coast Register</i> , Feb 19, Viewed April 11th 2015, http://www.southcoastregister.com.au/story/2097232/feedback-sought-on-mundamia-growth-area/	Sense of place Perception of government leaders Local control Equity Diverse economy Liveability	Shoalhaven Mundamia	Infrastructure & Development Economic / Development – a new suburb plan – the draft Development Control Plan, contained detailed controls to guide the sustainable development of the new Mundamia.	Shoalhaven Mayor Joanna Gash
Ellard, G 2012 'Recognition for best in business', <i>South Coast Register</i> , Oct. 15 Viewed April 11th 2015, http://www.southcoastregister.com.au/story/397149/recognition-for-best-in-business/	Sense of place Diverse economy Networks	Shoalhaven	Article promotes and celebrates local Small Business success. Promoting financial business and sustainable practices. Economic Business is booming and successful.	Local business owners
Winkler E 2012, 'SOLA is halfway there', <i>South Coast Register</i> , Jun 24, Viewed April 11th 2015, http://www.southcoastregister.com.au/story/130393/sola-is-halfway-there/	Sense of place networks Disability Education Equity	Shoalhaven People with disability	Social Inclusion / Economic. Sustainable Living Project. Article discusses local shop owner who has opened up business for people with disability to work in. 'Everyone has value can contribute to community'. SLICE of Life Australia (SOLA).	Local business person
Crawford R 2013, 'Store offers more to people with disabilities', <i>South Coast Register</i> , Sep 9, Viewed April 11th 2015, http://www.southcoastregister.com.au/story/1761515/store-offers-more-to-people-with-disabilities/	Sense of place networks Disability Education Equity	People with disability	Social / Economic and inclusion. SLICE of Life Australia (SOLA) plans to establish a Sustainable Living Program at Terara, which will involve hands on experience with small livestock, growing vegetables.	Local business person
Crawford, R 2013 'NAIDOC Week celebration at Showground' <i>South Coast Register</i> , July 10, Viewed April 11th 2015, http://www.southcoastregister.com.au/story/1628755/naidoc-week-celebration-at-showground/	Sense of place networks Cultural connection equity Education	Aboriginal people	Article promoting activities for NAIDOC week. Social inclusion / decrease racism / discrimination	Aboriginal NGO
Rodgers E and Long J 2014, 'Federal Police get youngsters hooked on sustainable fishing', <i>South Coast Register</i> , Jan. 20, Viewed April 11th 2015, http://www.southcoastregister.com.au/story/2032261/federal-police-get-youngsters-hooked-on-sustainable-fishing/	Sense of place Equity Community leadership education Community safety	Aboriginal people Justice System	Promoting Social inclusion. Social harmony, social cohesion, decreased racism. Importance of Role models and community leadership. Community values Australian Federal Police and children.	Police

Crawford R 2014, 'Slice of Life one step closer to construction', <i>South Coast Register</i> , April 23, Viewed April 11th 2015, http://www.southcoastregister.com.au/story/2233896/slice-of-life-one-step-closer-to-construction/	Sense of place Networks Equity Disability Education	Shoalhaven People with disability	SLICE of Life Australia is embarking on the second stage of construction of its sustainable living garden project at Terara. Promoting social sustainability and inclusion of young people with disability.	Local business person
Crawford, R 2013, 'New hostel for homeless men under way', <i>South Coast Register</i> , March 18, Viewed April 11th 2015, http://www.southcoastregister.com.au/story/1370262/new-hostel-for-homeless-men-under-way/	Sense of place Networks Equity	Homeless people Community	Raising awareness of homeless issues in the Shoalhaven. Social values- inclusion homeless – compassion, care for others.	Health professionals NGOs
'Berry's link to the land' 2012, <i>South coast Register</i> , Feb 2, Viewed April 11th 2015, http://www.southcoastregister.com.au/story/1018879/berrys-link-to-the-land/	Sense of place Social networks Voluntarism Ecosystem health	Shoalhaven	Environment Conservation voluntarism in the community.	Local Landcare Southern Rivers Catchment Management Authority.
'Local health chief retires after a long, at times stormy career' 2014, <i>South Coast Register</i> , Aug. 28, Viewed April 11th 2015 http://www.southcoastregister.com.au/story/2521216/local-health-chief-retires-after-a-long-at-times-stormy-career/	Sense of place	Shoalhaven	Importance of health service professionals as part of rural communities. "Local health chief retires after a long, at times stormy career".	Health professionals
'Aboriginal artists urged to enter big competition' 2012, <i>South Coast Register</i> , July 25, Viewed April 11th 2015, http://www.southcoastregister.com.au/story/132492/aboriginal-artists-urged-to-enter-big-competition/	Sense of place Social networks Culture and place Aboriginal – art	Aboriginal people	The region's indigenous artists have been encouraged to enter the 2012 Parliament of NSW Aboriginal Art Prize, offering an annual acquisitive prize of \$40,000 to the finest example of contemporary Aboriginal art in the state.	South Coast MP Local Aboriginal artist NGO
Crawford, R 2014, 'Health system 'New health chief has big task ahead'', <i>South Coast Register</i> , Nov. 6, Viewed April 11th 2015, http://www.southcoastregister.com.au/story/2679340/new-health-chief-has-big-task-ahead/	Sense of community place	Shoalhaven Residents	Rural community connection with health professionals as part of the community.	Health professionals

<p>'Centre to focus on Aboriginal children', 2012, <i>South Coast Register</i>, April 10, Viewed April 11th 2015, http://www.southcoastregister.com.au/story/103017/centre-to-focus-on-aboriginal-children/</p>	<p>Sense of place Equity - Access Aboriginal Health care and outcomes Health promoting behaviour Culture and place</p>	<p>Shoalhaven Aboriginal Children</p>	<p>Aboriginal health awareness and how important cultural heritage is to social wellbeing of Aboriginal people. A Traditional Aboriginal smoking ceremony was combined with a sod turning and gala day to publicly announce the chosen site for the Shoalhaven Aboriginal Child and Family Centre.</p>	<p>Centre co-ordinator Ted Braddick Local community CTG funding</p>
<p>Ellard, G 2012, 'Community Shocked - Anne Young died when her car hit a tree in a tragic highway accident', <i>South coast Register</i>, April 19, Viewed April 11th 2015, http://www.southcoastregister.com.au/story/103144/community-shocked-anne-young-died-when-her-car-hit-a-tree-in-a-tragic-highway-accident/</p>	<p>Sense of place Networks Community Safety Family Road</p>	<p>Cambewarra Community</p>	<p>Cambewarra community grieve the death of a much-loved teacher. Shows importance of roads being kept open and safe for access to the region. Shows importance of public servant's health and education to rural communities.</p>	<p>Community – School principal Police</p>
<p>'Two men die in tanker crash', 2012, <i>South Coast Register</i>, 7 Dec. 15, viewed April 11th 2015, http://www.southcoastregister.com.au/story/1188419/two-men-die-in-tanker-crash/</p>	<p>Sense of place Community safety</p>	<p>Shoalhaven Community</p>	<p>Two men died in collision Princes Highway and Jaspers Brush Road. Show importance of roads being kept open and safe for access to the region.</p>	<p>Police</p>
<p>'Shoalhaven Mental Health Fellowship art competition names People's Choice winner', 2014, <i>South Coast Register</i>, May 12, Viewed April 11th 2015, http://www.southcoastregister.com.au/story/2275265/shoalhaven-mental-health-fellowship-art-competition-names-peoples-choice-winner/</p>	<p>Sense of place culture and place</p>	<p>Shoalhaven</p>	<p>Mental Health link to community through art- Art Shoalhaven Mental Health Fellowship held its 11th annual open community art competition/exhibition which focuses on mental health, mental illness and psychological personal recovery. Sponsored by a grant from the Shoalhaven Arts Board.</p>	<p>Shoalhaven City Arts Centre and Regional Gallery manager</p>
<p>McCauley, K 2012 'Long-serving staff thanked for service', <i>Milton Ulladulla Times</i>, July 11, viewed April 10th 2015, www.ulladullatimes.com.au/story/.../long-serving-staff-thanked-for-service/</p>	<p>Sense of place</p>	<p>Milton community</p>	<p>Health system – community connections via the hospital. Recognition of local community who work at hospital fundraising and volunteering.</p>	<p>Illawarra Shoalhaven Local Health Network chief executive</p>
<p>Condie, K 2014, 'Stephen makes his mark on pharmacy', <i>Milton Ulladulla Times</i>, Oct 22, viewed April 10th 2015,</p>	<p>Sense of Place</p>	<p>Milton</p>	<p>Health system – connections. Article shows the importance of local pharmacy in small town.</p>	<p>Local pharmacist</p>

www.ulladullatimes.com.au/story/.../stephen-makes-his-mark-on-pharmacy/				
'Nominated triples wrap up for 2012' 2013, <i>Milton Ulladulla Times</i> , Jan. 2, viewed April 5 th 2015, www.ulladullatimes.com.au/story/.../nominated-triples-wrap-up-for-2012/	Sense of place Social networks Health promoting	Older men	Article promotes social health and physical health through bowling.	Local bowlers
'Netball reps do club proud' 2014, <i>Milton Ulladulla Times</i> May 27, viewed April 10 th 2015, www.ulladullatimes.com.au/story/2310763/netball-reps-do-club-proud/	Sense of place Social networks Health promoting	Ulladulla Young girls	Promoting sport and team activities to young women.	Local teachers / coach
'Boys Win Shield' 2012, <i>Milton Ulladulla Times</i> , Sept. 19, viewed April 5 th 2015, www.ulladullatimes.com.au/story/345018/boys-win-shield/	Sense of place Social networks Health promoting	Ulladulla Young boys	Rugby League. Promoting sport and team activities to young men.	Local teachers / coach
'Reps Do Region Proud' 2012, <i>Milton Ulladulla Times</i> , Dec. 19, viewed April 5 th 2015, www.ulladullatimes.com.au/story/1195402/reps-do-region-proud/	Sense of place Social networks Health promoting	Ulladulla Young boys	Cricket. Promoting sport and team activities to young men.	Local teachers / coach
Junior Bulldogs 2012, 'Footy competition kicks off', <i>Milton Ulladulla Times</i> , April 24 viewed April 5 th 2015, www.ulladullatimes.com.au/story/187559/footy-competition-kicks-off/	Sense of place Social networks Health promoting	Ulladulla Young boys	Rugby League. Promoting sport and team activities to men.	Local teachers / coach
Carless, S 2012, 'James is one to watch', <i>Milton Ulladulla Times</i> , Nov. 14, viewed April 5 th 2015, www.ulladullatimes.com.au/story/1120847/james-is-one-to-watch/	Sense of place Social networks Health promoting	Ulladulla Young boys	Rugby League. Promoting sport and team activities. Lifestyle behaviours Physical activity to men.	Local teachers / coach
'Sign up for athletics' 2013, <i>Milton Ulladulla Times</i> , Sept. 3, viewed April 5 th 2015, www.ulladullatimes.com.au/story/1750353/sign-up-for-athletics/	Sense of place Social networks Health promoting	Milton Ulladulla Young primary school children (boys)	Milton Ulladulla Little Athletics Club, promoting physical activities to young families.	Local teachers / coach

Senior League 2012 'Close clash for Doggies' <i>Milton Ulladulla Times</i> July 4, viewed April 5 th 2015, www.ulladullatimes.com.au/story/187812/close-clash-for-doggies/	Sense of place Social networks Health promoting	Ulladulla Men	Rugby League. Promoting sport and team activities to men.	Local coach
'Panther Power Big weekend for the Panthers' 2012, <i>Milton Ulladulla Times</i> , June 27, viewed April 5 th 2015, www.ulladullatimes.com.au	Sense of place Social networks Health promoting	Ulladulla Young girls	Soccer. Promoting sport and team activities to men.	Local teachers / coach
'Guides say farewell to 2012' 2012, <i>Milton Ulladulla Times</i> , Dec. 19, viewed April 5 th 2015, www.ulladullatimes.com.au/story/1195368/guides-say-farewell-to-2012/	Sense of Place Social networks Promoting healthy behaviours	Ulladulla Families with teenage girls	Promoting group activity for girls and general community health. Seeking to recruit community engagement with more leaders.	Local guides
Condie, K 2012, 'Kidgeeridge festival the best yet', <i>Milton Ulladulla Times</i> , Oct. 31, viewed April 5 th 2015, www.ulladullatimes.com.au/story/489003/kidgeeridge-festival-the-best-yet	Sense of Place Social networks Diverse economy	Fisherman's Paradise Shoalhaven tourists	Community and local culture ways to bring community together through art and music.	Local promoter
Condie, K 2012, 'Boys top the class', <i>Milton Ulladulla Times</i> , Dec. 27, viewed April 5 th 2015, www.ulladullatimes.com.au/story/1206011/boys-top-the-class/	Sense of place Education quality	Ulladulla Families with teenagers	Promoting education and boy's achievement.	Local families and teachers
'LETTER: Process 'frustrating' Robert Miller (Ward 3 councillor)' 2012, <i>Milton Ulladulla Times</i> , Aug. 15, viewed April 10 th 2015, www.ulladullatimes.com.au/story/215337/letter-process-frustrating/	Sense of place Local Production Perception of government leaders Governance	Community Milton	Article encourages community action and raises awareness about the Local Environment Plan and the need for the plan to take into account changing demographics, changing social needs, changing land-use demands, changing industry needs, changing tourism requirements, changing agricultural production, changing lifestyles and Shoalhaven City Council's own Strategic Growth Management Plan. There is concern in the community that 'Rural towns like Milton are being changed. And 'Farmers have been the landscape gardeners of this district that has made its rural character. We are now being destroyed'.	Local councillor

‘Accountability a cornerstone’ 2012, <i>Milton Ulladulla Times</i> , Oct. 24, viewed April 10 th 2015, www.ulladullatimes.com.au/story/418451/accountability-a-cornerstone/	Sense of place Governance – perception of government	Agriculture / farming Government	Letter to Editor – Changes Local Land Service will restore accountability and transparency to government, including agencies which are publicly funded	Politician- Minister for Primary Industries Small Business
Carless, S 2012, ‘Kids get planting’ , <i>Milton Ulladulla Times</i> , Aug. 1, viewed April 5 th 2015, www.ulladullatimes.com.au/story/187906/kids-get-planting/	Sense of place Social support networks Ecosystem health Education	Young children families Community Ulladulla Milton Bawley Point	Article promotes environmental values to children and the importance of trees. Article promotes the involvement of multiple stakeholders: Schools, community groups (land care) and promotes corporate sponsors like Toyota and Bunnings.	National Tree Day's major sponsor, Toyota Planet Ark rep
‘Bush regeneration a growing concern’ 2014, <i>Milton Ulladulla Times</i> , April 15, viewed April 5 th 2015, www.ulladullatimes.com.au/story/.../bush-regeneration-a-growing-concern/	Sense of place Ecosystem health Education	Landcare groups	Promoting ecosystem health and social connections and sense of place- Milton Rural Landcare Group plans to raise 5000 seedlings for planting in Meroo National Park, volunteers helped plant hundreds in popular camping areas.	NSW National Parks and Wildlife Service ranger
Condie, K 2014, ‘State coastal conference rolls into Ulladulla’, <i>Milton Ulladulla Times</i> , Nov. 11, viewed April 6 th 2015, www.ulladullatimes.com.au/story/.../coastal-conference-rolls-into-ulladulla/	Sense of place Education Perception of government leaders	Shoalhaven	NSW Coastal Conference to be held in Ulladulla. Conference aims to engage the scientific community.	Mayor
Schwarz, D 2012, ‘Magical’ music on the wind’, <i>Bega District News</i> , April 10, viewed 10 th April 2015, http://www.begadistrictnews.com.au/story/161312/tragedy-waiting-to-happen/	Sense of place Art and sustainability Social connections	Bermagui Bega valley	Annual music festival – article shows how this festival is very strongly supported.	festival’s artistic director
Powerful image’ wins \$50k Shirley Hannan National Portrait Award, 2012, <i>Bega District News</i> , June 4, viewed 10 th April 2015, http://www.begadistrictnews.com.au/story/161592/powerful-image-wins-50k-shirley-hannan-national-portrait-award/	Sense of place Culture Art and sustainability Social connections	Bermagui Bega valley	Art and sustainability link.	Portrait judge
Bartlett, J 2013, ‘Eagles eye fresh start’, <i>Bega District News</i> , Jan. 11, viewed 10 th April 2015, http://www.begadistrictnews.com.au/story/258484/eagles-soar-into-decider/	Sense of place health and networks promoting behaviour men’s health	Tathra	Sport and rural communities for men.	Local coach

	Social culture Men			
Lupton, C 2012, 'School celebrates proud tradition', <i>Bega District News</i> , March 19, viewed 10 th April 2015, http://www.begadistrictnews.com.au/story/161373/school-celebrates-proud-tradition/	Sense of place Social networks Education Community - Social connections –	Tathra	Community celebrate centenary of local school- connections to education and sustainability of the rural place	Tathra residents and school children
Schwarz, D 2012, 'Bega students attack the track', <i>Bega District News</i> May 28, viewed 10 th April 2015, http://www.begadistrictnews.com.au/story/161575/bega-students-attack-the-track/	Sense of place health promoting behaviour social networks and Education Social connections	Bega Young students/ teenagers	Connections to education and sustainability of the rural place connects the landscape and physical activity for youth.	Teenagers Bega High School
The Sapphire Coast Anglican College (SCAC) is creating history by building a custom-made mountain bike track, <i>Bega District News</i> , viewed 10 th April 2015, http://www.begadistrictnews.com.au/story/176783/colleges-top-class-bike-track/	Sense of place health promoting behaviour social networks and Education Social connections	Bega Young students/ teenagers	Connections to education and sustainability of the rural place integrates landscape and physical activity for youth.	Teenagers Sapphire Coast Anglican College
Law, J 2012, 'New health service manager recognises the challenges', <i>Bega District News</i> , Nov. 9, viewed 10 th April 2015, http://www.begadistrictnews.com.au/story/878821/new-health-service-manager-recognises-the-challenges/	Sense of place social networks Health system – community health professionals	Bega Valley	Connections to health system are important in rural areas. New health service manager introduced to community and will have prominent role in the region.	New health service manager
Bartlett, J 2012, 'Making waves at Tathra', <i>Bega District News</i> Jan. 13, viewed 10 th April 2015, http://www.begadistrictnews.com.au/story/1081173/making-waves-at-tathra/	Sense of place social networks	Tathra - young people and families	Annual town fundraising event – brings community and tourist to town. Community event Physical activity	Surf lifesaving club
Bartlett, J 2012, 'Tathra's pennant perfection', <i>Bega District News</i> , April 12, viewed 10 th April 2015, http://www.begadistrictnews.com.au/story/161443/tathras-pennant-perfection/	Sense of place social networks health promoting behaviour	Tathra –older people	Celebrating, local bowls club wins in competitions Community Physical activity event	Bowlers
Bartlett, J 2012, 'Big day for Devils', <i>Bega District News</i> , Aug. 24, viewed 10 th April 2015,	Sense of place Social networks	Bega – Men	Soccer Physical activity – Men's sport.	Players and coach

http://www.begadistrictnews.com.au/story/247320/big-day-for-devils/	health promoting behaviour Lifestyle			
Schwarz, D 2012, 'Bega GP's long service', <i>Bega District News</i> Feb. 23, viewed 10 th April 2015, http://www.begadistrictnews.com.au/story/1082445/bega-gps-long-service/	Sense of place Social networks connections	Bega	Local GP served the community for 40 years. Shows importance of connections with health professionals and particularly GPs.	Local GP
Smyth, B 2012, 'Bega Scouts on rocky ground', <i>Bega District News</i> May 25, viewed 10 th April 2015, http://www.begadistrictnews.com.au/story/161565/bega-scouts-on-rocky-ground/	Sense of place Social networks and connections – young community	Bega Young people and families	Scouts community group need to relocate article calls on the locals to help out.	Scout leaders
'The colourful past of the Hotel Australasia' 2014, <i>Eden Magnet</i> , Feb. 20, viewed April 4 th 2015, www.edenmagnet.com.au/story/.../the-colourful-past-of-the-hotel-australasia/	Sense of place social networks Local control	Eden	Cultural heritage and Social connection – Article discusses historical links to place – shows one of the earliest photographs taken of Eden, the Australasia Hotel, and how stories from the building's past have prevented the building from being demolished.	Local investor
Cairns Hack, M 2013 'Watch out for the beach haulers', <i>Eden Magnet</i> , Dec. 24, viewed April 5 th 2015, www.edenmagnet.com.au/story/1991057/watch-out-for-the-beach-haulers/	Sense of place social networks	Eden Tourists	Cultural heritage and tourism connecting history to community today. Article discusses how the Eden beach haul has been a tradition among some of the town's well-known fishing families for many generations. It is seen as important part of Eden's fishing industry history for more than 100 years.	Fisherman
'Fergus the bull, and Lachie, take on the pros' 2012, <i>Eden Magnet</i> , April 11, viewed April 4 th 2015, www.edenmagnet.com.au/story/.../fergus-the-bull-and-lachie-take-on-the-pros/	Sense of place social networks	Nethercote	Local farmer at Easter show in Sydney. Shows social connection and local pride. Taps into sentimental and the historical image of rural and traditional industries.	Local farmers
'South East Arts welcomes new chair' 2014, <i>Eden Magnet</i> , Dec. 9, viewed April 1 st 2015, www.edenmagnet.com.au/story/.../south-east-arts-welcomes-new-chair/	Sense of place Sense of networks	Bega Valley	Article promotes art culture in the south east region. Another example of the Art and sustainability link.	New Chair of South east arts
Foden, B 2014 'Student sailors bound for Sydney', <i>Eden Magnet</i> , Nov. 13, 2014, www.edenmagnet.com.au/story/2694541/student-sailors-bound-for-sydney/	Sense of place-	Eden – young high school	Social connections to water and the coast -20 Eden Marine High School in Sydney Harbour.	Students

<p>‘Bonito star at fishing workshop’ 2012, <i>Eden Magnet</i>, April 18, viewed April 4th 2015, www.edenmagnet.com.au/story/173126/bonito-star-at-fishing-workshop/</p>	<p>Sense of place networks Discrimination and exclusion Education</p>	<p>Eden –Aboriginal culture</p>	<p>Aboriginal cultural wellbeing and connections- 30 local Aboriginal children and their parents or elders lined the breakwater wharf to drop a line and have some fun.</p>	<p>NSW Department of Primary Industries Local Aboriginal people and families</p>
<p>‘Southern NSW Local Health District a leader in patient care’ 2014, <i>Eden Magnet</i>, Oct. 10 viewed April 1st 2015, http://www.edenmagnet.com.au/story/2616842/healthy-report-card-for-our-health-district/</p>	<p>Sense of place Public Services Social networks</p>	<p>Bega</p>	<p>The Southern NSW Local Health District (SNSWLHD) has become one of the leading health districts in NSW in patient care and financial management – building trust with local after years of health service being in debt.</p>	<p>SNSWLHD chief executive, Dr Max Alexander Quarterly surveys conducted by the NSW Bureau of Health Information (BHI)</p>
<p>‘Health board chair in induced coma’ 2012, <i>Eden Magnet</i>, May 23, viewed April 4th 2015, www.edenmagnet.com.au/story/.../health-board-chair-in-induced-coma/</p>	<p>Sense of place Public services Social networks</p>	<p>South coast</p>	<p>Health system community connections - Chair of the Local Health District LHD board in an accident.</p>	<p>Police</p>
<p>‘Healthy Harold here to stay’ 2013, <i>Eden Magnet</i>, May 23, viewed May 8th 2015, www.edenmagnet.com.au</p>	<p>Sense of place Public Services Health Promoting Behaviour Early Childhood learning</p>	<p>Bega Valley and Eurobodalla children</p>	<p>Health system community connections –Donation from IMB to assist the running of the life education bus.</p>	<p>Life Education NSW manager</p>
<p>Blake Foden Eden speaks out on Pambula Hospital, 2014, <i>Eden Magnet</i>, Aug. 13, viewed 8th April 2015, www.edenmagnet.com.au</p>	<p>Sense of place Healthy Public Policy Civil action Public services</p>	<p>Eden and Pambula</p>	<p>Article shows rural community collaboration and how important health services are to region.</p>	<p>Independent chair of the Pambula Health Service Community Engagement Committee</p>
<p>Blake Foden 2014, ‘Bupa Memory Walk: Eden residents join fight against dementia’, <i>Eden Magnet</i>, Sept. 18, viewed April 10th 2015, www.edenmagnet.com.au</p>	<p>Sense of place Health Status Social networks Healthy Public policy Health promoting behaviour</p>	<p>Eden Bega Older people in residential care</p>	<p>Community- Health system connection and promoting the age care dementia Memory Walk event.</p>	<p>Bupa Eden residents</p>

Chenhall, S 2012, 'Gaining ground against cancer', <i>Eden Magnet</i> , Sept. 20, viewed April 10th 2015, www.edenmagnet.com.au	Sense of place Health Status Health Promoting Behaviour Charitable donation	Merimbula	Article discusses a local girl with cancer and promotes local services and support.	local resident
Gorton, S 2012, 'Sustaining our Towns legacy continues in Narooma', <i>Narooma News</i> , March 28, viewed 4 th April 2015, www.naroomanewsonline.com.au/.../sustaining-our-towns-legacy-continues-in-narooma/	Sense of place and social support networks Education Ecosystems Economic development	Narooma region	Article showcases locals who have undertaken sustainable activities in a locally made movie. Promotes the sustaining out towns project. The project was a short term government project and has no funds to continue on.	Sustaining our Towns (SOT) project participants.
'Documentary marks legacy of sustainability program' 2012, <i>Narooma News</i> , March 20, viewed 4 th April 2015, www.naroomanewsonline.com.au/.../sustaining-our-towns-legacy-continues-in-narooma/	Social connections Sense of place Culture Education	Narooma community	Article promotes the Sustainable towns project 'Sustaining our towns' - The project has worked with foodies, artists, festival organisers, librarians, migrant communities, homeowners, nursing homes, clubs, pools, schools, racing. Moruya Sustainability Hub project (SERT) South East Food initiative, supported by SCPA – South East Producers.	Locals- South East Regional Organisation of Councils (SEROC), Clean Energy for Eternity, the Southern Rivers Catchment Management Authority and the 13 SEROC councils
Narooma Junior Devils compete in knockout carnival 2012, <i>Narooma News</i> , April 4, viewed 4 th April 2015, www.naroomanewsonline.com.au/.../narooma-junior-devils-compete-in-knockout-carnival/	Sense of place Support networks Culture health promoting behaviours Social connections	Boys Families Local culture	Article promotes the boys football festival.	Local families
Blue Water Fours Carnival at Narooma 2012, <i>Narooma News</i> , June 13, viewed 4 th April 2015, www.naroomanewsonline.com.au/.../blue-water-fours-carnival-at-narooma/	Sense of place Support networks Culture health promoting behaviours Social connections	Narooma Men	Local Bowls competition promotion.	Local bowlers
Narooma women's rugby union: Jindabyne wins 2012, <i>Narooma News</i> , Aug. 1, viewed 4 th April 2015, www.naroomanewsonline.com.au/.../narooma-womens-rugby-union-jindabyne-wins/	Sense of place Support networks Culture health promoting behaviours	Narooma Women	Sports and social connections- women.	Local players

	Social connections			
The people choose Dandelions at Bermagui's SOTE 2012, <i>Narooma News</i> , March 20, viewed 4 th April 2015, www.naroomanewsonline.com.au	Sense of place Support networks Culture Social connections	Bermagui	Art and local culture. Links to social sustainability.	Local artists
Gorton, S 2012, 'The Hill' comes to Cooma via the Bega Valley', <i>Narooma News</i> , Aug. 8, viewed 4 th April 2015, www.naroomanewsonline.com.au/.../the-hill-comes-to-cooma-via-the-bega-valley/	Sense of place Support networks Culture Social connections	Narooma	Article promotes the South East Arts organisation exhibition. Links to social sustainability, art and local culture.	South East Arts organisation Bega Valley Regional Gallery director and curator Artists
Narooma Oyster Festival surveys and feedback, 2012, <i>Narooma News</i> , May 23, viewed 4 th April 2015, www.naroomanewsonline.com.au/.../narooma-oyster-festival-surveys-and-feedback/	Sense of place and support networks Diverse economy Local control Sustainable tourism	Narooma	Article promotes the importance of the local oyster festival to the economy- estimated \$1.2 million over the past three years. Promotes the festival as sustainable tourism and a sustainable economic base for the town.	Narooma Chamber of Commerce and Tourism
Tilba couple nominated for farmer awards 2012, <i>Narooma News</i> , Aug. 29, viewed 4 th April 2015, www.naroomanewsonline.com.au/.../tilba-couple-nominated-for-farmer-awards/	Sense of place Local production Sustainable agriculture	Tilba Narooma region	Article promoting local food producers - Sustainable agriculture can lead to prosperity.	Local farm family
Gorton, S 2012, 'Narooma's Tony Lawson wins Master Builder award', <i>Narooma News</i> , July 18, viewed 4 th April 2015,	Sense of place Building and infrastructure	Narooma	Master builder wins award. Promotes local community tradesman and designers.	Local business owners
Aunty Gable 2012, 'AFL -A pride of Lions', <i>Narooma News</i> , April 18, viewed 4 th April 2015, www.naroomanewsonline.com.au	Sense of place support networks Health promoting behaviour Social inclusion	Narooma – young men	Local pride in team Lifestyle Physical activity – Sport-Aboriginal Men	Locals
Devils win grand final 2012, <i>Narooma News</i> , Sept. 20, viewed 4 th April 2015, www.naroomanewsonline.com.au/story/345410/devils-win-grand-final/	Sense of place support networks Health promoting behaviour Social inclusion	Narooma – young men	Local pride in team. Men's sport.	Locals
Gorton, S 2014, 'Tailwaggers 2014: Get ready to walk your dog!', <i>Narooma News</i> , Sept. 12, viewed 4 th April 2015,	Sense of place support networks Health promoting Charity event	Narooma	Annual event with charity. Community - Physical activity and community and dogs. 'Tail wagers walk' is a very popular event.	AWL

www.naroomanewsonline.com.au/.../tailwalkers-2014-get-ready-to-walk-your-dog/				
Medlicott, J 2014, 'Dalmeny aged care facility sold', <i>Narooma News</i> , Nov. 5, viewed 4 th April 2015, www.naroomanewsonline.com.au	Sense of place support networks Demographic target group	Older people Eurobodalla	Article raises awareness that a new company has taken over a local private nursing home.	Facility management
Gorton, S 2012, 'Aboriginal health team wins national excellence award' <i>Narooma News</i> , Nov. 14, viewed 4 th April 2015, www.naroomanewsonline.com.au/.../aboriginal-health-team-wins-national-excellence-award/	Sense of place support networks Demographic target group (Aboriginal) Culture and history	Aboriginal people	Community pride- Aboriginal health team working with the Wallaga Lake, Bega and Moruya Aboriginal communities won an award at the National Medicare Local Awards.	CEO Southern NSW Medicare Local
Carless, S 2012, 'Towns facing a real decline', <i>Milton Ulladulla Times</i> , June 27, viewed April 10 th 2015, www.ulladullatimes.com.au/story/187767/towns-facing-a-real-decline/	Demographics Sense of Place Education	Shoalhaven – Ulladulla region	Social -Community sustainability and demographic change. Report uses population statistics from the 2011 ABS Census. Report discussed Shoalhaven's population had passed 90,000. Ulladulla, Milton and Mollymook Beach had dropped, whilst Narrawallee recorded a slight increase in population. One of the largest population growths was at Fisherman's Paradise, which increased in size from 378 people to 420.	Census data
Crawford R 2013, 'Rehab report welcomed by Oolong House', <i>South Coast Register</i> , Feb 11, Viewed April 11 th 2015, http://www.southcoastregister.com.au/story/1292475/rehab-report-welcomed-by-oolong-house/	Public Services Equity	Drug and alcohol and mental health rehab services.	Promoting awareness of need for drug and alcohol services in the region. "I hope they continue to review and provide financial support for these services to continue to remain sustainable. "There are growing demands".	Health professionals NGO
Cohen, M, 2014 'New health facility will be a first for the state', <i>South Coast Register</i> , Aug. 12Viewed April 11 th 2015, http://www.southcoastregister.com.au/story/2483040/new-health-facility-will-be-a-first-for-the-state/	Public Services Health care – Access Sense of place	Shoalhaven Residents	Health system access / Green Building- Nowra's GP super clinic. Promoting primary health care - The Grand Pacific Health Centre's 'innovative design' will make it the first green four-star health building in the state.	Health professionals
Schwarz, D 2012, 'Stars will shine at Relay for Life', <i>Bega District News</i> March 29, viewed 10 th April 2015, http://www.begadistrictnews.com.au/story/161402/stars-will-shine-at-relay-for-life/	Charity Social connections Sense of place	Pambula	Fundraising events for cancer sufferers.	NSW Cancer Council and event organiser

Gorton, S 2014, 'Closing the Gap' footy trip for Yuin players', <i>Narooma News</i> , Sept. 8, viewed 4 th April 2015, www.naroomanewsonline.com.au/.../closing-the-gap-footy-trip-for-yuin-players/	Culture and place Sense of place culture and history Social networks Inclusion. Aboriginal Equity access to health care	Aboriginal people	Aboriginal people and sport linkages. The Far South Coast PCYC and Katungul Aboriginal health service teamed up to take a bus of young people to a Canberra Raiders match.	PCYC staff
'Dr Graham Anderson dies' 2014, <i>Bay Post</i> , Dec. 10 th , viewed 8 th May 2015, www.batemansbaypost.com.au/story/.../popular-surf-beach-gp-mourned/	Sense of place	Eurobodalla residents	Local GP passes away. Shows how important health professionals are to locals.	Local resident
Gidney, J 2014, 'Brad Rossiter meets new feet', <i>Bay Post</i> , July 22 nd , viewed 9 th May 2015, www.batemansbaypost.com.au/story/2433917/brad-rossiter-meets-new-feet/	Sense of place disability social support Social inclusion	Eurobodalla	Article promotes awareness of local man receiving medical care after a long wait.	Local resident
Gidney, J 2012, 'Fun run makes a comeback', <i>Bay Post</i> , July 25 th , viewed 9 th May 2015, www.batemansbaypost.com.au/story/143574/fun-run-makes-a-comeback/	Sense of place social support Social inclusion Charitable event	Eurobodalla	Article promotes awareness of a local Fun run for surf lifesaving clubs.	local resident
'Bay Swimming Club gets back in the swim' 2012, <i>Bay Post</i> , Oct.3, viewed 9 th May 2015, www.batemansbaypost.com.au/.../bay-swimming-club-gets-back-in-the-swim/	Sense of place Health promoting behaviours Social support Social inclusion	Batemans Bay	Article promotes that the local pool is opens again. Shows images of children sitting on pool edge to promote to children.	Pool and Council media release
O'Connor, K 2012, 'HSC students celebrate top results', 2012, <i>Bay Post</i> , Dec21. Viewed 9 th May 2015, www.batemansbaypost.com.au/story/.../hsc-students-celebrate-top-results/	Sense of place Education – quality	Batemans Bay students / parents	Article promotes local education achievements.	Batemans Bay students

Equity				
Wright A 2014, 'Students know it's no holiday in Cambodia', <i>South Coast Register</i> , June 17, viewed April 11th 2015 www.southcoastregister.com.au/.../students-know-its-no-holiday-in-cambodia/ ,	Equity – discrimination and inclusion Education Social/	Young people Parents School/ Community	Article promotes awareness of global health and wellbeing issues through education. “. In recent years, students have planted fruit trees to help promote sustainable growth and income for disadvantaged communities”.	Local students teacher
Schwarz, D 2012 'Indigenous student inspired to teach', <i>Bega District News</i> , April 4, viewed 10 th April 2015, http://www.begadistrictnews.com.au/story/161420/indigenous-student-inspired-to-teach/	Equity- discrimination and Social inclusion Connections – Education Indigenous poverty and inequity	Bega Young students/ teenagers	Article promotes that a local Indigenous student has received a \$2000 Housing NSW Youth Scholarship. The scholarships are presented to a select number of students each year who are living in social housing and working to complete their HSC or TAFE equivalent.	Bega Valley Public School student NSW Housing rep Teacher
Gorton, S 2012, 'Solidarity is the ticket for women' <i>Bay Post</i> , Sept. 6, viewed 10 th May 2015, www.batemansbaypost.com.au/story/.../solidarity-is-the-ticket-for-women/	Discrimination- Gender equity	Women	Women get together to discuss political issues and push for equality.	Local women
Bartlett, J 2013, 'Bega students' Cambodian trip an enriching lesson', <i>Bega District News</i> , Sept. 13, viewed 10 th April 2015, http://www.begadistrictnews.com.au/story/1772582/bega-students-cambodian-trip-an-enriching-lesson/	Equity – economic disparity Social connections – poverty and equity	Bega Young students/ teenagers	Article promoting global awareness and poverty issues, and Intergenerational awareness of what young people from the region are doing.	Teenagers
Ormes, B 2012, 'Bega students commit to flush poverty', <i>Bega District News</i> , July 30, viewed 10 th April 2015, http://www.begadistrictnews.com.au/story/176820/bega-students-commit-to-flush-poverty/multimedia/	Equity- economic disparity Social connections – poverty and equity	Bega Young students/ teenagers	Global awareness and poverty issues Intergenerational awareness of what young people are doing to address this.	Teenagers Member for Eden-Monaro Mike Kelly

Ellard, G 2012, 'Speech honours tent embassy trailblazers', <i>South Coast Register</i> , July 18, viewed April 11th 2015, http://www.southcoastregister.com.au/story/132497/speech-honours-tent-embassy-trailblazers/	Equity discrimination inclusion Culture and place history	Aboriginal people Shoalhaven residents	Theme for NAIDOC Week discussed and in 2012 it was the spirit of the tent embassy. Article showcases people working to improve conditions for Aboriginal people and pays tribute to Aboriginal elders who pioneered for decades to ensure Aboriginal people enjoyed better living conditions and rights.	Aboriginal NGO
'Women should be respected and honoured every day of the year' 2014, <i>South Coast Register</i> , March 10, Viewed April 11th 2015,	Equity – gender inclusion	Women	Empowerment- Social / Gender equality discussed. "It is important to go beyond celebrating to making a sustainable difference in the lives of women and girls".	Local community
Federal Member to officially open new social housing villas 2012, <i>Narooma News</i> , June 13, viewed 4 th April 2015, www.naroomanewsonline.com.au/.../federal-member-to-officially-open-new-social-housing-villas/	Equity- Housing affordability	Older people People from low income with housing problems / homeless	Article discussed affordable housing issues. 'Secure, safe and affordable housing' to open for people with low incomes and special needs, in the Eurobodalla, Shoalhaven and Cooma-Monaro Local Government Areas.	MEMBER for Eden Monaro, Dr Mike Kelly MP Mayor Fergus Thomson Southern Cross Community Housing
Wachsmuth, L 2014, 'Dispute over mental health services', <i>South Coast Register</i> , Sept. 28, Viewed April 11th 2015, www.southcoastregister.com.au/.../women-should-be-respected-and-honoured-every-day-of-the-year/	Equity- Health care access	Shoalhaven South coast	Health care system access- Health Services Union raise awareness of mental health services at Shellharbour Hospital have been downgraded, forcing the transfer of high-risk patients further away to Sydney.	Health Services Union Shellharbour MP Kiama MP and South Coast MP a spokesperson for the Illawarra Shoalhaven Local Health District (ISLHD)
Robertson, L 2012, 'Hospital resignations prompt health concerns', <i>South Coast Register</i> Jan. 15, Viewed April 11th 2015, http://www.southcoastregister.com.au/story/1018518/hospital-resignations-prompt-health-concerns/	Equity -Health care - Access Healthy public policy	Shoalhaven	Access to medical care in rural / regional areas is an issue this article discussed concern about doctor coverage at the hospital and the provision of local emergency health services.	Medical staff air "grave concerns"
'Two new surgeons to start work next month' 2012, <i>South Coast Register</i> , July 25, Viewed April 11th 2015, http://www.southcoastregister.com.au/story/143489/two-new-surgeons-to-start-work-next-month/	Equity- Health care - Access Sense of place	Shoalhaven Residents	Article shows the difficulty rural areas have in recruiting and retaining health workforce. "Shoalhaven Hospital's surgical crisis appears to have been solved, with two new full-time surgeons appointed and due to start work".	Health Professionals
Crawford, R ,2013, 'Hospital Admission', <i>South Coast Register</i> , March 15, Viewed	Equity- Health care - Access	Shoalhaven Residents	Access to health care in rural areas- Newspaper has obtained a photograph of an operating theatre at Shoalhaven Hospital.	Health Professionals

April 11th 2015, http://www.southcoastregister.com.au/story/1381954/hospital-admission/	Build healthy public policy		The theatre can't be used due to an ongoing problem with the hospital air conditioning unit.	
Crawford, R 2013, 'Authorities deny ward closure has caused bed block', <i>South Coast Register</i> , June 10, viewed April 11th 2015, http://www.southcoastregister.com.au/story/1928974/authorities-deny-ward-closure-has-caused-bed-block/	Equity- Health care - Access Healthy public policy	Shoalhaven Residents	Access to health care in rural areas - "Illawarra Shoalhaven Local Health District has denied the back-up of ambulances at Shoalhaven District Hospital last Wednesday was due to the closure of Medical Ward".	Health Professionals
Hanscombe, J 2013, 'Nurses join outcry over ward closure', <i>South Coast Register</i> Oct. 18, http://www.southcoastregister.com.au/story/1848333/nurses-join-outcry-over-ward-closure/?cs=338	Equity- Health care - Access Community Action	Shoalhaven Residents	Access to health care in rural areas again discussed "Health system closure of 12 beds at Shoalhaven Hospital for at least six months is likely to result in local patients being transferred to Wollongong for treatment, according to the NSW Nurses and Midwives Association".	Health professionals Unions
'Health care in the spotlight yet again as bureaucracy sits on hospital report', 2014, <i>South Coast Register</i> , June 13, Viewed April 11th 2015, http://www.southcoastregister.com.au/story/2348133/health-care-in-the-spotlight-yet-again-as-bureaucracy-sits-on-hospital-report/	Equity- Health care - Access	Shoalhaven Residents Cancer care	Shoalhaven Hospital reported in this article because the special care nursery has "been in existence at the hospital for more than two decades but is rarely used to its potential because it has never been properly funded".	Health professionals
Wright, A 2014, 'Shoalhaven health horror', <i>South Coast Register</i> , July 2, Viewed April 11th 2015, http://www.southcoastregister.com.au	Equity Health care access - quality and safety	Shoalhaven Residents	Access to health care in rural areas again discussed this time it is reference to waiting times and access to care.	Health professionals
Crawford, R 2014, 'Health service defends sending mothers to give birth in Nowra', <i>South Coast Register</i> , July 29, Viewed April 11th 2015, http://www.southcoastregister.com.au/story/2389060/shoalhaven-health-horror/	Equity Health care access - quality and safety	Shoalhaven Residents Maternity care	Health system access for maternity care- "Illawarra Shoalhaven Local Health District says expectant mothers transferred from Milton Ulladulla Hospital to Nowra to give birth are not adding stress to Shoalhaven Hospital's maternity ward.	Health professionals
Wachsmuth, L & Wright, A 2014, 'Study warns hospitals will be overrun if GP tax goes ahead', <i>South Coast Register</i> , Oct. 12, Viewed April 11th 2015, http://www.southcoastregister.com.au/story	Equity- Health care - Access Perception of government	Shoalhaven Residents	Article discussed the Federal government's proposal for GP co-payments. If this goes ahead then more people will present at the hospital for services.	Health professionals

/2618865/study-warns-regions-hospitals-will-be-overrun-if-gp-tax-goes-ahead/				
Wachsmuth L and Geiger D 2014, 'Update: Man charged with murder over death of fellow patient at Shellharbour Hospital', <i>South Coast Register</i> , July 31, viewed April 11th 2015, http://www.southcoastregister.com.au/story/2455995/update-man-charged-with-murder-over-death-of-fellow-patient-at-shellharbour-hospital/	Equity – quality health care Community safety Access Mental health – healthy system Safety	Shoalhaven community	Concern about safety in local mental health care unit- “An electric guitar has allegedly been used to murder a 47-year-old patient at a Shellharbour Hospital mental health facility”.	Police Illawarra Shoalhaven Local Health District chief executive
'Mental health unit quietly offers services' 2014, <i>South Coast Register</i> , Aug. 17, Viewed April 11th 2015, http://www.southcoastregister.com.au/story/2492910/mental-health-unit-quietly-offers-services/	Equity of health care access Sense of place	Shoalhaven	Mental health system access in rural areas is an issue – Community wondering why there was no fanfare or official opening of the \$11.6 million 20-bed unit.	Illawarra Shoalhaven Local Health District spokesperson
Winkler, E 2014, 'Union: lack of secure mental health facilities', <i>South Coast Register</i> , Aug 25 th , viewed April 11th 2015, http://www.southcoastregister.com.au/story/2515436/union-raises-mental-health-concerns/	Equity- health care access	Shoalhaven	Mental health system access in rural areas is an issue- - Health Service Union (HSU) has voiced concern over a shortage of high dependency mental health facilities on the South Coast that could see at-risk patients on the streets	Health Service Union
Long, J 2014, 'Tick of approval for mental health unit', <i>South Coast Register</i> , Dec 2, Viewed April 11th 2015, http://www.southcoastregister.com.au/story/2737354/tick-of-approval-for-mental-health-unit/	Equity in access health care Sense of place Public Services	Shoalhaven / south coast form Wollongong to border	The Shoalhaven Sub-Acute Mental Health Unit at Shoalhaven Hospital was praised for its design elements and approach to treatment on a recent official tour.	NSW Minister for Mental Health Jai Rowell South Coast MP
Long, J 2013, 'Region gets a poor rank for poverty', <i>South Coast Register</i> , Oct. 18, viewed April 11th 2015, http://www.southcoastregister.com.au/story/1848297/region-gets-a-poor-rank-for-poverty/	Equity economic disparity Education Perception of government leaders	Community	Social / population statistics show that Shoalhaven has pockets of significant disadvantage. Article promotes Shoalhaven Anti-Poverty Committee public report.	Health professionals – Mayor Perspectives on Poverty in the Shoalhaven 2014-17
Schwarz, D 2012, 'Navigating new Bega hospital' <i>Bega District News</i> ,	Equity access to health care Social	Bega	Article promotes new hospital-and again shows the importance of the local hospital to this rural community.	Health staff University of Wollongong

June 25, viewed 10 th April 2015,	connections – community health		Volunteers are being recruited to assist developers in making the hospital lay out user friendly for older people who have difficulty navigating the systems.	
Jean, P 2013, 'Nullica Lodge, Bimbimbie to be sold', <i>Bega District News</i> , June 27, viewed 10 th April 2015, http://www.begadistrictnews.com.au/story/176724/navigating-new-bega-hospital/	Equity access to health care social networks connection - Aged care Sense of place demographics	Older people and their families	Article promotes local age care facilities and the need to provide quality and safe and caring services for older people.	Anglicare
GP co-payment will hurt Bega hospital: Labor 2014, <i>Bega District News</i> , Nov.7, viewed 10 th April 2015, http://www.begadistrictnews.com.au/story/2679045/gp-co-payment-will-hurt-bega-hospital-labor/	Equity access to health care Social connections – community – health	Bega	State Labour candidate promoting the word that the proposed GP co-payment will hurt local hospitals services.	Labour politician
Schwarz, D 2012, 'Bega's new \$13m multi-purpose health facility', <i>Bega District News</i> , May 3, viewed 12 th April 2015, http://www.begadistrictnews.com.au/story/161489/begas-new-13m-multi-purpose-health-facility/	Equity- Health care access	Bega	Article promoting the new Bega hospital development- 'A state-of-the-art health facility will be built on the new South East Regional Hospital site in Bega'	Federal Health Minister Tanya Plibersek and Member for Eden-Monaro Mike Kelly
Bega's healthy development, 2012, <i>Bega District News</i> , Oct. 23, viewed 10 th April 2015, http://www.begadistrictnews.com.au/story/414746/begas-healthy-development/	Equity- Health care access	Bega	Another article promoting the new Bega hospital- The \$170million South East Regional Hospital at Bega is a step closer after a development application for the first stage of work was submitted to the Department of Planning and Infrastructure	Member for Eden-Monaro Mike Kelly Council GM Mayor
Maternity services enhanced at Pambula, 2012, <i>Bega District News</i> , Feb. 16, viewed 10 th April 2015,	Equity- Health care access	Pambula	Ongoing discussion of the local maternity services. Population demographics change and decline in birth rates	Southern NSW Local Health District Board chairwoman
Ormes, B 2012, 'Bega Hospital triage among state's worst', <i>Bega District News</i> Dec. 11, viewed 10 th April 2015, http://www.begadistrictnews.com.au/story/1178365/bega-hospital-triage-among-states-worst/	Equity- Health care access	Bega	Bureau for health information on emergency room waiting times has found Bega Hospital to be the fourth worst in the state when it comes to being treated for an "imminently life threatening condition".	Bureau for health information Spokesperson from the Southern NSW Local Health District

Ormes, B 2014, 'Ian Dalwood bedridden as mobility aid service claims lack of funding', <i>Bega District News</i> , Oct. 7, viewed 10 th April 2015, http://www.begadistrictnews.com.au/story/2606145/ian-dalwood-bedridden-as-mobility-aid-service-claims-lack-of-funding/	Equity- Health care access	Bega valley	A Bega Valley local says a shortfall in State Government disability funding is resulting in society's most vulnerable people waiting months for vital mobility equipment Social justice issue.	Bega Valley local
Smyth, B 202, 'Cobargo medical centre closes,' <i>Bega District News</i> , July 19, viewed 10 th April 2015, http://www.begadistrictnews.com.au	Equity- Health care access	Cobargo	Access to Primary health care (PHC). Importance of health professionals in small community.	Local resident's and the local pharmacist
Ormes, B 2012, 'Cobargo's new doctor brings stability', <i>Bega District News</i> , Oct. 26, viewed 10 th April 2015, http://www.begadistrictnews.com.au	Equity- Health care access	Cobargo	Access to PHC. Importance of health professionals in small community.	local pharmacist and GP
Ormes, B 2012, 'New vision for Cobargo surgery', <i>Bega District News</i> , Dec. 18, viewed 10 th April 2015, http://www.begadistrictnews.com.au	Equity- Health care access	Cobargo	Access to PHC. Importance of health professionals in small community.	local pharmacist and GP
Ormes, B 2012, 'Bermagui welcomes new doctor', <i>Bega District News</i> , Nov. 30, viewed 13 th April 2015, http://www.begadistrictnews.com.au	Equity- Health care access	Bermagui	Access to PHC Importance of health professionals in small community.	GP
O'Connor, K 2014, 'Parkinson's disease nurse for South-East secured', <i>Bega District News</i> , Dec. 30, viewed 10 th April 2015, http://www.begadistrictnews.com.au	Equity- Health care access	Eurobodalla and Bega Valley	New role funded by Medicare Local to provide clinical and needs assessments, medication advice, education, and referrals to other services where required	Nurse Medicare Local
Smyth, B 2012, 'Paramedics 'guttled', but Ambulance Service applauds roster ruling', <i>Bega District News</i> , Oct. 12, viewed 10 th April 2015, http://www.begadistrictnews.com.au	Equity- Health care access	Bega Valley	Tension between work and unions for ambulance working conditions.	Local ambulance NSW Industrial Relations Commission
Ormes, B 2013, 'Bega Valley ambos roster victory', <i>Bega District News</i> , May 17, viewed 10 th April 2015, http://www.begadistrictnews.com.au	Equity- Health care access	Bega Valley	Tension between work and unions for ambulance working conditions.	Local ambulance NSW Industrial Relations Commission

Medicare Local merger: 'Business as usual' says Southern NSW CEO, 2014, <i>Bega District News</i> , Oct. 20, viewed 10 th April 2015, http://www.begadistrictnews.com.au	Equity- Health care access	South coast	Primary Health Networks (PHNs) are a Coalition budget measure and will replace the nation's 61 Medicare Locals from July 2015.	Southern NSW Medicare Local CEO
Foden, B 2014, 'Family falls in health funding hole', <i>Eden Magnet</i> , Nov. 25, viewed April 1 st 2015, www.edenmagnet.com.au/story/.../family-falls-in-health-funding-hole/	Equity Health system access-age care Transport Sense of place Public Services	Eden Bega Older people in residential care	Justice and equity of funding and support for residents in aged care facilities needing transport to services. Local support found - Eden Motor Group managing director Con Zurcas has arranged to drive resident home from Bega after his dialysis.	Eden Motor Group managing director Resident's Son
Tickner, L 2014, 'Pambula Hospital ED: 48 hours without a doctor' <i>Eden Magnet</i> , Oct. 2, viewed April 5 th 2015, www.edenmagnet.com.au	Equity Health system - access Sense of place Public Service Healthy Public Policy	Pambula	Pambula District Hospital was left without an on-call doctor to cover the roster at its Emergency Department (ED)	Southern NSW Local Health District (SNSWLHD) spokesman
'Letter: My Journey with Parkinson's disease' 2012, <i>Eden Magnet</i> , Aug. 6, viewed 8 th April 2015, www.edenmagnet.com.au	Equity Health system access- age care Public Service Healthy Public Policy Sense of place	Beg Valley – aged care residents older people Families with older parents.	Detailed letter about patient experience having to go to Sydney for care	local resident
Foden, B 2014, 'More options for palliative care patients' <i>Eden Magnet</i> , April 4, viewed April 4 th 2015, www.edenmagnet.com.au	Equity Health system access –age care Sense of place Public Service Healthy Public Policy Health Status	South coast	Palliative care patients and their families now have more options for end of life care, thanks to collaboration between NSW Ambulance and two of southern NSW's largest health agencies	Southern NSW Medicare Local (SNSWML) and the Southern NSW Local Health District (SNSWLHD) NSW Ambulance
Gorton, S 2012, 'Welcome back to Katungul Aboriginal health service', <i>Narooma News</i> , July 17, viewed 4 th April 2015,	Equity in access to health care Aboriginal culture	Narooma and Wallaga Lake	Local Aboriginal Medical Service reopens. Health link	Aboriginal health service staff

www.naroomanewsonline.com.au/.../welcome-back-to-katungul-aboriginal-health-service/				
Andric, V 2013, 'Katungul future resolved', <i>Narooma News</i> , Sept. 18, viewed 4 th April 2015, www.naroomanewsonline.com.au	Equity access to health care Sense of place culture and history Social networks Inclusion. Aboriginal	Aboriginal people	Detailed timeline about restoration of services after misappropriation of funds by previous CEO	Sydney Federal Court Justice Jacobson Registrar of Indigenous Corporations
Pacey, L 2012, 'Katungul returns to community control', <i>Narooma News</i> , Oct. 4, viewed 4 th April 2015, www.naroomanewsonline.com.au/.../katungul-returns-to-community-control/	Equity access to health care Sense of place culture and history Social networks Inclusion. Aboriginal	Aboriginal people	Community control returned to Katungul Aboriginal Corporation Community and Medical Services last Friday, nine months after the organisation was placed under special administration.	Registrar of Indigenous Corporations, Katungul Director Bunja Smith, Federal Department of Health and Ageing Southern NSW Medicare Local
Smyth, B 2014, 'Katungul Aboriginal Corporation welcomes landmark decision', <i>Narooma News</i> , Feb. 5, viewed 4 th April 2015, www.naroomanewsonline.com.au/.../katungul-aboriginal-corporation-welcomes-landmark-decision/	Equity access to health care Sense of place culture and history Social networks Inclusion. Aboriginal	Aboriginal people	Katungul Aboriginal Corporation Community & Medical Services boss Jon Rogers welcomed Federal Court decision to penalise his predecessor for \$1.2million.	KATUNGUL Aboriginal Corporation Community & Medical Services CEO
'Katungul Aboriginal health service Filling the Gap' 2014, <i>Narooma News</i> , Oct. 29, viewed 4 th April 2015, www.naroomanewsonline.com.au/story/.../filling-the-gap-at-katungul/	Equity access to health care Sense of place culture and history Social networks Inclusion. Aboriginal	Aboriginal people	The Katungul Aboriginal medical service is boosting its dental services with visiting dentists	Oral Health professionals
Mobile clinic measuring up the community 2013, <i>Narooma News</i> , July 17, viewed 4 th April 2015,	Equity- Health System Access	Eurobodalla	University of Canberra Mobile Health Clinic is running free diabetes health screening this week as part of National Diabetes week	Health professionals Mayor
Medlicott, J 2013, 'Mobile Health Clinic in town', <i>Narooma News</i> , Feb. 20, viewed 4 th April 2015,	Equity, Health System Access	Eurobodalla	The University's Faculty of Health Mobile Clinic provides low cost health services in Nutrition and Dietetics, Pharmacy and Midwifery. The mobile clinic is staffed by students and	Health professionals Local consumers

			their qualified professional supervisors. Students spend 20 weeks in total doing clinical placement.	
Medlicott, J 2014, 'Palliative care now has new Ambulance options,' <i>Narooma News</i> , July 23, viewed 4 th April 2015,	Equity- Health System Access	Eurobodalla	Palliative care patients and their families in Narooma now have more options for end of life care, a collaboration between NSW Ambulance and the region's health agencies	Health professionals Local consumers
Gidney, J 2012, 'Health choices denied', <i>Bay Post</i> , July 27 th , viewed 7 th May 2015, www.batemansbaypost.com.au/story/147775/health-choices-denied/	Equity health care access	Eurobodalla	Persons' issues with Disability and access to care in Eurobodalla	Local person with disability
O'Connor, K 2012, 'Health crisis reignites shire hospital debate, <i>Bay Post</i> , March 23 rd , viewed 7 th May 2015, www.batemansbaypost.com.au/.../health-crisis-reignites-shire-hospital-debate/	Equity health care access Sense of place Demographics Local control	Eurobodalla	Ongoing debate about the need for another regional hospital in the Eurobodalla and also the lack of medical staff for 24-hour care.	Doctors
'Doctors run ragged' says MP' 2012, <i>Bay Post</i> , March 14 th , viewed 7 th May 2015, www.batemansbaypost.com.au/story/106609/doctors-run-ragged-says-mp/	Equity health care access Sens of place	Eurobodalla	Promoting local doctors are stressed and local GPs have a high work load of	Bega MP Doctors
'Thousands more at Batemans Bay emergency', <i>Bay Post</i> , March 9 th , viewed 7 th May 2015, www.batemansbaypost.com.au/.../thousands-more-at-batemans-bay-emergency/	Equity health care access	Eurobodalla	Ongoing debate about the need for a larger hospital	local residents
'Moruya Medicare Local staff face uncertain future' 2014, <i>Bay Post</i> , May 23 rd , viewed 8 th May 2015, www.batemansbaypost.com.au/.../moruya-medicare-local-staff-face-uncertain-future/	Equity health care access	Eurobodalla / Bega	Medicare local potentially going to close which will decrease access to PHC and there will be significant regional job losses.	Medicare local staff
O'Connor, K 2012, 'Bay hospital tops worst performers' list', <i>Bay Post</i> , Aug.1 st , viewed 8 th May 2015, www.batemansbaypost.com.au/.../bay-hospital-tops-worst-performers-list/	Equity health care access	Eurobodalla	Report shows Batemans bay not meeting state benchmarks for safety and quality in health care	Health service rep NSW hospital admission data
Foy, S 2014, 'Early intervention crucial for autism spectrum disorder', <i>Bay Post</i> , April 2 nd , viewed, 9 th May 2015,	Equity health care access	Families and children	Early intervention need for children with autism. Services limited.	Local resident health professional

www.batemansbaypost.com.au/.../early-intervention-crucial-for-autism-spectrum-disorder/				
O'Connor, K 2012, 'Surgeon puts knife in', <i>Bay Post</i> , Aug.3 rd , viewed 9 th May 2015, www.batemansbaypost.com.au/story/167641/surgeon-puts-knife-in/	Equity health care access	Eurobodalla	Surgeon criticises local health district re quality health care, waiting list	local eye surgeon
Corderoy, A and Owden, S 2013, 'Funding shortfall ends rural mental health program', <i>Bay Post</i> , Jan 29, viewed 9 th May 2015, http://www.batemansbaypost.com.au/story/1264480/funding-shortfall-ends-rural-mental-health-program/	Equity – health care access	Eurobodalla	Funding cuts to psychological support health services (Better Access program) and farmers and rural people's mental health post drought.	Local residents
Smyth, B 2014, 'Royal Commission on child abuse helps Bega Valley man heal', <i>Bega District News</i> , July 9, viewed 10 th April 2015, http://www.begadistrictnews.com.au	Governance human rights Community Safety	Bega	Bega valley man gave evidence in the Royal Commission into Institutional Responses to Child Sexual Abuse and the systemic failing to protect children and report paedophiles.	Royal Commission into Institutional inquiry
Prosperity				
McCarroll, P 2012, 'Revved up for track plan', <i>South Coast Register</i> , Jun 5, Viewed April 11th 2015, http://www.southcoastregister.com.au/story/103702/revved-up-for-track-plan/	Diverse economy Perception of government leaders Sense of place	Yerriyong Young adult males	Economic development Infrastructure & Development - Business Tourism "facility in Yerriyong will provide the area with a huge economic boost and add valuable sustainable visitor dollars into the local economy,"	Shoalhaven City Council Mayor Motorcycling NSW
Wright, A 2012, 'Marina group applies to lease Callala Bay seabed', <i>South Coast Register</i> , July 3, Viewed April 11th 2015, http://www.southcoastregister.com.au/story/130480/marina-group-applies-to-lease-callala-bay-seabed/	Diverse economy Sense of place Local control Perception of government leaders	Callala Bay recreational Fishermen /sailing / tourists/ investors	Economic development plan Infrastructure & Development Business/ Tourism - 48 hectares of sea bed and foreshore in Jervis Bay as part of its plan to build a 500-berth facility by 2020	Callala Marina Consultancy Group NSW Planning Department Nowra architect
Arnold, A 2014, 'Kiama eyes Nowra's Shaolin Temple', <i>South Coast Register</i> , Aug. 21, Viewed April 11th 2015, http://www.southcoastregister.com.au/story/2503171/kiama-eyes-nowras-shaolin-temple/	Diverse economy Local control Sense of place Perception of government	Shoalhaven	Infrastructure & Development Economic Development competition shows importance of infrastructure and development to Shoalhaven	Councillors

Crawford, R 2014, 'Shaolin temple decision supported by Hancock and Gjedsted', <i>South Coast Register</i> , Sept. 9 Viewed April 11th 2015, http://www.southcoastregister.com.au/story/2547901/shaolin-temple-opponent-judy-gjedsted-says-shes-vindicated/	Diverse economy Local control Employment Sense of place Perception of government	Shoalhaven	Infrastructure & Development Economic Development Progress development jobs	Local community member / business person
Hanscombe, J 2014, 'Shaolin temple: Patrick Pang says project will go ahead', <i>South Coast Register</i> , Sept. 15, Sep 15, Viewed April 11th 2015,	Diverse economy Local control Employment Sense of place	Shoalhaven	Infrastructure & Development Economic development... "We will then probably make some modifications to make it economically more viable and sustainable," Mr Pang said"	Local developer
Ellard, G 2012, 'Call to ensure the fine print is local', <i>South Coast Register</i> , April 24, Viewed April 11th 2015, http://www.southcoastregister.com.au/story/103203/call-to-ensure-the-fine-print-is-local/	Diverse economy Sense of place Networks Local control	Shoalhaven	Paper industry threatened closure and impact on employment and economy. Global investors have control. Sustainable business enterprises in rural regions.	Local business person
Ellard, G 2012, 'Treasury report dismisses Manildra workers', <i>South Coast Register</i> , May 15, Viewed April 11th 2015 http://www.southcoastregister.com.au/story/103448/treasury-report-dismisses-manildra-workers/ ,	Diverse economy Employment Perception of government Sense of place Networks Local control	Shoalhaven	NSW Government report does not include the Manildra ethanol plants, employs 300 people and questions the value of ethanol exports to the government revenue.	Local business owner opinion
'Slow internet is holding the entire region back in the digital dark ages', 2014, <i>South Coast Register</i> , Jun 19, Viewed April 11th 2015 http://www.southcoastregister.com.au/story/2363619/slow-internet-is-holding-the-entire-region-back-in-the-digital-dark-ages/	Diverse economy Business and technology development Local control	Shoalhaven business	Economic development dependent on technology to advance. Article discusses impact of slow internet connections. Shoalhaven catches up, let alone keeps pace with, the technology we will need if we want to develop a sustainable knowledge economy.	Local business
Oyster Festival plans for 2013 2012, <i>Narooma News</i> , Nov. 7, viewed 4 th April 2015, www.naroomanewsonline.com.au/story/.../oyster-festival-plans-for-2013/	Diverse economy Local control Sense of place and support networks Sustainable tourism	Narooma region	Article showcases local produce and landscape- oysters, produce and 'extraordinary culinary and artistic talents in the most beautiful settings' Combines economic with social development.	Narooma Chamber of Commerce and Tourism

Gorton, S 2012, 'Travel show visits Montague Island; light trail announced', <i>Narooma News</i> , Sept. 5, viewed 4 th April 2015, www.naroomanewsonline.com.au/.../travel-show-visits-montague-island-light-trail-announced/	Diverse economy Sense of place and support networks Sustainable tourism	South coast Tourists Business owners	Showcasing local assets - eco-tourism venture Sustainable tourism and economic base for the town	NSW National Parks and Wildlife Service (NPWS) NSW Environment Minister Robyn Parker Member for Bega Andrew Constance
Gorton, S 2012, 'Motel closure sparks tourism debate at Narooma', <i>Narooma News</i> , Aug. 8, viewed 4 th April 2015, www.naroomanewsonline.com.au/.../motel-closure-sparks-tourism-debate-at-narooma	Diverse economy Sense of place and support networks Local control Sustainable tourism	Narooma	Local business closes. "those that rely in tourism have been left wondering what more can be done to bring visitors to the Narooma district"	Local business owners Tourism board Consultant report Tourism board
Gorton, S 2013, 'Woolworths submits "fresh" application for Bermagui', <i>Narooma News</i> , Dec. 11, viewed 4 th April 2015,	Diverse economy Culture of place Governance Community action	Bermagui	development application has been lodged with the Bega Valley Shire Council for approval to construct a Woolworths supermarket, liquor outlet and two further specialty shops in Bermagui. Shows tension between community and developers. Global Business and local Building and infrastructure. Locals not happy.	Local sustainable community development advocate
Cater, M 2012, 'Narooma Woolworths launches Australia's Fresh Food People', <i>Narooma News</i> , June 27, viewed 4 th April 2015,	Diverse economy Culture of place Governance Global Business	Narooma	Promoting corporate sustainability activities as the fresh food people. 'Ninety-six per cent of Woolworth's fruit and vegetables come from Australian farms and 100 per cent of their meat is Australian'.	Local shoppers Woolworths
Gorton, S 2012, 'HuntFest' hunting festival coming to town', <i>Narooma News</i> , Oct. 31, viewed 4 th April 2015,	Diverse economy Ecosystem health	Narooma	Eurobodalla Shire Council approved the licence for the contested Hunt Fest	Game Council
Seal pups arrive as Montague Island evolves 2012, <i>Narooma News</i> , March 20, viewed 4 th April 2015,	Diverse economy Sense of place and culture Tourism Environment – ecosystem health	Narooma Montague island	Promoting Eco tourism -Seal pups are 'proving a hit with visitors'.	NSW National Parks and Wildlife Service (NPWS)
O'Connor, K 2012, 'Jobs axed at GoLo and sawmill', <i>Bay Post</i> , Oct 31, www.batemansbaypost.com.au/story/.../jobs-axed-at-golo-and-sawmill/	Employment/ Quality employment Diverse economy Renewable resources	Batemans Bay	Small business franchise closes its doors and young adults out of work, no redundancy and no information given re closure. Saw mill also closed.	local residents

‘Eurobodalla Coast showcased in whale show’ 2014, <i>Bay Post</i> , Oct 22, viewed 9 th May 2015, www.batemansbaypost.com.au/story/.../nature-coast-stars-in-whale-of-a-trip/	Diverse economy-tourism	Eurobodalla	Promoting the region as the nature coast. Large image of whale jumping out of water.	local tourism business owners
Stroud, A 2012, ‘All for One!’, <i>Eden Magnet</i> , Nov. 15, viewed April 5 th 2015, www.edenmagnet.com.au	Diverse economy Sense of place Local control employment Perception of government trade indicators	Eden	Economic development Port of Eden Marina (POEM) proposal consultation – politicians from State and Federal present. Strong political presence.	Federal Eden Monaro Member, Bega Valley Shire Council mayor, Member for Bega and former Federal Member for Eden Monaro
‘Eco-tourism a step closer’ 2012, <i>Eden Magnet</i> , Sept. 6, viewed April 5 th 2015, www.edenmagnet.com.au/story/306370/eco-tourism-a-step-closer/	Diverse economy Local control Sense of place Employment Culture history	Eden	Eco-Tourism “guided walks between Ben Boyd Tower and Green Cape Lighthouse were a productive and sustainable use of the landscape and would boost the local economy”	NSW Environment Minister, Parks and Wildlife Service (NPWS) and Auswide Services
Stroud, A 2012 ‘Must see’ tourist destination wins National Trust award’ <i>Eden Magnet</i> , April 23, viewed April 4 th 2015, www.edenmagnet.com.au/.../must-see-tourist-destination-wins-national-trust-award/	Diverse economy Local control Sense of place Employment Culture history	Eden	Tourism development- A project that is turning the historic Davidson Whaling Station site at Eden, into a place of interaction and activity for visitors won a prestigious National Trust Heritage Award for Research and Investigation/Analysis	NSW National Parks and Wildlife Service (NPWS) CEO of The National Trust of Australia
Stroud, A 2014, ‘Hendy: Eden Port development project “on track”’, <i>Eden Magnet</i> , May 7, viewed April 4 th 2015, www.edenmagnet.com.au/.../hendy-eden-port-development-project-on-track/	Diverse economy Local control Sense of place Employment Culture history	Eden	Tourism development via upgrade to the Eden Port	Federal MP
Foden, B 2014, ‘Port of Eden Marina: POEM hits the web’, <i>Eden Magnet</i> , Sept. 1, viewed April 4 th 2015, www.edenmagnet.com.au/story/.../port-of-eden-marina-poem-hits-the-web/	Diverse economy Local control Sense of place Employment Culture history	Eden	Port of Eden Marina (POEM) group’s website is now up and running, thanks to a \$1200 sponsorship from the Pambula branch of Bendigo Bank	POEM president
‘Waminda celebrates its regional accolade’ 2013, <i>South Coast Register</i> , Jan. 9, Viewed April 11th 2015, http://www.southcoastregister.com.au/story	Employment Culture and place Sens of place Quality employment	Aboriginal women	Promoting success of local award winning Aboriginal South Coast Women’s Health and Welfare Aboriginal Corporation Waminda that offer job opportunities and employment agency	Aboriginal NGO

/1224667/waminda-celebrates-its-regional-accolade/				
Crawford, R 2014, 'Waminda gets the South Coast working', <i>South Coast Register</i> , June 2, Viewed April 11th 2015, http://www.southcoastregister.com.au/story/2322906/waminda-gets-the-south-coast-working/	Employment Culture and place Sense of place Quality employment	Aboriginal people South coast	Promoting job opportunities and employment agency for Aboriginal people in the Nowra region.	Aboriginal NGO
Schwarz, D 2012, 'More jobs cut in Bega Valley', <i>Bega District News</i> , June 11, viewed 10 th April 2015, http://www.begadistrictnews.com.au	Employment	Bega Valley Eden	Jobs being cut from State Government departments across NSW, including in the Bega Valley. Government moving to market led service provision that sits within the neoliberalist paradigm.	Public Service Association Forests NSW Ageing Disability and Home Care (ADHC) and the Department of Primary Industries' (DPI) Crown Lands Division. Member for Bega Andrew Constance
Ormes, B 2013, 'Breaking ground for Bega McDonald's', <i>Bega District News</i> , March 22, viewed 10 th April 2015, http://www.begadistrictnews.com.au	Employment Global corporate infiltration	Bega	McDonalds gets built despite strong local opposition	NSW Land and Environment Court McDonalds
'Forestry industry renews safety partnership' 2014, <i>Eden Magnet</i> , July 1, viewed 10 th April 2015, www.edenmagnet.com.au	Employment Regulation law Community Safety Renewable resource consumption Diverse economy Sense of place.	Eden	Forestry Corporation of NSW has renewed its safety partnership with WorkCover NSW. Risk of working in the industry discussed	Forestry Corporation of NSW CEO
Education				
Arnold, A 2013, 'Local schools aim for the Archibull', <i>South Coast Register</i> , Feb 27, Viewed April 11th 2015, www.southcoastregister.com.au/story/.../local-schools-aim-for-the-archibull/	Education Sense of place Local Production	Shoalhaven Young adults	Agriculture - Environment Schools are paired with young farming champions and young eco champions who share their sustainable farming stories and work with the students to promote local produce and sustainable farming.	School teens
Crawford R 2012, 'School's environment efforts rewarded', <i>South Coast Register</i> , Nov. 7, Viewed April 11th 2015,	Education Sense of place Ecosystem health	Shoalhaven Families School age children	Shoalhaven Heads Public School's sustainable projects have been acknowledged with a prestigious award.	School students and teachers

www.southcoastregister.com.au/.../schools-environment-efforts-rewarded/				
Ellard, G 2012, 'Wonder on show at the science fair', <i>South Coast Register</i> , Jul 25, Viewed April 11th 2015, www.southcoastregister.com.au/story/.../wonder-on-show-at-the-science-fair/	Education Sense of place Networks	Young people children parents	Education / knowledge community awareness and celebration of innovations. The event will also feature models of things ranging from sustainable homes to dinosaurs.	Local business person
Wright, A 2013, 'Local campus becomes a medical study hotspot', <i>South Coast Register</i> , March 1, viewed April 11th 2015, http://www.southcoastregister.com.au/story/1334548/local-campus-becomes-a-medical-study-hotspot/	Education – quality at Wollongong university Health care - Access	Young adults/ school-leavers in workforce	Promoting education and medical professions.	Health professionals
McCauley, K 2012, 'Recognition for teachers' <i>Milton Ulladulla Times</i> , Nov. 7, viewed April 5 th 2015, www.ulladullatimes.com.au/story/733913/recognition-for-teachers/	Quality education Sense of place Social networks	Ulladulla Families with teenagers	Importance of education and quality teaching.	Local families and teachers
McCauley, K 2012, 'Course helps green up TAFE students', <i>Milton Ulladulla Times</i> , Dec. 12, viewed April 10 th 2015, www.ulladullatimes.com.au/story/.../course-helps-green-up-tafe-students.	Education Local Food Production Sense of place	Students / Young people / parents	Article promoting education of sustainability, local food and health as a positive thing for the community and young people to learn. 'Sustainability is a huge, huge part of the studies. We teach the students everything to how to create and grow a garden that is healthy and sustainable,' Interdisciplinary learning- mixing horticulture with hospitality'.	Local students TAFE teachers
Bamber, G 2013, 'The environment can come to the party', <i>Milton Ulladulla Times</i> , June 12, viewed April 10 th 2015, www.ulladullatimes.com.au/story/.../the-environment-can-come-to-the-party/	Adult Education Sense of place Social networks Ecosystem health and sustainability	Young families	Raising awareness of Eco friendly entertaining, Consumerism, Plastic toys and waste	Local knowledge
Bamber, G 2012, 'Focus on the things that matter', <i>Milton Ulladulla Times</i> , Sept. 19, viewed April 10 th 2015, www.ulladullatimes.com.au/story/344931/focus-on-the-things-that-matter/	Education Sense of place Social support networks Ecosystem health	Shoalhaven	Opinion – Promoting ecosystem stewardship and connection to place. The green movement 'what you can't do' talks about ecosystem value- trees for air, intergenerational equity, nature, shared pathways "Imagine people in the community all working together on a regular basis to build a healthier and happier environment"	Local environmental supporter

Smyth, B 2012, 'Bega library's bright future', <i>Eden Magnet</i> , May 2, viewed April 4 th 2015, www.edenmagnet.com.au/story/173169/bega-libraris-bright-future/	Education lifelong learning	Bega	Libraries are important to rural communities as hub for connecting and learning	Council and Local State MP
'Off the chart' 2012, <i>Eden Magnet</i> , Dec. 6, viewed April 6 th 2015, www.edenmagnet.com.au/story/1168609/off-the-chart/	Education – lifelong learning Adult literacy	Pambula - school children	Libraries are important to rural communities as hub for connecting and learning	Librarian
Governance				
Ellard, G 2012, 'Mayor accuses NSW government of holding up raceway project', <i>South Coast Register</i> , Aug 13, Viewed April 11th 2015, http://www.southcoastregister.com.au/story/204441/mayor-accuses-nsw-government-of-holding-up-raceway-project/	Perception of government leaders Local control Equity Diverse economy Sense of place	Shoalhaven	Mayor – discussing power disparity and tensions between local government and state decision makers.	Shoalhaven Mayor
'Infrastructure report calls for review of highway funds' 2012, <i>South coast register</i> , Oct 5, viewed April 11th 2015, http://www.southcoastregister.com.au/story/378662/infrastructure-report-calls-for-review-of-highway-funds/	Perception of government leaders Local control Equity Diverse economy Sense of place	Shoalhaven	Infrastructure & Development Economic Business Infrastructure for development is going ahead after some serious lobbying. Article promotes this as evidence of growth and development.	Kiama MP Shoalhaven councillors
Brown, S 2013, 'BMX track a 'great idea in the wrong place'', <i>South Coast Register</i> , Nov. 22, Viewed April 11th 2015, http://www.southcoastregister.com.au/story/1924457/bmx-track-a-great-idea-in-the-wrong-place/	Perception of government leaders Diverse economy Sense of place Networks	Culburra Beach residents Shoalhaven parents - teenagers	Infrastructure & Development Economic/ and Social linkages to younger people - promoting physical activity promoted by councillor.	Councillor
Wright, A 2012, 'Minister opens Nowra Fisheries office' <i>South Coast Register</i> , Dec. 21, viewed April 11th 2015, http://www.southcoastregister.com.au/story/1200072/minister-opens-nowra-fisheries-office/	Perception of government leaders Renewable resource consumption Diverse economy sense of place	Shoalhaven Fisherman / aquaculture / oyster farmers/ tourism	Fisheries promoted by local politician. Importance of this to the local industry.	State politician

Latham, D 2014, 'Commissioner does a mental health check', <i>South Coast Register</i> , July 24, viewed April 11th 2015, http://www.southcoastregister.com.au/story/2440169/commissioner-does-a-mental-health-check/	Perception of government Equity- Mental health care access	Shoalhaven	Health care access is an issue in rural area particularly for mental health care- Mental Health NSW Mental Health Commissioner John Feneley visited services in the Shoalhaven 'to get a feel for local mental health needs'.	NSW Mental Health Commissioner John Feneley
Condie, K 2012, 'Praise for network', <i>Milton Ulladulla Times</i> , April 18, viewed April 10 th 2015, www.ulladullatimes.com.au/story/187519/p-raise-for-network/	Perception of government leaders Health Status Education Equity Public Services Social networks Healthy Public Policy	Ulladulla- older people. South coast community	Minister for mental health and healthy lifestyles discussed Mental Health Services local and state.	Politicians
'Candidates answer health care questions' 2013, <i>Milton Ulladulla Times</i> , Aug. 20 viewed April 6 th 2015, www.ulladullatimes.com.au/story/.../candidates-answer-health-care-questions/	Perception of government leaders Public Services Equity	Shoalhaven	Health system Politics for State election. Candidate asked question about health care.	Local political candidates (for election)
Carless, S 2012, 'Extend scheme: Gash,' <i>Milton Ulladulla Times</i> , Oct. 3, viewed April 5 th 2015, www.ulladullatimes.com.au/story/373940/extend-scheme-gash/	Perception of government leaders Health Status	Older resident people with chronic disease	Health system and Politics. Criticism of Gillard Government over its decision to axe the Chronic Disease Dental Scheme.	Local politician
McIntosh, 2013, 'Council claws back \$4 million', <i>Bay Post</i> , Dec 6 th , viewed 10 th May 2015, www.batemansbaypost.com.au/story/.../council-claws-back-4-million/	Perception of government	Eurobodalla	Praise for council's financial savings.	Council financial officer
'Politicians to fish the South Coast' 2013, <i>Bay Post</i> , March 1 st , viewed 10 th May 2015, www.batemansbaypost.com.au/story/.../politicians-to-fish-the-south-coast/	Perception of government	Eurobodalla	Local politician visited the region to promote recreational fishing	State politicians

Greens team pre-selected for council elections 2012, <i>Narooma News</i> , July 18, viewed 4 th April 2015, www.naroomanewsonline.com.au/.../greens-team-pre-selected-for-council-elections/	Governance – perception of government	Narooma / Eurobodalla	Governance- voter turnout. Greens promotion	Local council election team
Newton, G 2013, ‘Fishing groups slam radical catch limit plan’, <i>South coast Register</i> , Aug. 20, viewed April 11th 2015, reprinted from http://www.canberratimes.com.au/act-news/fishing-groups-slam-radical-catch-limit-plan-20130820-2s8bf.html	Regulations and law Ecosystem health Diverse economy Local control	Shoalhaven	Environment Conservation regulations and tensions	Department of Primary Industries President of the Canberra Fisherman's Club
McClymont, K 2012, ‘Corruption inquiry into Aboriginal land dealing concludes’ (first reported in <i>Sydney Morning Herald</i>), <i>Narooma News</i> , March 6, viewed 4 th April 2015, viewed 4 th April 2015,	Governance regulation and law Economic development	Narooma	Allegations made that businessman paid Wagonga Land Council close to \$200,000 to smooth their way to develop prime land around Narooma.	NSW Aboriginal Land Council Local Aboriginal People
Gorton, S 2013, ‘Caught with hoe, lake opener fined’, <i>Narooma News</i> , Dec. 23, viewed 4 th April 2015,	Governance regulation and law Environment – ecosystem health	Bermagui	Local man caught opening lake after heavy rain causing environmental harm	Local NSW Department of Primary Industries
‘Seven steps to a better future for Shoalhaven Heads residents’ 2013, <i>South Coast Register</i> , April 12, Viewed April 11th 2015, http://www.southcoastregister.com.au/story/1427356/seven-steps-to-a-better-future-for-shoalhaven-heads-residents/	Governance Community action decision making -	Community	Community engagement- joint planning and local decision making	Council
Long, J 2014, ‘Rumblings of health budget cuts at Shoalhaven Hospital meeting’, <i>South Coast Register</i> , April 23, viewed April 11th 2015, http://www.southcoastregister.com.au/story/2233898/rumblings-of-health-budget-cuts-at-shoalhaven-hospital-meeting/	Community Action Perception of government Equity Health care - Access	Shoalhaven	Community action to discuss concerns about cuts to local health and hospital service	Shadow minister for health Dr Andrew McDonald and Labor candidate for Kiama Glenn Kolomeitz met with Health Services Union and Nurses Association

<p>'Health system Nurses to campaign in Nowra' 2013, <i>South Coast Register</i>, March 22, viewed April 11th 2015, http://www.southcoastregister.com.au/story/1392220/nowra-rally-launches-nurses-campaign/</p>	<p>Community action Health care – Politics</p>	<p>South coast</p>	<p>Nurses and midwives campaign for a new state award. Protest walk in streets of Nowra to raise community awareness.</p>	<p>Health professional Unions</p>
<p>'Health system Survey takes the pulse of Shoalhaven health', 2013, <i>South Coast Register</i>, Oct. 14, viewed April 11th 2015, http://www.southcoastregister.com.au/story/1837895/survey-takes-the-pulse-of-shoalhaven-health/</p>	<p>Community action Healthy Public Policy Health care – Access – Community Consultation for Planning</p>	<p>Shoalhaven Residents</p>	<p>Health statistics were reported in this article to show how the Shoalhaven community's health compared to other regions. The article stated that the report has "identified major themes for the region including health and lifestyle risks, chronic disease, mental health disorders, lung and colon cancer, indigenous health, aged care and disability services, avoidable mortality and preventable hospitalisations and the distribution of general practitioner and primary care workforce in the region" The article also encouraged the Shoalhaven residents to participate in the community consultation forums and voice their health needs as part the Illawarra-Shoalhaven Medicare Local (ISML) population health consultation process.</p>	<p>Health professionals Survey for Health Consumers of the Illawarra-Shoalhaven is a follow-up to the recently released Illawarra-Shoalhaven Population Health Profile: 2013.</p>
<p>'Draft climate change strategy exhibited'2014, <i>Eden Magnet</i>, April 24, viewed 10th April 2015, www.edenmagnet.com.au</p>	<p>Community action - Governance- Climate change</p>	<p>Bega Valley</p>	<p>A draft strategy to establish a framework and responsibilities regarding climate change and its own corporate sustainability has been placed on public exhibition by the Bega Valley Shire Council</p>	<p>Council</p>
<p>'Cruise Eden: Let's stick together on port development', 2013, <i>Eden Magnet</i>, Nov. 15, viewed April 1st 2015, www.edenmagnet.com.au/.../cruise-eden-lets-stick-together-on-port-development/</p>	<p>Community Action Diverse economy Local control Sense of place Employment</p>	<p>Eden</p>	<p>Volunteer group campaigning for 'Cruise Eden' to develop tourism.</p>	<p>Local group member</p>
<p>Southern health district salutes volunteers 2014, <i>Bega District News</i>, May 13, viewed 10th April 2015, http://www.begadistrictnews.com.au/story/2278701/southern-health-district-salutes-volunteers/</p>	<p>Voluntarism Sense of place Healthy system community connections</p>	<p>Bega Hospital</p>	<p>Volunteer network and linkages to health systems</p>	<p>CEO LHD Hospital auxiliary</p>
<p>Ormes, B 2014, 'Beryl Harris a 'priceless' health district volunteer', <i>Bega District News</i>, July 24, viewed 10th April 2015,</p>	<p>Voluntarism Sense of place</p>	<p>Bega Hospital</p>	<p>Volunteer network. Importance of connections to health care system</p>	<p>CEO LHD Volunteers</p>

http://www.begadistrictnews.com.au/story/2438735/beryl-harris-a-priceless-health-district-volunteer	Healthy system community connections			
Narooma News letters: 2013, <i>Narooma News</i> , April 17, viewed 4 th April 2015, www.naroomanewsonline.com.au/story/.../narooma-news-letters-april-17/	Voluntarism Governance policy Ecosystems Conservation	Older people interested in ecological sustainability	letter from concerned citizens -Council disbanding Landcare Management Committee	Annual Landcare Report to Council Local Landcare group members across the shire
Coastwatchers respond to Local Environment Plan (LEP) campaigns 2012, <i>Narooma News</i> , April 4, viewed 4 th April 2015, www.naroomanewsonline.com.au/.../coastwatchers-respond-to-local-environment-plan-lep-campaigns/	Governance Community action Voluntarism Support networks	Narooma region	Groups such as Hands Off Our Homes (HOH) are running campaigns to persuade the NSW government to reject the 2011 Draft LEP –Coastwatchers do not agree with the Hands off our homes campaigners that development should / could happen unrestricted. ‘It has to strike a balance between the interests of property development, environmental health and the public good of the community now and for the long-term future Sustainable development’	Coastwatchers
Dion, D 2014, ‘Health inspectors to check on Merimbula smokers’, <i>Bega District News</i> , Aug. 15, viewed 18 th April 2015, http://www.begadistrictnews.com.au/story/2490597/health-inspectors-to-check-on-merimbula-smokers/?cs=12	Healthy public policy Health promoting behaviours Lifestyle behaviours- smoking	Merimbula	NSW Health inspectors will be visiting the south coast area shortly to check whether smokers are adhering to the new legislation.	NSW Health Centre for Population Health director
‘Free heart health checks in Bega’ 2014, <i>Bega District News</i> , Feb. 25, viewed 10 th April 2015, http://www.begadistrictnews.com.au/story/2132586/free-heart-health-checks-have-marketplace-pumping/	Healthy public policy Health promoting behaviour Lifestyle behaviours – heart health	Bega	ABS survey highlighted three in four Australians aged 45 and above demonstrated risk factors for heart disease. Article promotes a free heart health test administered by the Victor Chang Cardiac Research Institute in a Health Check Booth	ABS IMB Building Society Community Foundation, Victor Chang Cardiac Research Institute
Health Status				
McGill, D 2012, ‘Health checks urged after shock diagnosis’, <i>South Coast Register</i> , March 13, viewed April 11th 2015, http://www.southcoastregister.com.au/story/102680/health-checks-urged-after-shock-diagnosis/	Health Promoting Behaviour Education Sense of place Equity in Health care - Access	Shoalhaven - men	Raising awareness of need for men to get health checks.	Health Professionals

Wright, A 2012, 'Not Enough Beds', <i>South Coast Register</i> , May 1 st , viewed April 11th 2015, http://www.southcoastregister.com.au/story/103276/not-enough-beds/	Health Promoting Behaviour Healthy Public Policy Health care - Access	Shoalhaven Residents	Health system access lacking due to bed blocks. Health direct telephone triage seen as a way to mitigate. 'Estimated that 100 Shoalhaven residents seek health advice each week through health direct, Australia's free hotline'	Health Professionals
Ellard, G 2012, 'Free health consultations offered for National Close the Gap Day', <i>South Coast Register</i> , March 22, viewed April 11th 2015, http://www.southcoastregister.com.au/story/102803/free-health-consultations-offered-for-national-close-the-gap-day/	Health promoting behaviour Equity - Access Aboriginal Health care and outcomes Culture and place	Aboriginal people Shoalhaven residents	Promoting Free health checks and health planning available to members of the Shoalhaven's Aboriginal population as part of National Close the Gap Day. Article discusses the need to closing the gap in life expectancy between indigenous and non-indigenous Australians, and as part of the renewed health focus a range of local medical centres opened their doors to offer free services for indigenous patients.	Health professionals (ML)
Wright, A 2012, 'Men line up for tests', <i>South Coast Register</i> , June 14, viewed April 11th 2015, http://www.southcoastregister.com.au/story/130266/men-line-up-for-tests/	Health promoting behaviour Equity - Access Aboriginal Health care and outcomes Culture and place	Aboriginal men	Aboriginal health awareness- annual Koori Men's Health Day was held in Nowra attracted 140 men.	Health professionals (ML)
'Men muscle for diabetes' 2012, <i>South Coast Register</i> , Sept. 28, viewed April 11th 2015, http://www.southcoastregister.com.au/story/364642/men-muscle-for-diabetes/	Health promoting behaviour Equity - Access Aboriginal Health care and outcomes Culture and place	Aboriginal - men	Men muscle for diabetes program. Shoalhaven Men in Sport Calendar Committee is Promoting awareness of diabetes affecting men's health 3.5 times more likely for an Aboriginal person to have diabetes than a non-Aboriginal person.	Health professionals Aboriginal NGO Info from Cancer Council
Mardon, C 2013, 'Experts helping kids hop, skip, jump', <i>South Coast Register</i> , May 29, viewed April 11th 2015, http://www.southcoastregister.com.au/story/1535052/health-experts-helping-kids-hop-skip-jump/	Health Promoting behaviours	Youth Parents	Promoting awareness of local programs and services and where to get help. For Childhood obesity and Physical activity	Health professionals
'Fit and healthy Brickhill an inspiration', 2014, <i>South Coast Register</i> , July 30, viewed April 11th 2015, http://www.southcoastregister.com.au/story/2449079/fit-and-healthy-brickhill-an-inspiration/	Health Promoting behaviours	Youth parents	Promote lifestyle change behaviour – community wide focus on middle age women.	Local sports woman

Wright A 2014, 'Wellness a point of pride for Bomaderry residents' <i>South Coast Register</i> , Sept. 7, viewed April 11th 2015, http://www.southcoastregister.com.au	Health Promoting behaviours	All Community	Promote lifestyle change behaviour – community wide Bomaderry town has been chosen to nominate for the NSW Healthy Towns Challenge to address obesity	Health professionals
Wright, A 2014, 'Bomaderry steps up to the Health Town Challenge', <i>South Coast Register</i> , Oct 21, Viewed April 11th 2015, http://www.southcoastregister.com.au/story/2541979/wellness-a-point-of-pride-for-bomaderry-residents/	Health Promoting behaviours	Shoalhaven Community	Promote lifestyle change behaviour – community wide The Bomaderry Healthy Town Challenge the article invites people to get involved	Health professionals
Long, J 2014, 'Healthy Town Challenge here we come', <i>South Coast Register</i> , Nov. 11, Viewed April 11th 2015, http://www.southcoastregister.com.au/story/2689446/healthy-town-challenge-here-we-come/	Health Promoting behaviours	Shoalhaven Community	Promote lifestyle change behaviour – community wide	Health professionals
'Jen aims for better health' 2014, <i>South Coast Register</i> , Nov. 11, Viewed April 11th 2015, http://www.southcoastregister.com.au/story/2689434/jen-aims-for-better-health/	Health Promoting behaviours	Shoalhaven Women	Promote lifestyle change behaviour- gender	Local woman
Condie, K 2012, 'Stork's double delivery for Shoalhaven sisters', <i>South Coast Register</i> , March 4, Viewed April 11th 2015, http://www.southcoastregister.com.au/story/102556/storks-double-delivery-for-shoalhaven-sisters/	Health Promoting behaviours	Shoalhaven expecting parents / women community	Young mums promoting image of birth and reproduction. Family unity.	Local women
'Dance your way to health', 2012, <i>South Coast Register</i> , March 6, Viewed April 11th 2015, http://www.southcoastregister.com.au/story/102593/dance-your-way-to-health/	Health Promoting behaviours Networks Sense of place	Shoalhaven Women community	Shoalhaven Women's Wellness Festival.	NGOs Aboriginal organisations Community groups
Lett, G 2012, 'Fit chicks to be revealed at health expo in Bomaderry', <i>South Coast Register</i> , Oct. 24, Viewed April 11 th 2015, http://www.southcoastregister.com.au/story	Health Promoting behaviours- Health promotion	Shoalhaven Women Community –	Promoting healthy lifestyle through a Shoalhaven Women in Sport calendar. Article is showcasing women in fitness outlets in the area.	Local fitness instructors

/417767/fit-chicks-to-be-revealed-at-health-expo-in-bomaderry/	Social / community Health expo			
Latham, D 2014, 'Light shed on health at Berry', <i>South Coast Register</i> , Oct. 24, Viewed April 11th 2015, http://www.southcoastregister.com.au/story/2643249/light-shed-on-health-at-berry-photos/	Health Promoting behaviours Networks Sense of place	Shoalhaven Men community	Berry Men's Shed have some health education and first aid for managing heart attacks, how to use a defibrillator and perform CPR.	Local community Health professionals
Lett, G 2012, 'Help is now at hand', <i>South Coast Register</i> , April 29, viewed April 11th 2015, http://www.southcoastregister.com.au/story/103252/help-is-now-at-hand/	Health Promoting behaviour Equity access-	Shoalhaven Youth	Mental health promotion. Headspace mental health service aimed at youth to open in the region.	Local Teenager Mayor
Wright A 2013, 'Mental health needs discussed', <i>South Coast Register</i> , Feb. 22, viewed April 11th 2015, http://www.southcoastregister.com.au/story/1319198/mental-health-needs-discussed/	Health Promoting Behaviour Community action - Sense of place Equity Mental health – healthy system	Shoalhaven - Nowra	Community engagement and information forum in Nowra on local medical services to update the political opposition on how this region was tracking	Shadow Minister for Mental Health and Ageing Shoalhaven/Illawarra Medicare Local chair operations manager of Headspace Shoalhaven
Long J 2014, 'Balance the key to HSC survival', <i>South Coast Register</i> , Oct. 9, Viewed April 11th 2015, http://www.southcoastregister.com.au/story/2614946/balance-the-key-to-hsc-survival/	Health promoting behaviour Sense of place social networks Education	Youth parents Shoalhaven	Mental Health and youth Stress on young people taking HSC	High School year 12 adviser
Cohen, M 2014, 'Nowra's World Mental Health Day at the park', <i>South Coast Register</i> Oct. 14, Viewed April 11th 2015, http://www.southcoastregister.com.au/story/2623072/day-in-the-park-puts-spotlight-on-mental-health-photos/	Health promoting behaviour Sense of place social networks	Shoalhaven	Mental health awareness and Suicide Prevention World Mental Health Day event in Nowra featuring 15 services. Services featured were part of a partnership of NGOs in business and government	Local business NGO
Carless, S 2012, 'Celebration will feature food, music', <i>Milton Ulladulla Times</i> , Oct. 10, viewed April 10th 2015, www.ulladullatimes.com.au/story/.../celebration-will-feature-food-music/	Health Promoting Behaviours- Mental health promotion Education Sense of Place	Ulladulla Region	Promoting mental health awareness as a community issue. Local residents are being encouraged to celebrate World Mental Health Day Organisers say it will also provide an opportunity for people to connect with friends and grow with their community.	Mayor

	Social networks			
Condie, K 2012, 'Centre to offer support', <i>Milton Ulladulla Times</i> , May 16, viewed April 10th 2015, www.ulladullatimes.com.au/story/187616/entre-to-offer-support/	Health Status – health promoting stress/ anxiety Education Equity Public Services Social networks Healthy Public Policy	Ulladulla Young people Families with teenagers	Mental services- young people -Young people in the Milton-Ulladulla area will have access to programs to improve their mental health and well-being following the opening of Headspace Shoalhaven	Health professionals
Ellard, G 2014, 'Jordan Tirekidis becomes the incredible shrinking man', <i>Milton Ulladulla Times</i> , Nov. 30, viewed April 5 th 2015, www.ulladullatimes.com.au/story/2731929/jordan-shrinks-to-inspiration/	Health promoting Social networks Sense of place	Ulladulla Men	Obesity is an issue that needs to be addressed. Local lifestyle coach promoting services.	Local business owner
Carless, S 2012, 'More seek diet help', <i>Milton Ulladulla Times</i> , April 18, viewed April 5 th 2015, www.ulladullatimes.com.au/story/187524/more-seek-diet-help/	Health promoting Social networks Sense of place Education Public Services	Women	Health professional promoting services for diet advice	Health professional
Workplace mental health focus of Thursday forum 2014, <i>Bega District News</i> , Nov. 24, viewed 10 th April 2015, http://www.begadistrictnews.com.au/story/2717551/workplace-mental-health-focus-of-thursday-forum/	Health promoting behaviour Sense of place Mental health	Merimbula Business owners	Mental health promotion	beyondblue CEO
Mental Health's month of activities in Bega Valley Shire 2014, <i>Bega District News</i> Oct. 1, viewed 10 th April 2015, http://www.begadistrictnews.com.au/story/2597544/mental-healths-month-of-activities-in-bega-valley-shire/	Health promoting behaviour Sense of place Mental health	Bega	Local community group developing an awareness campaign.	Bega Valley Suicide Prevention Action Network (SPAN) Rural Adversity Mental Health Program
Smyth, B 2013, 'Bega suicide prevention network marks third anniversary', <i>Bega District News</i> , July 16, viewed 10 th April 2015,	Health promoting behaviour Sense of place Mental health	Bega	Local community group developing a awareness campaign.3 rd year anniversary	Bega Valley's Suicide Prevention Action Network Councillors

http://www.begadistrictnews.com.au/story/1639134/bega-suicide-prevention-network-marks-third-anniversary/				Rural Adversity Mental Health Program
Smyth, B 2012, 'Men's health issues on doctors' lips', <i>Bega District News</i> , Nov. 27, viewed 10 th April 2015, http://www.begadistrictnews.com.au/story/1147725/mens-health-issues-on-doctors-lips/	Health promoting behaviour Sense of place Mental health Mental health promotion Health system (lead) Gender- Men's health	Bega	Doctors at the Bega Valley Medical Practice have joined the hairy hordes supporting men's health during Movember raising awareness for mental health and prostate cancer.	Local Doctors and practice staff
Lupton, C 2014, 'Walk with us to improve mental health', <i>Bega District News</i> , Oct. 30, viewed 10 th April 2015, http://www.begadistrictnews.com.au/story/2662185/walk-with-us-to-improve-mental-health/	Health promoting behaviour Sense of place Mental health	Bega	Mental health promotion	Bega Valley's Suicide Prevention Action Network Councillors
Bega men's shed site secured, 2012, <i>Bega District News</i> , June 28, viewed 18 th January 2015, http://www.begadistrictnews.com.au/story/176730/bega-mens-shed-site-secured/	Health promoting behaviour Sense of place Mental health Community Gender- Men's health	Bega Men	Joint collaboration with Old Bega Hospital (OBH) Reserve Trust and the NSW Department of Primary Industries to secure a site for the group to meet and base themselves.	Bega Men's Shed chairman
Ormes, B 2013, 'October launch for Bega PCYC', <i>Bega District News</i> , June 14, viewed 10 th April 2015, http://www.begadistrictnews.com.au/story/1572744/october-launch-for-bega-pcyc/	Health promoting behaviour Sense of place and social networks Community Gender- Young Men's health	Bega	Mobile Police Citizens Youth Club (PCYC), government grant for a manager in Narooma and two officers working across the Far South Coast, is for its programs to link in and assist with current youth programs.	Police Council
Bartlett, J 2013, 'Men's health out in the open', <i>Bega District News</i> , June 7, viewed 10 th April 2015, http://www.begadistrictnews.com.au/story/1556808/mens-health-out-in-the-open/	Health promoting behaviour Sense of place Mental health Community	Bega Candelo Men	Candelo MeetaMate promotion for mental health social inclusion and networks.	GP Rural Adversity Mental Health Program Department of Primary Industries (DPI)

	Gender- Men's health			
Ormes, B 2014, Free heart health checks have marketplace pumping', <i>Bega District News</i> , March 7, viewed April 10 th 2015, http://www.begadistrictnews.com.au/story/2132586/free-heart-health-checks-have-marketplace-pumping/	Health promoting Lifestyle behaviours – heart health	Bega	Promoting heart health clinic	Victor Chang Cardiac Research Institute
'10am fruit break proves a winner' 2012, <i>Eden Magnet</i> , July 18, viewed April 10 th 2015, www.edenmagnet.com.au	Health Promoting behaviour Education Early childhood Social networks and Sense of place.	Eden – children	Children's health – lifestyle behaviours /school's Green Canteen policy of healthy eating.	School Principal
'Support Men's Health Week at Sheddies breakfast' 2013, <i>Eden Magnet</i> , June 6, viewed April 6 th 2015, www.edenmagnet.com.au/.../support-mens-health-week-at-sheddies-breakfast /	Health Promoting Behaviour Sense of place	Eden	Men shed. Health promotion and mental health	Maryanne Beggs, a trained presenter of the Black Dog Foundation
Drug information at your library 2012, <i>Narooma News</i> , July 4, viewed 4 th April 2015, www.naroomanewsonline.com.au/story/.../drug-information-at-your-library/	Health Promoting Education Community safety	Bega district	Local coalition of groups educating re risks of drugs and alcohol.	Department of Juvenile Justice, Bega Valley Community Drug Action Team, the local police, Mission Australia and Bega Valley Shire Council
Up-Coming Mental Health Forum 2013, <i>Narooma News</i> , March 20, viewed 4 th April 2015, viewed 4 th April 2015, www.naroomanewsonline.com.au/story/.../up-coming-mental-health-forum/	Mental health Health Promoting Education	Eurobodalla	Mental health promotion	MENTAL Health Matters
Narooma Golf Club reports: Dec. 5 2012 <i>Narooma News</i> , Dec. 5, viewed 4 th April 2015, www.naroomanewsonline.com.au/story/.../narooma-golf-club-reports-dec-5/	Health promoting behaviour sense of place support networks	Narooma	Social activity and physical; activity is good for you. Lifestyle Physical activity - Sport women	Local players

Gorton, S 2012, 'Narooma Numnutz finish the season', <i>Narooma News</i> , Sept. 5, viewed 4 th April 2015, www.naroomanewsonline.com.au/.../narooma-numnutz-finish-the-season/	Health promoting behaviour sense of place support networks	Narooma	Social activity and physical; promoting that activity is good for you. Lifestyle Physical activity – Sport- Men	Locals
S Gorton, 2012, 'Sweet Home Cobargo comes to town', <i>Narooma News</i> , July 18, viewed 4 th April 2015, www.naroomanewsonline.com.au/.../sweet-home-cobargo-comes-to-town/	Health promoting behaviour sense of place support networks	Cobargo	Sweet Home Cobargo is a new shop and is community-owned. The store promotes healthy eating by providing affordable and chemical-free local food, with profits going back into the business and community.	Company director
Gorton, S 2012, 'Flooded creeks and muddy trails for Mountain to Beach', <i>Narooma News</i> , March 14, viewed 4 th April 2015, www.naroomanewsonline.com.au/.../flooded-creeks-and-muddy-trails-for-mountain-to-beach/	Health promoting behaviour sense of place support networks	Narooma	Social activity and physical promoted as good for you. But there is a need to take care after flooding rains as the normal beach route was made impassable. Links between landscape, land use, community safety and human activities.	Locals
Gorton, S 2012, 'PCYC boxing taking shape at Narooma', <i>Narooma News</i> , May 30, viewed 4 th April 2015, www.naroomanewsonline.com.au/.../pcyc-boxing-taking-shape-at-narooma/	Health promoting behaviour sense of place support networks Community safety Public services	Narooma – young men	Eurobodalla and Bega Valley shire councils announce that application for a mobile outreach model Police and Community Youth Club (PCYC) had been successful- 'Boxing will be the focus and about fitness, self-confidence and self-respect'.	NSW Police Youth Command Eurobodalla and Bega Valley shire councils Police and Community Youth Club (PCYC)
Eurobodalla representative netball 2012, <i>Narooma News</i> , July 11, viewed 4 th April 2015, www.naroomanewsonline.com.au	Health promoting behaviour sense of place support networks	Eurobodalla	Promotes healthy lifestyle and Physical activity – local sport and young women	Local players Netball NSW
Exercise class proves popular 2012, <i>Narooma News</i> , Oct. 31, viewed 4 th April 2015, www.naroomanewsonline.com.au/story/.../exercise-class-proves-popular/	Health promoting behaviour sense of place support networks	Narooma	Article discussed by a. Project Officer for a Families NSW, about a program to be delivered by Campbell Page as a community capacity building project that also integrates healthy lifestyle and Physical activity – promotes sport to young women.	Local women Project Officer for a Families NSW program delivered by Campbell Page
Tai Chi for Arthritis 2014, <i>Narooma News</i> , Feb. 5, viewed 4 th April 2015, www.naroomanewsonline.com.au	Health promoting behaviour sense of place support networks	Eurobodalla	Promoting a Local free physical activity program for people with arthritis.	Southern NSW Local Health District (SNSWLHD)

	Demographic target group			
'Hats on for mental health' 2014, <i>Bay Post</i> , Oct. 10, viewed 7 th May 2015, www.batemansbaypost.com.au/story/2616369/hats-on-for-mental-health/	Health promotion behaviour mental health Sense of place Support networks	Eurobodalla	Awareness raising of mental health issues.	Local resident
'Mental health forum in Moruya' 2014, <i>Bay Post</i> , May 14 th , viewed 8 th May 2015, www.batemansbaypost.com.au/story/.../mental-health-forum-in-moruya	Health promotion behaviour mental health Sense of place Support networks	Eurobodalla	Awareness raising of mental health issues	Medicare local mental health consumer/ advocate
Gidney, J 2012, 'Heavy school bags a pain in the neck', <i>Bay Post</i> , Feb. 23, viewed 9 th May 2015, www.batemansbaypost.com.au/story/.../heavy-school-bags-a-pain-in-the-neck/	Health promotion	Families and children	School children and heavy school bags.	Physiotherapist

Appendix 33 Community level actions for a sustainable and healthy community categorised by adapted Hancock et al. 1999 framework

Indicator	Shoalhaven	Eurobodalla	Bega Valley
Sustainability			
Energy	Community energy projects Repower Shoalhaven	Community energy projects ‘Solar Savers’	IMAGINE solar farm at Tathra
	Participant organises through council Sustainable living energy and Community education programs	Council run Community education program – light bulb swap	Council run Sustainable living energy and Community education program
	Participant working with council to develop Energy Saving Plan Energy audits since 2004 Website tracking consumption	Participant working with council to develop Greenhouse Gas Action Plan energy	
	Individual level: Household level changes energy saving strategies – key tags, appliances, insulation, window tint, blinds and info to guests re energy saving strategies used in the apartments, solar heated water and power.	Household- Solar Panels energy, heat water Passive heat design	Household- Solar Panels
	Quality Improvement - ‘Business Tread Lightly Scheme’	Advocacy / negotiation Anglican Church policy change – divestment from Fossil Fuels, undertaking Church energy audits	
	Water Consumption	Household water meters and drought resistant plants	Household Water tanks

			consumption
Renewable Resource Consumption	Milandra Group-ethanol manufacturer from biomass energy		Eden Chip Mill wood pellets, biomass, logging
	Aquaculture/ aquaponics project		
Waste production and reduction and	Household level - worm farms and composting	Household and community gardens worm farms and composting	Freecycle
	Participant's business has strict policies for waste and toxic material management and tries to use raw materials from plant-based renewable resources for the majority of products.	Participant involved with council projects that reuse glass for roads and the annual road side collection of hard rubbish	Food swaps
	Some rural properties have to waste manage on site as no road side garbage collection. Or, they need to drive to tip the "tip run".	Rural properties no road side garbage need to drive to tip the "tip run"	Second hand Sunday
	Some rural properties have no piped water. They have water tanks and toilet systems like reed beds that filters 95% of the waste or compost toilets.	Households in the Deua have closed loop systems – upcycle all waste.	Carpooling for tip run and to town
Local Production	Participant assists small farms to develop sustainable business models and implement sustainable agriculture methods for local products – meat, fish, oysters, vegetables, dairy.	Community gardens.	Local Agriculture products include: meat, fish and oysters, vegetables and dairy.
	Farmers market	SAGE Farmers markets	Farmer markets and seed savers
	Tourism cultural heritage festivals \timber and blessing of the fleet festivals	Tourism music and art festivals oyster festival	Tourism music and art festivals
Land and		Tuross Head Progress Association are	

water use		consulting with Council on land use plans for the village	
		Participant has plans for sustainable housing and development is lobbying government and local government re sustainable housing designs	
Ecosystem health	Participants working with land care groups for Rivers, estuary management Biodiversity plans, State of environment reporting	Participants working with land care groups e.g. for River care. Oyster farmers on estuary management. Biodiversity plans, State of environment reporting	
	Land care groups	Land care Rive care Groups	Land care Rive Care Groups
	Participant facilitates council school environment and sustainability & art competition and promotion of ecosystem issues through world environment day, threatened species day etc.	Sage and community gardens	
	Participant involved with Estuary management – oyster growers network	Some Participants have previously assisted the writing and reporting of Biodiversity plans and State of environment reporting	
	Aquaculture / Aquaponics farming		
Viability			
Air Quality	Landcare groups	Landcare River care Groups	Landcare /River care Groups

Water quality	Landcare groups	Landcare River care Groups	Landcare / River Care Groups
	Oyster farmers and estuary management	Oyster farmers and estuary management	Oyster farmers and estuary management
Toxic production and use	Participant business practice has strict policies on the management of toxic waste		
	Small farms networks implementing sustainable agriculture to decrease pesticides and fertilizer run off into rivers, wetlands and ocean.		
Soil contamination	Land care river care groups	Participant involved in council projects that aim to reduce sediment and runoff from roads causing soil contamination and erosion	Land care & river care groups
	Small farms networks implementing sustainable agriculture to decrease pesticides and fertilizer run off into rivers, wetlands and ocean.		
Food chain contamination		Civil action rally and lobby of government against Dargues Reef Gold Mine and cyanide trailing dam	
Liveability			
Housing Density	Participant worked on a community project that built a Sustainable house as a demonstration project.	Participant working with community to develop an eco- hotel and plans for ecovillage in Narooma	Participant helped design using permaculture principles an Eco village near Bega (BEND)
Safety/ security- environment	Lake Conjola community working with Griffith University to develop a community resilience plan (bush fire, flood)	Participants are members of the rural bushfire service	Participant working with council to develop climate change action plan

	Participant volunteers as surf life saver	Participant volunteers as surf life saver	Participants are members the rural bushfire service
	Land care groups and river care improve biodiversity	Land care groups and river care improve biodiversity	Land care groups and river care improve biodiversity
		Community action groups for and against Council sea level rise policy.	Community group undertaking mental health promotion activities targeting farm families following drought impact and young people
Transport	Volunteers for community transport	Participants assist community members to make and fundraise for the shared foot path / cycleway in Narooma- Kianga.	Carpooling in Cobargo, Brogo and Quaama.
		Participants volunteer to provide Community transport for health appointments.	Participant is working with local food produces to develop a shared transport network. Has applied for government grant to get the project off the ground.
Walkability	Participant works with council and consults with community to develop urban design and walkable communities.	Participant works with council and consults with community to develop urban design and walkable community.	
Green / Open space	Landcare and river care group members assist in maintaining green space/ community space and advocate for new areas of conservation.	Participant works with council to develop urban design and walkable communities with green open shared spaces. 'Blue print for the community' ‘	Land care & river care groups
Smoke free space	Participants business is explicitly no smoking	Not mentioned	Not mentioned

Noise pollution	Participant's business (tourist accommodation) has sound insulation built into design of the apartments.	Not mentioned	Not mentioned
Conviviality			
Support networks and Sense of place	All Activities have sense of place and support networks integrated into them.		
	Participants involved in: Community groups and social groups – rotary, volunteering, surf life, the bowling, developing local climate change resilient community plan in partnership with Griffith university.	Participants involved in: Community groups and social groups – rotary, singing groups, CWA, Red Cross, Salvation Army, fishing clubs volunteering, surf life, bowling club, Men's Shed and Community garden	Community groups and social groups – rotary, volunteering, surf life, bowling Community gardens, singing groups
	SOLA slice of Life Australia – a local enterprise seeking to train and employ people with disability	Fun run and charity events	Free exercise classes in Bega and surrounds
	Serendipity the community garden space in the aged care facility. This is a joint interdisciplinary and community to build a shared space for people to garden and be outside in a nice place.	SAGE and community gardens bring people together	Free cycle food swaps, 2 nd hand Sunday, community learning forums, dances and art groups.
Neighbourhood celebrates together (Longreach)	Neighbourhood celebrates together: Tuross Head, Bodalla, Narooma Batemans Bay each have Carols in the Park., Deua River has a community New year's eve celebration and mother's group	Regular (weekly/ fortnightly) neighbourhood get together at Cobargo, Brogo and Quaama. Ad hoc education forums e.g. dying healthily'	
		Deua ladies day, lady's group and a mother's group	Buy local, shop local, help each other out (Cobargo and Brogo Quaama)
	Local festivals	Festivals: River of	The Shirley Hannan

Culture & place	Blessing of the Fleet, NAIDOC week, Wood festival, Milton show, Berry Celtic festival, Kangaroo valley folk festival, Shoalhaven timber festival	Art, Blues festival, Jazz festival, Oysters festival, Eurobodalla show, Tilba Easter festival, Broulee Art on the path, Granit town.	art exhibition. The Four winds music festival, Cobargo folk festival, Candelo music festival, Eden whale festival, the Bega show.
	The crossing eco-tourism resort.	Participant engaged on steering committee for council strategic plans – e.g. Eurobodalla rural land strategy	Visual and performing arts coordination for the South East
		Participant involved with signage of Aboriginal dreaming track	Cultural heritage tourism strategy
Charitable donation	Business donate % of profits to local charities / Groups (Milton)	SAGE project donates food to local refuge	Refugee projects in Bega valley and fundraising for food, education, and housing
		Biggest morning tea – cancer charity event	
		Fund raise for new cancer unit in Moruya	
		Charity fun runs and walks - for animal (e.g. RSPCA/ Animal welfare -the Tail wagers walk)	
Equity			
Economic disparity	Youth leadership forum ‘Be the change’ targets young people from low socioeconomic groups	Solar savers project focused on low income households	Cobargo and surrounds Freecycle, recycling 2nd hand Sunday, carpooling, food swaps and LETS, aimed at inclusion of people who have low incomes
		Participant designing eco villages for social sustainability and affordability	Participant sponsors single mother to enable her to complete degree
		Submissions to	

Access to health care		local health district for more specialist services	
		Participant provides a primary health care service and employs local people	
		Fundraise for hospital equipment	
Prosperity			
Employment	Gilmore youth leadership projects for 15-17year old to engage develop leadership and life skills. Involve local business and politicians.	SAGE garden offers internships and works with the community garden networks to increase uptake of local produce.	Participants involved in planning for large scale infrastructure developments e.g. for Eden wharf
	Participants run Tourism business	Participants run Tourism business	
Quality employment	Participant designed business for retention of staff and have won awards as ‘employer of choice’ and does this by having a plan for each staff member, giving extra leave for volunteer participation, a GEN Y lounge for the young adults, and a professional development program		
Trade indicators	Measure and report tourism statistics	Measure and report tourism statistics	Measure and report tourism statistics
Local control	Community members in Business leaders actively strategically plan as a network. Members of chambers of commerce networks of small business in the area.	Community members in Business and community groups (e.g. Coast watchers) are community leaders actively engaged in developing strategies, planning, lobbying and writing grants, as a network	Community members as local business leaders actively work together and strategically plan business development as a network.
Business development	Community actions use social media, email, internet and other digital technologies for knowledge sharing, monitoring and measuring projects and compiling reports.		

and technology			
Education			
Knowledge sharing	All actions have some component of education (knowledge transfer and exchange) to them. Use internet, face to face, newsletters, social media, forums, workshops, information booklets e.g. for tourists		
Adult literacy/ learning	Participant involved in community education about world environment issues. Works with schools and runs an annual competition promoting conservation	SAGE and community gardens have workshops, hands on practical learning in groups, forums and share ideas and tips in meetings and informally in the garden.	Community groups promote learning for art, dance, music, and health
	Workshops, forums and strategic planning meeting with small farms/ local producers, business owners e.g. Small Farms network, South Eats Landcare Network.	Technology- use of email, web, Facebook	Workshops and, forums for local producers (e.g. Southcoast Producers). Have website with information on it.
	All use Technology – email, internet, Facebook	Library actively promoting art and other cultural events to bring community in.	Technology- email, web/ internet, Facebook
	Sustainability web portal interactive waste management learning kit. (Shoalhaven Council)		SCPA News (web based newsletter)
Governance			
Voluntarism and Associational life:	Rotary Probus groups Chambers of commerce, Regional Development Australia.	Tuross Head Progress Association, Lions groups, Coast watchers, AusAid, Landcare / Rivercare, Country Womens Australia (CWA), Chambers of commerce, Regional Development Australia board. Surf lifesaving. Rural land strategy community rep on	Land care groups, Quaama Progress Association South Coast Producers, Chambers of commerce, South Coast Tourism board.

		steering committee. Anglican church Far South Coast Regional Development Australia	
Civil action		Action against proposed charcoal plant, wood chip mill, gold mine and plans to change law for marine parks and return to industrial fishing.	Action against logging of native forest and location of the last koala colony on South Coast.
Community leadership	All actions have an element of innovation and entrepreneurship to them and are instigated by an innovator / community leader.		
	2 Participants promote and teach best practice for sustainable business and has won multiple awards to recognise these achievements	Participants self-organised groups – community gardens, Solar Savers project SAGE.	
	Developing ‘disengaged’ Youth projects (Gilmore leader project)	Developing strategic plan for a town (Narooma Next)	Developing strategic approach to regional tourism development - South Coast Tourism
	A participant is a national Ambassador for women’s sports.	Set up and run fundraisers for cancer unit at Moruya hospital	
		Participation in group decisions Narooma Next, SAGE Community gardens, land care River care	Participation in group decisions Cobargo, Quaama and Brogo, South coast Tourism
Regulation and law	Repower Shoalhaven has formalised governance structures and democratic participatory decision making processes.	SAGE projects has ethics as part of governance arrangements and democratic participatory decision making	IMAGINE has formalised governance structures and democratic participatory decision making
	Participant works with council to ensure environmental management meet regulations and legislation	Participant works with council to ensure environmental management meet regulations and legislation	Participant works with council to ensure environmental management meet regulations and legislation
Perception of government	Business networks actively work with local politicians to		

	gain support for their projects and plans.		
Health			
Health promoting behaviours	All action involves building social capital and social cohesion, trust and reciprocity- includes ways to encourage social gathering, bring people together for recreation, decision making, work, plan or develop goals, share / implement tasks, share ideas and resources. Be neighbourly and 'look out for each other' (Lyn B).		
	Individuals- healthy eating (fresh local chemical free produce), keeping fit and participating in community life, do not smoke.		
	Participation in sport and promotion of sport - golf, bowls, surfing, walking, cycling, gardening, swimming,		
	Other community activities that participants said were healthy for them: gardening, dancing, singing, arts, free exercise in the parks (hoola-hoops) and walking groups.		

Appendix 34 Case Reports - Actions for Sustainability (Community Energy)

Introduction

I present here individual case reports for three case studies that focus on community energy. Their overarching aim is to increase use of and access to solar energy in their catchment area. They are at different stages of implementation, use different models and have different target groups.

‘Community energy is where a community develops, delivers and benefits from sustainable energy projects’. It can include supply-side projects (renewable energy installations and storage) demand-side projects (energy efficiency and demand management) and can also include community-based approaches to selling and distributing energy (Coalition for Community Energy 2015).

Case 1 Repower Shoalhaven

The Repower Shoalhaven approach is based on an economic / business model and constructed around renewable energy makes good business sense, not only for cost saving on energy bills, but also promoting businesses and investors as innovators and leaders in the transition to clean energy (Repower Shoalhaven 2015). The organisation is set up as a not for profit incorporated organisation and is based in the regional centre of Nowra. It has committee of seven volunteer office bearers and has been operating for 2 years.

They state anyone can join the organisation. However, as they are looking for business owners and community members to invest in solar energy, they deliberately focus on engaging with multiple networks in the business and investor community. Repower Shoalhaven use the Shoalhaven Heads Bowling Club project as a case example to demonstrate how their model work as summarised in Table 28 (Repower Shoalhaven 2015).

Knowledge transfer forms a large part of Repower Shoalhaven’s operation. They have a website, regularly use social media (Facebook, twitter, LinkedIn) and good news stories are regularly published in the local media.

There is a membership structure that includes monthly meetings, a voting system for implementing ideas and plans and a monthly electronic newsletter. Repower Shoalhaven provide interactive workshops to coach communities in how to set up

their own projects and provide assistance in how to communicate and engage others about renewable energy. Information provided is aimed at the solar energy consumer and investor and provided in a variety of formats, such as the infographic in Figure 14. Messages are focused on economic benefits of renewable energy investment, health and wellbeing and ecological sustainability (e.g. any references to climate change or global warming) do not feature in the information packages.

Case 2 IMAGINE, Tathra Community Solar Farm, Bega Valley

This project originally started out to power Tathra's water pump and sewage works (Clean Energy For Eternity [CEFE] 2015). Tathra is a small community with a population of approximately 1520 people (ABS 2011) and 18 kilometres from Bega, the regional centre.

The project was successful in getting quality tenders and providing the 50% of power required for the sewage works. This gave the community and the Council confidence to extend the project to the IMAGINE solar farm. Through ongoing fundraising and a Memorandum of Understanding with the Bega Valley Shire Council, every community building in Tathra is now powered by solar energy, including the surf club, preschool, the rural fire service, three churches and the Bega Aboriginal Lands Council.

Like Repower Shoalhaven, the project is being implemented by a community not for profit organisation, the Clean Energy For Eternity Inc. (CEFE). Unlike Repower Shoalhaven, the IMAGINE project's mission and rationale is based on an ecological sustainable development approach that aims to:

'To help the community understand the challenge of climate change and global warming, and to provide information and support to encourage grass roots action in response to the global crisis facing us all' (CEFE 2015).

Unlike the Repower Shoalhaven model, community members buy solar panels for \$250 each or donate tax deductible donations, or undertake other fundraising activities for CEFE to buy remaining panels. In the partnership arrangement with the council, the council own the installations but passes on energy bill savings to CEFE which in turn reinvests the profit into renewable energy (CEFE 2015). CEFE undertakes ongoing fundraising events using community volunteers, such

as the Tathra Mountain Bike Annual Enduro Bike Race. In 2015, the event attracted nearly 500 riders and raised \$50,000 (Lett 2015).

CEFE facilitates knowledge transfer using the similar strategies as Repower Shoalhaven, however, there is one main difference. CEFE see themselves as a Think Tank seeking to engage the community to generate ideas and proposals for community owned energy projects and raise awareness of about climate change (CEFE 2015).

The organisation actively advocates for ecological sustainable development and has policy stances on forestry management and nuclear power, facilitates town debates, lobbies politicians and writes submissions to government. CEFE undertake community awareness raising campaigns such as using human signs (e.g. community members formed the words 'Clean Energy For Eternity' on the local beach and this was published in the media). The groups is chaired by a local Medical Practitioner who is also promoting linkages between planetary health and climate change on the CEFE website (CEFE 2015). Figure 13 shows an image of the Tathra Community Solar Farm.

Case 3 'Solar Savers' Eurobodalla

The Southcoast Health and Sustainability Alliance (SHASA) is a newly formed group of interested Eurobodalla community members that came together after attending a local climate change awareness event in late 2014 (SHASA Facebook). The group have been successful in receiving a \$50,000 from a NSW Government grant under the Office of Environment and Heritage (OEH) 'Growing Community Energy' projects ('Eurobodalla groups solar push' 2015). The purpose of the grant is to undertake a feasibility study, looking at appropriate community energy projects that will enable low income households to access solar energy.

The project is constructed around addressing barriers to low income households accessing solar energy and aims to develop a project whereby the low income households do not have upfront costs for solar energy ('Eurobodalla group's solar push' 2015). The feasibility study is currently in progress and is being undertaken by the Community Power Agency (CPA 2015). More broadly, SHASA would like to extend the project beyond the low income households to facilitate the 'switching from coal power to clean renewable energy, reduce carbon emission

and mitigate climate change effects' for the community as a whole ('Eurobodalla group's solar push' 2015).

The CPA role is to develop the business model and SHASA's role is to engage potential low income householders or community housing agencies who may wish to install solar energy on their homes or facilities (CPA 2015). This project is in its early stage of development but the overall aim is contribute to the reduction cost of living pressures (from lower energy bills) in low income households, address financial barriers for low-income households to installing solar power, protect those who are most vulnerable to the effects of extreme weather conditions, improve the health and well-being of those unable to meet the costs of heating and cooling and educate homeowners on effective ways to save energy (SHASA interview participant) (CPA 2015). There are no formal group arrangements and no agreed mechanism for planning and decision making. The group is not incorporated and financial administration of the grant is managed by the Council.

As SHASA is an informal group of volunteers and relies on the steering group's capacity to undertake activities such as developing information leaflets, the logo or engaging with the community and there is small budget in the grant for communication tools and strategies, knowledge transfer strategies are limited. However, with support from OEH, CPA and the Council, knowledge transfer activities include radio interviews, a stall in shopping centre, media releases and an OEH funded short promotional video.

A cross case summary can be found in Table 40.

Table 40 Cross case report community energy

Case Study questions	Repower Shoalhaven	Solar Savers Eurobodalla	IMAGINE Tathra Bega Valley
Action	Community Renewable Energy Project	Community Renewable Energy Project	Community Renewable Energy Project
Rationale	Economic model - renewable energy makes good business sense, not only for cost saving on energy bills. It also promotes businesses and investors as innovators and leaders in the transition to clean energy The aim is “to be a key part of the transition to clean, high-tech, people-centric energy system”.	Social approach- There is a need to transition to solar energy but not all people can afford it. The project seeks to avoid upfront cost for low income households thus increasing uptake of solar energy in this population group. Energy availability is also important to health and wellbeing.	Ecological - There is a global crisis facing us all from human induced climate change and global warming. Community energy projects using solar power is one local strategy the community can use to address these issues locally.
Who is involved?	Business and community investors	SHASA Community volunteers Low income households and Housing service providers Office of Environment and Heritage Eurobodalla Shire Council Community Power Agency	Tathra community Bega Valley Shire Council
How?	<ol style="list-style-type: none"> 1. Formal not for profit incorporated community group model. 2. Community Power Agency undertook research, economic modelling and policy analysis to design the model and communication resources. 3. Business and community members invest in solar energy. 4. Continual contact and engagement with members 	<ol style="list-style-type: none"> 1. Informal group formation of interested community members 2. Steering group (volunteers) oversee administration of OEH feasibility grant funds and liaise with potential stakeholders 3. Project management support from council and OEH. 4. Engagement with local stakeholders undertaken on 1:1 	<ol style="list-style-type: none"> 1. Formal not for profit incorporated community group 2. Feasibility studies underpin the scope, final model and design 3. Community fundraise / buy panels Council owns but give a back profit from energy savings to CEFE 4. Advocacy to address climate change with debates, education and political engagement

	through meetings, newsletters and project implementation.	basis in small groups to find the best approach for this specific target group. 5. Tender for feasibility study for proof of concept and appropriate community energy model won by Community Power Agency. Study currently in progress	
Knowledge Transfer strategies used?	<ul style="list-style-type: none"> • Website • Downloadable infographics and Information packs • Workshops and presentations • Facebook • Twitter • Linked and Blog • Monthly meetings • Media releases • Business and community investor networks 	<ul style="list-style-type: none"> • Media releases • Radio interviews • Stalls with free packs containing energy saving information and samples donated from OEH. • Facebook page • Informal learn as you go approach Learning from group member's diverse skills 	<ul style="list-style-type: none"> • Website • Workshops and presentations • Newsletter for members • Media releases • Political engagement • Community networks

Appendix 35 Case Reports- Actions for Conviviality- bringing the community together

Introduction

In this section, I present three case studies that focus on conviviality, themed around ways of bringing the community together. The three cases presented here are all different, but are theoretically replicated, as they have a common purpose, they each seek to purposefully bring the community together be it for agriculture and conservation projects, to create and build a community project together, or simply ways to bring people together that would otherwise be isolated geographically, intellectually and communally.

Case 1 ‘Serendipity’ Basin View Masonic Lodge Project

‘Serendipity’ is how an interview participant describes the aquaponics garden in the Basin View Masonic Village, Shoalhaven (Shoalhaven interview participant). Aquaponics is a ‘sustainable food production systems that combines aquaculture (raising aquatic animals in tanks) with hydroponics (cultivating plants in water)’ (Wick, 2013).

The project brings a number of sustainability and health components together, such as sustainable living, aquaculture, resident involvement and community engagement (Baldwin 2012). The aim of the project was to create a garden that would ‘feed the body and mind, soothe the soul and stimulate the senses’ (Wick 2013). The end result is a garden that produces 350kg of fish and 150kg of yabbies per year and a variety of vegetables, flowers and fruit that residents use or sell at the community market days held in the garden (Baldwin 2012).

The Basin View Village is a 50 bedded residential aged care facility located in the coastal township of Basin View, Shoalhaven. The resident’s ideas were collected through a series of semi structured interviews and focus groups. As many of the residents were long term residents from the local area, fishing, gardening and growing your own vegetables had been part of their life before going to live in residential care. The residents decided they would like to have a project that combined all of this. This resulted in the aquaponics garden. Table 29 provides a summary of steps that contributed to the Basin View Village project and Figure 16 is an image of the garden in 2013.

I asked a participant during their interview, if the Basin View model could be replicated elsewhere, e.g. in other residential aged care facilities, the participant's responded with:

'We've actually talked about this at length. I think that the project evolved as it did because of where it was and who was involved and it met the needs of those people at that point in time.

Now if we went into another village and used the same process of talking to people and finding out what they wanted, how they wanted to be involved, I am convinced that the outcomes of that project would be very different. So I guess what I'm saying and stressing is that we don't believe that this aquaponics garden is the answer for all the issues in all residential facilities. This was custom-made for that village. So I would certainly say the project was very much contingent on place, time and people' (AW, Shoalhaven Interview Participant).

This project shows how networks and relationships operate in a small community and how interdisciplinary creativity can bridge research theory and be put into practice. It demonstrates the interconnections of sense of place, the need for social support networks and knowledge transfer and translation.

The project was based on a salutogenic approach, as such health and wellbeing were integrated into design of the project from the outset and synergistically social and ecological sustainability outcomes were also achieved.

Knowledge transfer was limited to an internal audience and focused on ensuring residents and the project team communicated regularly on the project's implementation and next steps. Once the project was completed the academics presented at conferences, produced posters and received a high commendation from the International Academy of Health and Design thus sharing knowledge in academic communities.

CASE 2- SAGE (Sustainable Agriculture and Gardening Eurobodalla Inc)

The Sustainable Agriculture and Gardening Eurobodalla Inc (SAGE) is a community lead sustainable agriculture project, located on the flood plains, with its enriched soil, along the Moruya River, in Moruya. Based on principles of 'good, clean and fair' (SAGE 2015). SAGE has two main components, one is a

community garden that has members and volunteers that participate in establishing and maintaining the garden (SAGE 2015). As part of their good, clean and fair approach, SAGE formally recognises Aboriginal and Torres Strait Islander heritage and culture by stating:

‘We acknowledge the traditions of the Aboriginal and Torres Strait Islander People, the Djuwin Nation, in particular the local Brinja Djuwin and Walbanga people, on whose land this market is held’.

The SAGE aims are to increase:

1. The number of semi-commercial, sustainable farm-gate producers in our region
2. The number of families growing a significant proportion of their own food sustainably in our region sustainable food security/resilience in our region
3. Sustainable food security/resilience in our region
4. A sense of community through the growing of food sustainably

The second component is a sustainable agriculture demonstration project, supported by the Moruya and District Chamber of Commerce and the Eurobodalla Shire Council. This component includes the management of market gardeners who wish to grow and sell fruits and vegetables locally as a financial enterprise. For local growers to get established SAGE offers affordable and accessible allotments combined with education on sustainable farming practices. The aim is to increase the number of commercially viable business run by local producers. The agricultural arm of SAGE also manages the award winning SAGE farmers market. The farmers market aims to provide ‘A marketplace for consumers to access locally grown or harvested food directly from the producers, under safe and controlled conditions’ and has a separate management team and web page for promoting the framers market (SAGE Farmers Market 2015). Figure 17 shows an illustration of SAGE in 2011.

Governance arrangements for the two SAGE arms are based on the same management team structures and are organised around democratic procedures. For example, ‘topics are deliberated as a means of decision making, participation by all members interested in being involved and fairness and due process (defined as fair treatment in regard to process)’ (SAGE 2015).

Knowledge exchange and transfer is a key component of SAGE and its operation is focused on actively sharing skills and knowledge through informal learning in the garden, more formal workshops and partnerships with education institutions. SAGE use Facebook and have a web page and an electronic newsletter sent to members via email.

Since SAGE began in 2009, the scope of and number of projects and partnerships has increased beyond what was originally intended. For example, SAGE has a calendar of events with a mixture of formal and informal education sessions, from theoretical workshops on biodiversity and conservation to interactive practical garden sessions throughout the year. Partnerships with schools and residential aged care facilities have developed, as well as networks with other Landcare groups, community gardens and agricultural groups e.g. South Coast Food and South Coast Seed Savers. Moruya High School now incorporates SAGE as part of its agricultural program for the High School Certificate and students work alongside SAGE volunteers (Moruya High School 2015). SAGE have also created a foodbank program to donate food to local charities and sponsors a practical work placement opportunity with local organic farmer that includes mentoring support and training sessions (SAGE 2015).

In addition to the increase in scope of projects and number of partnerships, there has been recognition that SAGE is facilitating community health and wellbeing particularly for vulnerable and disadvantaged groups. Box – provides an excerpt from a Eurobodalla interview participant's experience of being involved in SAGE. Linkages are made to physical health from labour in the garden, healthy soil and water from organic land management, nutritious food to provide essential nutrients for health. Affordable and locally grown produce is also seen as healthy.

SAGE and donating food to the refugees:

“And that has had the most extraordinary flow on effect. Just last week in the women’s refuge there were two boxes of mushroom that the growers did not want to take them home. And so they took them up to the refuge and said, “Can you do with two boxes of mushrooms?” ...And they said, “Oh alright”. And they have a lady there that who apparently is a really good chef, so she made stuffed mushrooms. And all of the people in the refuge loved it.

But then she started a cooking class in the refuge on the basis of that donation. And a lot of them have never had vegetables before that, until we started bringing these boxes. They have never eaten fresh vegetables. So they were getting terribly excited about all this.

So, on the next Saturday there’s a football match. Normally at a football match they would have pies and sausage rolls. But they decided to do stuff mushrooms because everyone had liked them so much. And the kids at the football match fought over them, they thought they were the best thing they had ever had.

And then the next week, one of the teenagers, who is a super athlete type of guy had a cross country run on, and he said that he would have to leave early from the cross country run because he wanted to get back to the cooking class that is on at the refuge...There is a potential chef there for a start. He just got so excited about these vegetables. And apparently every Tuesday afternoon when this surprise package arrives from the farmers’ market, sometimes it has meat in it, sometimes it’s got 1000 eggplants, but you know they never know what they are going to get. But that one little act has turned it around.

And a person who was running this program said one of the women there had lost 5 kilos in the last month because she was suddenly discovering this new food and just loves it.

(SW, Eurobodalla Interview participant)

Box 1 Excerpt from SAGE participant interview transcript.

Case 3 - The Collective Community – Cobargo, Quaama and Brogo.

In contrast to the previous case studies that discuss a project or group, in this section, I will be presenting Cobargo, Quaama and Brogo as ‘the collective community’.

Through focus groups and interviews, online media analysis and internet searches, I began to see a pattern emerging from people living in the very small and spread-out communities of Cobargo, Quaama and Brogo. I began to see that the communities living in these places were actively working together to bring people together physically, communally and intellectually (Quaama Progress Association 2015).

Unlike the other cases discussed these communities are not coastal. Cobargo has the largest township with a service station and basic amenities, and is just over 20 kilometres to the coast. The villages are located within 20 kilometres of each other connected by the Princes Highway upon which they depend for transport connections. The community is spread out either side of the Princes Highway and are separated from the coast by State forest on the East (coastal) side and farmland and National parks coast on the west side. Together, Cobargo, Quaama and Brogo have a combined population of approximately 1500 people (ABS 2011). The region has an agricultural base with farms for dairy, beef, vegetables and fruit and lavender. Cobargo has a slow food and an arts and crafts culture, which attracts visitors to the town.

Seven Bega Valley interview and focus group participants live in these communities. I reviewed their transcripts using the Hancock et al. (1999) framework and through this analysis lens Cobargo, Quaama and Brogo communities provide a good example of conviviality in action. To focus the case study, I grouped the participants’ actions into themes, actions for art and creativity; a sharing economy; communication and learning.

The way that the community brings people together is an eclectic mix of locally based activities most are undertaken in small groups in community halls or private homes, at no or low cost. Unlike the group structures discussed in the other case studies, there is no governance framework, lead agency or central organising group but some actions have informal rules of ‘the way things are done here’ (Cobargo Focus Group Participant). Groups are set up by the person creating them and are informally organised but do have a regular time, cost (gold coin donations for hire of the hall) and a volunteer local facilitator.

Actions for art and creativity – examples include the fibre arts group; the lazy lizard gallery that promotes local artist work and provides art classes for a range of creative and visual arts; the ecstatic dance (a free flowing dance for meditation), seasonal country fairs that promote the community’s creativity and food, each have a theme aimed at engaging as many people from the community as possible ‘... and they do talks on things. You know one of the most popular ones that I saw was how to sharpen your chainsaw. That got the lads out’ (CM, Cobargo focus group participant); and ‘The can’t sing choir’, that ‘started because there are a lot of people who would love to sing but have been told all their lives that they can’t sing’ (SM, Cobargo focus group participant).

Actions for a sharing economy- In contrast to business models that seek profit and growth, the collective community have their own version of a sharing economy and ‘it is not about money’ but is about growing the community (SM, Cobargo Focus Group Participant). Actions include food swaps that occur every month at ‘somebody's property’. Neighbours bring ‘produce from our own gardens. We also bring cake and biscuits or whatever, so people build a social network...you just put down your produce and you swap. There is no money involved. You just take what you need’. (SM, Cobargo Focus Group Participant). Each month a community member nominates to host the next food swap and this information is shared on the information page on the internet (discussed below).

Second hand Sunday - is one way that the community trade their unwanted goods for free and creates an opportunity to come together. A place is nominated and ‘you take long anything domestic that you would like to pass on to another person. So you lay it out on the nature strip or in the local park and you wander around and take what you want’ (SM, Cobargo Focus Group Participant). If your item is not traded, you must take it home so not to create waste and burden neighbours with its removal.

LETS – Local exchange trading scheme – the community is not a rich one, in fact Cobargo has the lowest SEIFA score in Bega Valley, to bridge some of this socioeconomic disadvantage some community members participate in LETS.

‘I needed to get some help in my garden but I can't afford it. What you can do is offer work and then you might say 50/50. 50% LETS and 50% money... I used to do massage for LETS so people would do 50-50 so they got a massage say 40 LETS and \$40’ (CM, Cobargo Focus Group Participant).

Permablitz- there is considerable interest in communities here in locally grown organic food. A permablitz is a large working bee, when the community assist in creating or maintaining a permaculture garden or food forest, for one of their neighbours. It is a strategy that facilitates more people undertaking organic gardening and supporting ecological sustainable development and brings people together.

Actions for communication and community learning – this action relates to knowledge exchange and transfer. The Cobargo district have created a modern version of the bush telegraph that started out as an email list for the Brogo Rural Fire Service. It was so useful in communicating messages to the fire service members that word got around and now most members of the community are on the email list and a Cobargo district website has been created that promotes community activities, local calendar of events and request for assistance e.g. for carpooling. In a similar way, the Freecycle website also ‘connects us’ (CM, Cobargo participant).

Like Second Hand Sunday, people have items they are giving away for free but instead of attending place they list it on the Freecycle site. ‘I saw some hardwood being advertised the other day. You know pick up by Thursday or it’s going to the tip. Then there’s a message that it’s been taken’(CM, Cobargo) or ‘you get a notice, somebody will send a message saying that they lost their goat and can you keep an eye out for it? Then another message to say, yes thank you very much, goat has been returned’ (JT, Cobargo participant). Community learning also occurs in other ways for example it could be an informal chat at the fire shed about preparing for bush fire season or a discussion on ‘dying healthily’ hosted in a local shop (CM, Cobargo Focus Group Participant).

‘We had an exhibition of self-decorated coffins, cardboard coffins. There were also some talks by people, a celebrant, a Buddhist and a lawyer. They came to talk about how to be prepared. It was quite extraordinary information... We are into it all here aren’t we?’ (CM, Cobargo Focus Group Participant).

I called this case the ‘collective community’ because of the way the participants described the activities and their involvement in them. Actions are tailored to fit the values, accessibility and affordability of the community. Actions are creative and a little quirky (not mainstream) and the community are not afraid to try things, experiment and join in. How the community make sense and bring meaning to what

they are doing I wondered is it like Serendipity, contingent on people, time and place? A Cross case report is provided in Table 41.

Table 41 Cross Case Report- convivial communities.

Case Study questions	Serendipity	SAGE	Collective community
Action	Aquaponics garden in an aged care facility	Community and business enterprise garden	Multiple community activities
Rationale	The garden through its Salutogenic approach will create a sense of wellbeing	The garden and business enterprise will increase people s involvement and understanding of locally grown organic food good for healthy soil and people.	The activities will connect the community
Who is involved?	Basin View Masonic Village residents and RFBI Management. Academics in marine biology, aquaculture and occupational science. Local community members and tradesman	SAGE members and local producers Agreements, projects and partnerships with: Council The refuges Aged care facilities Schools Adult education and TAFE Landcare Groups Other agricultural groups (SCPA South Coast Food) and farmer's markets	Open invitation to all of Cobargo, Quaama and Brogo community
How?	<ul style="list-style-type: none"> • New Management wanted to bring in change. Manager had support from organisation. • Residents were engaged from the beginning. • Engagement of local academics occurred through local networks • Interdisciplinary knowledge came together to design and implement the project • Residents take ownership of ongoing maintenance with 	<ul style="list-style-type: none"> • Idea conceived by the founder who had connections in the slow food industry after running a restaurant in Moruya. • Enlisted support from council for community land along the Moruya River • Successful in winning several small grants (council state and Federal government) to start up the enterprise. • Membership and partnerships with others evolved as the gardens became established and 	<ul style="list-style-type: none"> • A community member has an idea e.g. to start a food swap. A few community members to trial it. Snowball effect more people hear about it and want to join in. • Includes a wide range of activities from festivals, art and craft groups, music, artisan shops, dance groups, food, internet email lists, informal / formal education/ recreation. • Organised by people

	<p>support of the caretaker.</p> <ul style="list-style-type: none"> • Produce - fish, vegetables and flowers are sold in the facility and on market day to the local community. 	<p>productive and reputable.</p> <ul style="list-style-type: none"> • Through a shared vision and team approach each year sees a new project initiated. This expands the initial plan beyond producing a garden to education and mentoring, work placements and financial gain from market sales. 	<p>with the skills and knowledge e.g. the dance instructor</p> <ul style="list-style-type: none"> • Locally based • Low cost / no cost • Informal rules but need to fit in with 'how we do things around here'
<p>Knowledge Transfer strategies used?</p>	<ul style="list-style-type: none"> • Meetings to share ideas • Residents voice-Steering committee and semi-structured interviews • Conference Posters • Research papers • Marketing promotion for RFBI • Media releases • Local knowledge and technical expertise 	<ul style="list-style-type: none"> • Media releases • Radio interviews • Facebook page • Members Newsletter • Formal workshops and education courses (e.g. TAFE) • Informal learn as you go approach Learning from group member's diverse skills • Local knowledge and technical expertise 	<ul style="list-style-type: none"> • Community Website and email lists • Workshops and presentations • The triangle newspaper • Word of mouth • Community networks

Appendix 36 Case Reports- Actions for Prosperity – youth engagement, town and regional economic development

Introduction

In this section, I present three case studies that focus on prosperity and like the previous case studies for conviviality and sustainability cases, they have different approaches, but are all seeking to support economic development within their region. The cases focus on youth, a town and a region.

Case 1- South Coast Youth Leadership Forums

A small group of Shoalhaven business owners concerned about the high rates of youth unemployment and youth disengagement in the Gilmore electorate decided to find a way to inspire, motivate and encourage young people (GYLF, 2014). The business owners created the Inspire Youth Australia Limited as a public benevolent institution that targets vulnerable and disadvantaged young people to ‘be the change’. The organisation seeks to inspire and empower young people and encourage them to take leadership role to facilitate social change in their region. The aims of the company are outlined below.

- To improve the lives of young people, initially those located in the Shoalhaven region, who face profound challenges;
- To provide leadership training to indigenous and marginalised Australian youth, especially those in regional areas with barriers to development training;
- To encourage marginalised youth to complete higher levels of education and to volunteer in their communities to develop and improve life skills;
- To proactively engage indigenous and marginalised youth in a variety of programmes to provide a constructive alternative to unemployment, substance abuse and mental health issues; and
- To solicit and accept gifts, endowments, and bequests from members of the public and the business community in conjunction with conducting fund-raising activities, including holding events, selling items, seeking donations, sponsorships and grants to fund the activities of the Company.

An example of Inspire Youth Australia Ltd projects is the South Coast Youth Leadership Forum (SCYLF) (SCYLF 2015). The forum is a 3-day annual programme, targeting 15-17 year olds, who live in the Gilmore electorate region (Shoalhaven and Kiama) and ‘wish to be inspired to make positive changes within their community’ (SCYLF 2015). Governance arrangements are limited to the management of the benevolent organisation, there is no overarching approach.

Actions that build and use local networks to engage youth– The actions in this project involve negotiating, engaging and gaining support from several key networks. Business partnerships and sponsors play a large part in this project. The forum, for example, is sponsored by local businesses and this enables the cost of the 3-day event to be lowered enabling 50 young people to participate. By using other local networks, youth participants are recruited via careers advisors, teachers, and youth groups and services e.g. Headspace, the council, the local media, social media and word of mouth.

Access to power and influence- Actions in this project are supported by the NSW Government and Regional Development Australia. In addition to this, politicians and the mayor publicly endorse the programme. Through their networks and connections, with people in positions of power and influence, local and international sponsors and speakers are engaged in the programme.

Actions for change and learning- The actions are modelled on the IC3 ‘I can create change’ model that integrates training, interviewing skills, networking and sharing ideas with others, hearing inspiring stories and achievements to encourage and inspire social change (IC3 2014). The SCYLF incorporated additional learning sessions into the program and included how to set up a bank account, applying for a job and having an interview, the small print in mobile phone plans and costs, what is insurance, change management and mental health promotion (SCYLF 2015). Local and international speakers work with the youth forum participants over the three days using a variety of engagement and learning formats. Since the forums began the format and scope has evolved. This year’s program has expanded to include opportunities for youth to participate in the global volunteer network (GVN Foundation 2015) and sessions were based on the theme of ‘glocalisation’ (SCYLF 2015).

Actions for knowledge exchange and transfer – this is a core component of this project, firstly it is an attempt to directly translate a model designed in another country and put into practice with a rural youth cohort in Australia. The project also seeks to share information and develop life skills with forum participants, but also aims to facilitate social harmony, develop communication, listening and problem solving skills and demonstrate how others have, through collective and collaborative ways of working, achieved social change.

Case 2- Narooma Next

In early 2014, a business community group in Narooma joined together to develop the ‘Narooma Next’ project. Narooma is a small coastal town with a population of approximately 2500 people (ABS 2011). It is a popular tourist destination and is well known for its seafood produce. Accommodation, food services and retail trade accounts for 28% of employment (ABS 2011).

Actions that build and use local expertise and networks - Narooma Next evolved through conversations in the business community because ‘we realise that this town is more than just tourism and that strategic plans that come from the top don’t work’ (MD, Eurobodalla). There was recognition by the group that Regional Development Australia funds had been allocated to larger infrastructure type projects and this meant that places like Narooma would not be considered for funding unless it had a large scale projects for investment.

Actions that build and use technical expertise from outside of the case study boundary - The Narooma Next group, in partnership with the University of Sydney’s Business School worked together to develop ‘a bottom up community strategic a community strategic plan’ (MD, Eurobodalla) as a way of conceptualising a vision for the town’s future that is community lead and community driven (RARE, 2015). The Business school offers a practical placement in the Master of business program through the RARE project (Rural and Remote Enterprise). Students work with a rural or remote community to address their sustainability issue (RARE, 2015).

Actions to build strategies- A ‘community lead and community driven strategic plan’ (RARE 2015) was developed by a participatory approach using interviews, focus groups and facilitated workshops. Participants included

business owners from tourism, agriculture, local government and non-government organisations. The students also conducted an economic situation analysis of the Narooma region and ‘worked with local business and community leaders to form a ‘bottom-up’ strategic community plan that utilises existing assets to create jobs and growth’ (RARE 2015). Goals of the strategy include raising the standard of living for people in Narooma, to enhance wellbeing and offer gainful employment (MD, Eurobodalla).

The plan outlines Narooma’s strengths and weakness and opportunities for economic development. Strengths include the community leadership, community cohesion and support networks. These qualities lend itself to developing a community co-operative, ‘where people can invest in growing the town for jobs for the future and knowing that the profits will go back into the town’ (MD, Eurobodalla). The plan is framed around developing capacity and capability of local business.

The economic analysis assessed if there was a potential to develop business with local food producers, the conclusion was that:

‘...Based on our interviews with local producers it appears that with the exception of South Coast meats (lamb, beef) other sectors, such as oysters, did not have an adequate margin in the domestic sector in their current form (without adding value to suit the consumer). Dairy and other seafood are providing economic success, but will require further feasibility studies to determine further opportunities. That being said Australia’s Oyster Coast has commenced marketing and sales of local South Coast oysters to Asia – but they are a separate private entity’ (MD, Eurobodalla).

The Narooma Next Group see that Narooma residents need to be part of developing the vision for the town’s future and building on the town’s natural and social assets. Community leadership, participation and decision making are considered to be central to the project’s success.

‘...if you don’t have a say in your own future as a community as a town someone else is going to come along that does not share your values and do something here that may not be in keeping with your own, your

own vision, your own values. That is why having a say is important. So on my wish list would be that this Narooma Next works, grows, makes a contribution, makes a difference to peoples' lives here' (MD, Eurobodalla).

Actions for knowledge exchange and transfer- this is enabled by facilitated workshops where an external facilitator works with participants to discuss ideas and reflect on the economic analysis findings and together develop the next steps for Narooma Next. At this stage of the project's development, knowledge is shared within the group and students, however the vision is for the wide community to take ownership of the strategy once it becomes more formulated.

Case 3- Sapphire Coast Tourism Ltd.

Sapphire Coast Tourism Ltd (SCT) is a public company that has been operating since 2008 and works in partnership with the Bega Valley Shire Council and local business owners and the local community, to develop the Bega Valley as an attractive tourist destination.

The Sapphire Coast is the branding name given to the Bega Valley Shire and used for advertising and marketing to attract visitors. The SCT is a company with a board of directors, members and office bearers and receives funding from NSW Government (Destination NSW) for regional flagship projects and from the Bega Valley Shire Council. Governance arrangements are structured on a board of director and corporate business model approaches.

Actions that build strategies based on local stories and history- The company has evolved as a result of a feasibility study and cultural heritage strategy developed by the Eden Whale Festival Committee and the Sapphire Coast Marine Discovery Centre in Eden (GB, Bega Valley). It was through engagement of the local community and listening to their stories about Eden and the whaling industry from the early 1900s that the strong connection of the community to whales emerged. One whaling family still lives in Eden (the Davidsons) and provided oral histories, photographs and whale skeletons for the Eden whale Museum (Killers of Eden n.d.) This lead to the creation of an annual whaling festival that celebrates the town's history and brings tourists to the region for whale watching and nature tours. Having gained an understanding of the connection between whales and the Eden

community this then extended to a broader understanding, that was not unique to Eden, but the connections to nature and the place were reflected in the Sapphire coast community through stories and art. This understanding lead to the development of the Sapphire Coast Heritage Tourism strategy 2011-2015 that promotes Australian Indigenous heritage and European history as part of the story architecture (Sapphire Coast Heritage Tourism strategy 2011-2015)

Sapphire Coast Tourism Ltd, Company Objectives are to:

- a) to identify and promote the region's compelling visitor experiences to maximise the social, cultural, environmental and economic wellbeing of the community through sustainable tourism;
- b) to establish a strategic framework for tourism in the region;
- c) to plan and implement branding, marketing and promotion;
- d) to conduct research and provide information, advice and support to improve the range and quality of visitor experiences provided in the region;
- e) to provide advice to government, industry and potential investors on opportunities, servicing, facility and infrastructure requirements and sustainability;
- f) to develop partnerships and relationships with other bodies which will assist the Company to achieve object (a).

(South Coast Tourism Constitution 2014)

Actions that build strategic partnerships and create a brand - To develop the SCT brand and promote the local heritage stories, SCT worked with stakeholders from neighbouring local government areas to develop a strategic approach to tourism for the region. This resulted in Sapphire Coast being part of two significant tourism destination models, the Australia's Coastal Wilderness that promotes the national landscapes, parks and wildlife. The second is South Coast Tourism Organisation (SCRTO) partnership between five South Coast of New South Wales Local Government Areas, Shellharbour, Kiama, Shoalhaven, Eurobodalla and Bega Valley (South Coast Tourism n.d.).

Through the strategic partnership and pooling of ideas and resources and building on the communities' connection to place, culture, history and nature, this has created a strong brand that follows a journey along the coastline, connecting places rather than individual locations. The latest version of the campaign

‘Beautifully uncivilised’ and journey planners for ‘Australia’s coastal wilderness-embrace something wild’ emphasises the natural beauty of the region, but also taps into visitor’s understanding and perception of the rural place, i.e. that the rural is somehow uncivilised and Nature wild (Sapphire Coast Tourism 2015). The campaign unites these concepts and celebrates the difference between an urban setting and the rural setting. The building of the South Coast brand has been a successful approach that has enabled the organisation to work with a wide range of stakeholders to access large scale infrastructure grants, such as the \$15 million Breakwater Wharf extension to the Eden Wharf (NSW Government Trade and Investment 2014).

Actions for knowledge transfer - strategies have three main purposes, to gather knowledge for the organisation itself, to communicate and provide tourists with information; and to share information and resources between stakeholders.

A corporate marketing approach is used to share knowledge with visitors and includes a number of strategies primarily using an advertising campaign that is promoted through the Sapphire Coast web page and other through social media such as YouTube, Facebook, Instagram and Twitter.

To share knowledge with other stakeholders, SCT as well as attending regular meetings with both strategic entities, SCT hosts a summit to bring stakeholders together to discuss tourism statistics and reflect on what worked, what did not; and to explore ideas for future promotion and further investment for the region.

Finally, internal knowledge transfer is attained by the analysis and evaluation of quantitative data reports, surveys and other business economic data (Sapphire Coast Visitor Profile and Satisfaction Report 2011). The second approach is through ongoing engagement with the community and the use of qualitative methods to continue to listen to community stories and history to enrich the brand and extend the story architecture (Sapphire Coast Heritage Tourism strategy 2011-2015).

A cross case report is presented in Table 42.



Source: Sapphire Coast Tourism: viewed 14th January 2016,
<http://www.sapphirecoast.com.au/>



Source: Sapphire Coast Tourism: viewed 14th January 2016,
<http://www.sapphirecoast.com.au/>

Table 42 Cross case report economic development

Case Study questions	South coast Youth Leadership Forum Shoalhaven	Narooma Next Eurobodalla	South Coast Tourism Bega Valley
Action	Youth development	Town economic development	Regional tourism development
Rationale	High rates of unemployment can lead to low economic and social development and social and mental health issues (drug and alcohol dependency, depression, family violence and other crime). The forums seek to inspire young people, living in Shoalhaven, to instigate the change they want to see, facilitate their empowerment and sense of purpose.	The town is more than Tourism and needs a diversity in the local economy. Working together to develop 'Narooma Next' will help facilitate development, community leadership. Successful implementation the strategy will lead to enhanced wellbeing, raised living standards and gainful local employment.	A strategic approach is needed to develop tourism in the Bega Valley connecting visitors to places (in a way that connects regions not individual places), through the integrating theme of nature experiences and local stories
Who is involved?	Shoalhaven youth 15-17-year-old. Local business Schools Charities International speakers Youth networks Global Volunteer Network IC3	Narooma Next business community group University of Sydney School of business Master of Business students. Council Local framers and producers Tourist industry Non-government agencies.	Sapphire Coast Tourism South Coast Tourism Bega Valley Shire Council Local business owners Bega Valley Community
How?	<ul style="list-style-type: none"> • 3-day sponsored forum at a local venue • Sponsored by local business • Coordinated by Inspire Youth Ltd. • Forum covers a range of topics from brainstorming exercises on bringing about change and what 	<ul style="list-style-type: none"> • Business community have a conversation and discuss the need for a strategy. • Partnership with University of Sydney develops • Master of Business students undertake an economic analysis and work with the group to identify Narooma's strengths and 	<ul style="list-style-type: none"> • Set up a public company funded by grants and contractual arrangements with the Bega Valley Council • Sapphire Coast develops a strategic approach to tourism using culture and heritage • Build partnerships with neighbouring local government to create a borderless nature

	you can do to, hearing inspirational stories from others; sessions on life skills e.g. setting up bank accounts, applying for a job and having an interview.	weaknesses, identify opportunities for development and develop a strategy for the next steps.	experience linking in places and local stories <ul style="list-style-type: none"> • Use of social media and corporate marketing strategies
Knowledge Transfer strategies used?	Workshops are designed to share and exchange knowledge Facebook page Media promotion Webpage with introduction video	Workshops to share and exchange knowledge Master student's economic analysis Political and business networks	Corporate marketing strategies Conferences and Summits Social media

REFERENCES

- ABARES 2015a, 'Agriculture, Fisheries and Forestry in the Capital region of New South Wales, 2015, About my region 15.3', *Commonwealth of Australia*, Canberra, viewed 15th October 2015, <http://www.agriculture.gov.au/abares/publications/aboutmyregion>
- ABARES 2015b, 'Agriculture and Fisheries in the Southern Highlands and Shoalhaven region of New South Wales, 2015, About my region 15.14', *Commonwealth of Australia*, Canberra, viewed 15th October 2015, <http://www.agriculture.gov.au/abares/publications/aboutmyregion>
- ABC 2016, 'South Coast consumers switch to local milk after dairy crisis highlighted on social media', *ABC*, viewed 10th July 2016, <http://www.abc.net.au/news/2016-06-27/consumers-turn-to-local-milk-during-dairy-dramas/7546356>
- Aboriginal Health and Medical Research Council of NSW 2015, viewed 18th July 2016, <http://www.ahmrc.org.au/>
- Acheson, D 1988, *Public health in England: The report of the committee of the Enquiry into the Future development of public health function*, HSMO, London.
- Agyeman, J Bullard, R Evans B 2002, 'Exploring the nexus: bringing together sustainability, environmental justice and equity', *Space and Polity*, vol.6, no. 1, pp. 70-90
- Agyeman, J 2005, *Sustainable communities and the challenge of environmental Justice*, New York University Press, New York.
- Agyeman, J 2013, *Introducing Just sustainabilities: Policy Planning and Practice*, Zed Books, London.
- Allen, D and Berg, C 2014, 'The sharing economy- How over regulation could destroy an economic revolution', *Institute of Public Affairs*, viewed 8th October 2015, www.ipa.org.au
- Alexander, K Sanderson, C Marathe, M Lewis, B Rivers, CM Shaman, J Drake, J Lofgren, Dato, VM Eisenberg, M and Eubank, S 2015, 'What factors have led to the emergence of Ebola in West Africa?', *PLoS Neglected Tropical Diseases*, vol.9, no. 6, e0003652, doi: 10.1371/journal.pntd.0003652.
- Alston, M 2009, *Innovative human services practice: Australia's changing landscape*, Palgrave Macmillan, South Yarra.
- Arabena, K 2010, 'All knowledge is Indigenous', in Brown, V Harris, J Russell, J (eds.), *Tackling wicked problems through the transdisciplinary imagination*, Earthscan, Washington.

- Arabena, K 2011, 'Forests as landscapes for reconciliation', *Australian Forestry* 2011, vol. 74, no. 1, pp. 1–3.
- Armstrong, R Water, E Roberts, H Oliver, S and Popay, J 2006, 'The role and theoretical evolution of knowledge translation and exchange in public health', *Journal of Public Health*, vol.28, pp. 384-389.
- Arskey, H and O'Malley, L 2005, 'Scoping studies: towards a methodological framework', *Journal of Social Research Methodology*, vol.8, no.1, pp.19-32.
- Ashton, J and Seymour, H 1988, *The New Public Health: The Liverpool Experience*, Open University Press, Milton Keynes.
- Atech Group 1999, *Southern Forests: Catchment Values and Threats*. Report for NSW Forest Alliance.
- Austrade 2015, *National Visitor Survey Results*, Tourism Research Australia, viewed 20th December 2015, <http://www.tra.gov.au/research/latest-nvs-report.html>
- Australian Bureau of Statistics (ABS) 2011a, *Australian Social Trends Health outside of major cities*, cat. 4102.0, ABS, Canberra.
- Australian Bureau of Statistics 2011b, *Census by Location*, ABS, viewed 10th July 2015, <http://www.censusdata.abs.gov.au>.
- Australian Bureau of Statistics, Australian Statistical Geography Standard (ASGS), viewed 25th April 2015, [http://www.abs.gov.au/websitedbs/D3310114.nsf/home/Australian+Statistical+Geography+Standard+\(ASGS\)](http://www.abs.gov.au/websitedbs/D3310114.nsf/home/Australian+Statistical+Geography+Standard+(ASGS))
- Australian Bureau of Statistics 2014, *Regional Population Growth by Local Government Area, Australia*, cat.3218.0, ABS, viewed 10th July 2015, <http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/3218.02012-13>.
- Australian Bureau of Statistics 2014b, *Estimates and Projections, Aboriginal and Torres Strait Islander Australians, 2001 to 2026*, cat no. 3238.0, viewed 10th July 2016, <http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/3238.0main+features12001%20to%202026>
- 6
- Australian Bureau of Statistics 2015, *Key Economic Indicators, 2015*, cat.1345.0, ABS, Canberra.
- ACT Government 2008, 'Regional State of the Environment Report 2008', ACT Government, viewed 12th Dec 2015, <http://reports.envcomm.act.gov.au/rsoe2008/index.shtml>

Australia's Chief Scientist 2016, 'Time to back our potential', *Australian Government*, viewed 8th February, <http://www.chiefscientist.gov.au/2016/02/statement-time-to-back-our-potential/?platform=hootsuite>

Australian Council of Social Service (ACOSS) 2012, 'Poverty in Australia 2012', 3rd edn, ACOSS, viewed 10th January 2016, http://acoss.org.au/images/uploads/Poverty_Report_2013_FINAL.pdf

Australian Council of Social Service (ACOSS) 2014, *Preventing shocks and addressing energy poverty –ACOSS Discussion Paper*, viewed 15th December 2015, http://www.acoss.org.au/images/uploads/Concessions_paper_2014_FINAL.pdf

Austin Health 2015, 'Sustainability Report 2013-2015', *Austin Health*, viewed 5th January 2016, <http://www.austin.org.au/Assets/Files/Sustainability%20Report%202012-13%20final.pdf>

Australian Early Development Census (AEDC) 2012, 'Australian Early Development Index (AEDI) 2012', AEDC, viewed 10th September 2015, <http://www.aedc.gov.au/>.

Australian Institute of Aboriginal and Torres Strait Islander Studies (AIATSIS) 2012, 'Guidelines for Ethical Research in Australian Indigenous Studies', *AIATSIS*, 10th viewed July 2016, <http://aiatsis.gov.au/sites/default/files/docs/research-and-guides/ethics/GERAIS.pdf>.

Australian Institute of Health and Welfare (AIHW) 2008, *Rural, regional and remote health: indicators of health status and determinants of health*, Rural Health Series no. 9, cat.no. PHE 97, AIHW, Canberra.

Australian Institute of Health and Welfare (AIHW) 2013, *Chronic diseases*, viewed 10th Dec 2015, <http://www.aihw.gov.au/chronic-diseases/>

Australian Institute of Health and Welfare (AIHW) 2014, *Australia's health 2014*. Australia's health series no. 14. Cat. no. AUS 178, AIHW, Canberra.

Australian Institute of Health and Welfare (AIHW) 2015, *The health and welfare of Australia's Aboriginal and Torres Strait Islander peoples: 2015*, Cat. no. IHW 147, AIHW Canberra.

Australian Museum 2015, 'Introduction to Indigenous Australia', Australian Museum, viewed 29th June 2016, <http://australianmuseum.net.au/indigenous-australia-introduction>

Australian National Development Index, viewed 10th July 2016, <http://www.andi.org.au/the-index>

- Baldwin, J 2012, 'Growing with the flow: the aquaponics garden at Basin View Masonic Village', *Australian Journal of Dementia Care*, vol. 1, no. 2, pp.12-13.
- Banerjee, S 2003, 'Who sustains whose development? Sustainable development and the reinvention of nature', *Organization Studies*, vol.24, no.1, pp.143–180.
- Barrett, B Charles, J and Temte, J 2015, 'Climate change, human health, and epidemiological transition', *Preventive Medicine*, vol.70, pp. 69–75.
- Barron, L and Gauntlett, E 2002, 'Housing and Sustainable Communities Indicators Project: Stage 1, Report–Model of Social Sustainability,' WACOSS, viewed 8th May 2015, [http://wacoss.org.au/images/assets/SP_Sustainability/HSCIP% 20Stage, 201](http://wacoss.org.au/images/assets/SP_Sustainability/HSCIP%20Stage,201).
- Barton, H. and Grant, M 2006, 'A health map for the local human habitat', *The Journal for the Royal Society for the Promotion of Health*, vol.126, no.6, pp. 252-253.
- Bateson G 1979 *Mind and Nature*, Fontana, London.
- Baum, F Bégin, M Houweling, T and Taylor, S 2009, 'Changes not for the fainthearted: reorienting health care systems toward health equity through action on the social determinants of health,' *American Journal of Public Health*, vol. 99, pp.1967–1974.
- Baum, F and Fisher, M 2010, 'Health equity and sustainability: extending the work of the Commission on the Social Determinants of Health', *Critical Public Health*, vol. 20, pp. 311-322.
- Baum, F Lawless, A Delaney, T MacDougall, C Williams, C Broderick, D Wildgoose, D Harris, E McDermott, D Kickbusch, I Popay, J and Marmot, M 2014, 'Evaluation of Health in All Policies: concept, theory and application' *Health Promotion International*, vol.29, pp.i130-142, doi:10.1093/heapro/dau032.
- Baum, F 2015 *The New Public Health*, 4th edn, Oxford University Press.
- Baumgärtner, S and Quaas, M 2010, 'What is sustainability economics?,' *Ecological Economics*, vol. 69, pp. 445–450.
- Beder, S 1996, *The Nature of Sustainable Development*, 2nd edn, Scribe Publications, Newham, Vic., Australia,
- Beder, S 2000, 'Costing the Earth: Equity, Sustainable Development and Environmental Economics', *New Zealand Journal of Environmental Law*, vol.4, pp. 227-243.
- Beder, S 2011, 'Environmental economics and ecological economics: the contribution of interdisciplinarity to understanding, influence and effectiveness,' *Environmental Conservation*, vol. 38, pp.140–150.

Bega Cheese, *FAQS*, viewed 12th August 2015, <http://www.begacheese.com.au/student-resources/faq/>.

Bega Valley Shire Council 2013, 'Climate Change Strategy 2013-2017', *Bega Valley Shire Council*, viewed 8th May 2015,

[file:///C:/Users/owner/Downloads/Climate_Change_Strategy\(1\).pdf](file:///C:/Users/owner/Downloads/Climate_Change_Strategy(1).pdf)

Bentley, M 2014, 'An ecological public health approach to understanding the relationships between sustainable urban environments, public health and social equity', *Health Promotion International*, vol. 29, no.3, pp.528-537.

Bergström, J and Dekker, S 2014, 'Bridging the Macro and the Micro by Considering the Meso: Reflections on the Fractal Nature of Resilience', *Ecology and Society*, vol.19, no.4, pp. 22, doi.org/10.5751/ES-06956-190422.

Berry, H Bowen, K and Kjellstrom, T 2010, 'Climate change and mental health: a causal pathways framework', *International J Public Health*, vol.55, no. 2,pp.123-32, [doi: 10.1007/s00038-009-0112-0](https://doi.org/10.1007/s00038-009-0112-0).

Bierle, T 1999, 'Using Social Goals to Evaluate Public Participation', *Policy Studies Review*, vol.16, pp.76-103.

Black, A 2005, 'Rural Communities And Sustainability', in C Cocklin and J Dibden (eds.) *Sustainability and change in rural Australia*, UNSW Press Ltd, Sydney.

Blackmore, J and Kamp, A 2011, 'Education as a determinant of health and wellbeing', in Keleher, H and MacDougall, CM *Understanding Health*, 3rd edn, Oxford University Press, Melbourne.

Bone, Z Crockett, J Hodge, S 2006, 'Deliberation forums: a pathway for public participation', *The Regional Institute*, viewed January 10th 2016, http://www.regional.org.au/au/apen/2006/refereed/1/2918_bonetz.htm

Bonevac, D 2010, 'Is Sustainability Sustainable?', *Academic Question*, vol. 23, no.1, pp. 84-101.

Booth, D Edgar, G Figueira, W Jenkins, G Kingsford, M Lenanton, R and Thresher, R 2009, 'Temperate Coastal and Demersal Fish and Climate Change', in Poloczanska, E Hobday, A and Richardson, A (eds) *Marine Climate Change Impacts and Adaptation Report Card for Australia 2009*, NCCARF Publication, viewed 19th July 2016,

http://www.oceanclimatechange.org.au/content/images/uploads/Temperate_fishes_Report_Card_.pdf

- Botterill, L 2009, *The role of agrarian sentiment in Australian rural policy*, Research Gate, viewed 25th January 2016,
https://www.researchgate.net/publication/254451239_3_The_role_of_agrarian_sentiment_in_Australian_rural_policy
- Bowen, G 2009, 'Document Analysis as a Qualitative Research Method', *Qualitative Research Journal*, vol. 9, No.2, pp.27 – 40.
- Boyko, J Lavis, J Abelson, J Dobbins, M and Carter, N 2012, 'Deliberative dialogues as a mechanism for knowledge translation and exchange in health systems decision-making', *Social Science & Medicine*, vol.75, pp. 1938e-1945
- Bradbery, P, Fletcher, G just sustand Molloy, R. 2001, 'Spiritual Impact Statements: A key to sustainability', in Falk, I (ed.), *Learning to Manage Change: Developing Regional Communities for a Local–Global Millennium*, National Centre for Vocational Education Research, Leabrook, viewed 28th June 2016,
www.ibrarian.net/.../C_HAPTER_12_Spiritual_impact_statements__A_key_to.pdf
- Bradshaw, C 2012, 'Little left to lose: deforestation and forest degradation in Australia since European colonization', *Journal of Plant Ecology*, vol.5, no.1, pp. 109–120, doi: 10.1093/jpe/rtr038.
- Braun, V and Clarke, V 2013 *Successful Qualitative Research: A Practical Guide for Beginners*, SAGE publications Singapore.
- Brett, J 2011, 'Fair Share country and city in Australia', *Quarterly Essay*, vol. 42, pp.1-67.
- Brinkley, I 2014, 'Defining the knowledge economy - Knowledge economy programme report', *The Work Foundation*, viewed 10th April 2015,
http://www.theworkfoundation.com/assets/docs/publications/65_defining%20knowledge%20economy.pdf
- Brody, H 1973, 'The systems view of man: Implications for medicine, science and ethics', *Perspectives in Biology and Medicine*, vol17, pp.71-92.
- Bronfenbrenner, U 1979, *The Ecology of Human Development*, Harvard University Press, United States of America.
- Bronfenbrenner, U 1986, 'Recent advances in the ecology of human development', in Silbereisen, R Eyferth, K and Rudinger, G (eds), *Development as action in context: Problem behaviour and normal youth development*, Springer-Verlag, Berlin.
- Bronfenbrenner, U 1994, 'Ecological models of human development', *International Encyclopedia of Education*, vol.3, pp. 36-43

Brown, D Dillard, J and Marshall, S 2009, 'Triple Bottom line' in Dillard, J Dujon , V and King, MC (Eds.), *Understanding the Social dimension of Sustainability*, Routledge, New York.

Brown, D and Schafft, K 2011, *Rural People and Communities in the 21st century- resilience and transformation*, Polity Press, UK.

Brown, VA 2005, 'Knowing' in Brown, VA Grootjans, J Ritchie, J Townsend, M & Verrinder (eds), *Sustainability and health: supporting ecological integrity in public health*, London, Earthscan.

Brown, VA Grootjans, J Ritchie, J Townsend, M & Verrinder, G 2005, *Sustainability and health –supporting global ecological integrity in public health*, Earthscan, UK.

Brown, VA 2007, 'Collective thinking for a connected world: combining knowledges towards whole-of-community change' in *Organizing Committee for the Asia-Pacific Ecohealth Conference. Ecology and health: people and places in a changing world. Asia-Pacific Ecohealth conference*, Melbourne, viewed 10th December 2015, file:///C:/Users/owner/Downloads/Ecology%20and%20HealthPeople%20%20Places%20in%20a%20Changing%20World%20(1).pdf.

Brown, V Deane, P Harris, J and Russell, J 2010, 'Towards a Just and Sustainable Future', in Brown, V Harris, J Russell, J (eds.), *Tackling wicked problems through the transdisciplinary imagination*, Earthscan, Washington.

Buchanan, A and O'Neill, M 2001, 'Inclusion and diversity: Finding common ground for organizational action- a deliberative dialogue guide', *Canadian Council for International Co-operation*, viewed 8th January 2016, http://www.ccic.ca/files/en/what_we_do/002_dev_inclusion_and_diversity.pdf

Bureau of Meteorology 2015, *Climate outlooks- monthly and seasonal*, viewed 31st December 2015, <http://www.bom.gov.au/climate/outlooks/#/overview/summary>.

Burford, G Hoover, E Velasco, I Janoušková, S Jimenez, A Piggot, G Podger, D and Harder, M 2013, 'Bringing the "Missing Pillar" into Sustainable Development Goals: Towards Intersubjective Values-Based Indicators', *Sustainability*, vol.5 no.7 , pp.3035-3059.

Burnley, I. and Murphy, P 2004, *Sea Change: Movement from Metropolitan to Arcadian Australia*, University of New South Wales Press, Sydney.

Butler, B Clarke, B McLeod, I and Vercoe, T 2009, *Trees for farm forestry: 22 promising species, A report for the RIRDC/Land & Water Australia/FWPRDC*, Joint Venture Agro forestry Program, Rural Industries Research and Development Corporation

- Butler, C 1997, 'The Consumption Bomb', *Medicine Conflict and Survival*, vol.13, pp.209-218.
- Butler, C 2010, 'Primary, secondary and tertiary effects of eco-climatic change: the medical response', *Post Graduate Medical Journal*, vol. 86, pp.230-234, doi: 10.1136/pgmj.2009.082727.
- Cabezas, H Pawlowski, CW Mayer, AL and Hoagland, T 2003, 'Sustainability: ecological, social, economic, technological, and systems perspectives', *Clean Techno Environ Policy*, vol. 5, pp. 167–180
- Cambridge English Dictionary n.d., action, viewed 10th June 2016, <http://dictionary.cambridge.org/dictionary/english/action?q=actions>
- Canadian Public Health Association 2015, *Global change and public health: addressing the ecological determinants of health*, Canadian Public Health Association, Ottawa, Ontario.
- Canadian Public Health Association n.d., 'Leadership in Public Health A guide to advocacy for public health associations', *Canadian Public Health Association*, viewed 8th January 2016, http://www.cpha.ca/uploads/progs/_/sopha/advocacy-booklet-colour-en-final.pdf
- Carpenter, C and Suto, M 2008, *Qualitative research for Occupational and Physical therapists: A practical Guide*. Blackwell Publishing Oxford.
- Carson, R 1962, *The Silent Spring*, Penguin Books, London.
- Castellani, B Rajaram, R Buckwalter, J Ball, M and Hafferty, F 2012, *Places and Health as complex systems- a case study and empirical test*, Springer, Switzerland.
- Casterline JB, (ed.) 2001, *Diffusion Processes and Fertility Transition: Introduction*, National Research Council (US) Committee on Population, National Academies Press, Washington (DC).
- Carvalho, R 2015, *Youth unemployment in Australia*, Centre for Independent Studies (Australia), CIS research report; 7. ISBN: 9781922184566.
- Chapman, S 2001, 'Advocacy in public health: roles and challenges', *International Journal of Epidemiology*, vol. 30. pp. 1226-1232, doi: 10.1093/ije/30.6.1226.
- Christophersen, T 2015, 'Executive Perspective: Look to the land: why agriculture is key for sustainable development', *UNEP*, viewed 6th January 2016, <http://sustainability.thomsonreuters.com/2015/12/17/executive-perspective-look-to-the-land-why-agriculture-is-key-for-sustainable-development/>.

- Chu, C 1994, 'Integrating health and environment: the key to an ecological public health', in Chu, C & Simpson, R (eds) 1994, *Ecological public health: from vision to practice*, Nathan, Qld, Australia and Toronto Canada, Griffith University and Centre for Health Promotion.
- Clavier, C Sénéchal, Y Vibert, S and Potvin, L 2012, 'A theory-based model of translation practices in public health participatory research', *Sociology of Health & Illness*, vol.34, pp.791-805, doi: 10.1111/j.1467-9566.2011.01408.x
- Latour 2005.
- Clean Energy For Eternity [CEFE] 2015, viewed 10th October 2105, <http://cleanenergyforeternity.net.au/chapters/bega/>
- Coalition for Community Energy 2015, viewed 10th December 2015, <http://c4ce.net.au/>
- Cocklin, C and Dibden, J (eds.) 2005, *Sustainability and change in rural Australia*, UNSW Press Ltd, Sydney.
- Cohen, D de la Vega, R and Watson G 2001, *Advocacy for Social Justice: A Global Action and Reflection Guide*, CT: Kumarian Press, Bloomfield.
- Commission on Social Determinants of Health 2008, *Closing the gap in a generation: Health equity through action on the social determinants of health*, World Health Organization, Geneva.
- Coombs, G and Dollery, B 2002, 'An Analysis of the Intergenerational Equity and Sustainability in Australia', *Australian Journal of Social Issues*, vol. 37, no. 4, pp.363-381.
- Costanza, R and Patten, BC 1995, 'Defining and predicting sustainability', *Ecological Economics*, vol.15, pp.193-196.
- Costanza, R, Cumberland, J, Daly, H, Goodland, R, Norgaard, R, 1997, *An introduction to ecological economics*, St Lucie Press, Boca Raton.
- Costello, L 2009 'Urban–Rural Migration: housing availability and affordability', *Australian Geographer*, 40:2, 219-233, DOI: 10.1080/00049180902974776
- Coutts, C Forkink, A and Weiner, J 2011, 'The portrayal of natural environment in the evolution of the ecological public health paradigm', *International Journal Environmental Research Public Health*, vol.11, pp.1005-1019.
- Creative Spirits 2016, 'Aboriginal culture - Land - Meaning of land to Aboriginal people', viewed 29th June 2016, <http://www.creativespirits.info/aboriginalculture/land/meaning-of-land-to-aboriginal-people#ixzz4Cx4Ew5cW>
- Creel, L 2003, 'Ripple effects: population and coastal regions', *Population Reference Bureau*, viewed 8th February 2016, http://www.prb.org/pdf/RippleEffects_Eng.pdf

- Creswell, J 2009, *Research design: Qualitative, quantitative, and mixed methods approaches*, SAGE Publications, Thousand Oaks, London.
- Creswell, J 2012, *Educational Research: planning conducting and evaluating quantitative and qualitative research*, 4th edn, Pearson, Boston.
- Cronin, P Ryan, F and Coughlan, M 2008, 'Undertaking a literature review: a step by step approach', *British Journal of Nursing*, vol. 17, no. 1, pp. 38- 43.
- Crotty, M 1998, *The Foundations of Social Research: Meaning and Perspective in the Research Process*, Allen and Unwin, Sydney.
- Crowe, S Cresswell, K Robertson, A, Huby, G Avery, A and Sheikh, A 2011, 'The case study approach', *BMC Medical Research Methodology*, vol.11, no.1, pp.1–9, doi: 10.1186/1471-2288-11-10.
- CSDH 2008, *Closing the gap in a generation: health equity through action on the social determinants of health*, Final Report of the Commission on Social Determinants of Health. Geneva, World Health Organization.
- Culyer, A. and Lomas, J 2006, 'Deliberative processes and evidence-informed decision making in healthcare: Do they work and how we might know?', *Evidence and Policy: A Journal of Research, Debate, and Practice*, vol.2, pp.357-371.
- Curtin, J 2004, 'The voice and the vote of the bush- representation of rural and regional Australia in the Federal Parliament', *Commonwealth of Australia*, viewed December 10th 2015, <http://www.aph.gov.au/binaries/library/pubs/monographs/curtin/curtinmonograph.pdf>
- Curtis, A and De Lacy, T 1996, 'Landcare in Australia: Does it make a Difference?', *Journal of Environmental Management*, vol. 46, no.2, pp.119-137.
- Curtis, D 2011, 'Towards a culture of Landcare: the arts in community capacity building for natural resources management', *Journal of Environmental Assessment Policy and Management*, vol. 13. No.4, pp.673-696.
- Cuthill, M 2010, 'Strengthening the 'Social' in Sustainable Development: Developing a Conceptual Framework for Social Sustainability in a Rapid Urban Growth Region in Australia', *Sustainable Development*, vol.18, pp. 362-373.
- Daly, HE 1991, *Steady State Economics*, Island Press, Washington.
- Darvish, H and Yaşar, T 2016, 'Diffusion of nanotechnology knowledge in Turkey and its network structure', *Scientometrics*, vol.107, pp.569-592.

Darwin, CR 1869, *On the origin of species by means of natural selection, or the preservation of favoured races in the struggle for life*, John Murray, 5th edn. Tenth thousand, London.

Davidson, M 2009, 'Social sustainability: a potential for politics?', *Local Environment: The International Journal of Justice and Sustainability*, vol.14, no.7, pp.607-619.

de Block, L and Buckingham, D 2007, *Global Children, Global Media: migration, media and childhood*, Palgrave Macmillan, Basingstoke.

Dearing, J 2009, 'Applying Diffusion of Innovation Theory to Intervention Development' *Research Social Work Practice*. 1; 19(5), p.503–518, doi: 10.1177/1049731509335569

Dempsey, N Bramley, G Power, S and Brown, C 2009, 'The Social Dimension of Sustainable Development: Defining Urban Social Sustainability', *Sustainable Development*, doi: 10.1002/sd.

Department of the Environment and Heritage 2005, 'Educating for a Sustainable Future a National Environmental Education Statement for Australian Schools', *Commonwealth of Australia*, viewed 10th May 2015,

<https://www.environment.gov.au/system/files/resources/1b93d012-6dfb-4ceb-a37f-209a27dca0e0/files/sustainable-future.pdf>

Department of the Environment, Water, Heritage and the Arts 2010, 'The guide for curriculum developers and policy makers', *Commonwealth of Australia*, viewed 10th April 2015, <http://www.environment.gov.au/system/files/resources/9b2e74ca-c909-4d57-bae3-c515c20957de/files/curriculum-framework.pdf>.

Department of Industry and Science 2015, Australian energy update 2015, Commonwealth of Australia Canberra, viewed 8th February 2016, <http://www.industry.gov.au/Office-of-the-Chief-Economist/Publications/Documents/aes/2015-australian-energy-statistics.pdf>

Department of Primary Industries n.d.a, Bega catchment, NSW Government, Office of Water, viewed 10th August 2015, <http://www.water.nsw.gov.au/water-management/basins-and-catchments/bega-catchment>

Department of Primary Industries n.d.b, Clyde catchment, NSW Government, Office of Water, viewed 10th August 2015, <http://www.water.nsw.gov.au/water-management/basins-and-catchments/clyde-catchment>.

Department of Primary Industries n.d.c, Moruya catchment, NSW Government, Office of Water, viewed 10th August 2015, <http://www.water.nsw.gov.au/water-management/basins-and-catchments/moruya-catchment>

Department of Primary Industries n.d.d, *Shoalhaven catchment*, NSW Government, Office of Water, viewed 10th August 2015, <http://www.water.nsw.gov.au/water-management/basins-and-catchments/shoalhaven-catchment>

Department of Primary Industries n.d.e, *Tuross catchment*, NSW Government, Office of Water, viewed 10th August 2015, <http://www.water.nsw.gov.au/water-management/basins-and-catchments/tuross-catchment>

Department of Sustainability, Environment, Water, Population and Communities 2011, ‘Sustainable Australia– Sustainable Communities– a Population Strategy for Australia’, *Commonwealth of Australia*, viewed 10th May 2015, <https://www.environment.gov.au/system/files/resources/6944262c-e3de-4b70-9e09-e3e75668ce63/files/population-strategy.pdf>

Department of Sustainability, Environment, Water, Population and Communities 2011 ‘Sustainable Regional Development Program: Fact Sheet’, *Commonwealth of Australia*, viewed 10th May 2015, <https://www.environment.gov.au/system/files/pages/e1db50da-3d41-4f40-b70b-9f1ef51f1daf/files/fs-regional-development.pdf>

Department of Sustainability, Environment, Water, Population and Communities 2013, ‘Koala populations in Queensland, New South Wales and the Australian Capital Territory and national environment law’, *Commonwealth of Australia*, viewed December 14th 2015, <http://www.environment.gov.au/biodiversity/threatened/publications/factsheet-koala-populations-queensland-nsw-act-national>.

Dillard, J Dujon, V and King, MC (eds.) 2009, *Understanding the Social dimension of Sustainability*, Routledge, Oxon.

Dixon-Woods, M Agarwal, S Jones, D Young, B and Sutton, A 2005, ‘Synthesising qualitative and quantitative evidence: a review of possible methods’, *Journal of Health Services Research & Policy*, vol. 10, no.1, pp. 45-53.

Dobbins, M Thomas, J Kothari, A 2007, ‘Public health decision-makers' informational needs and preferences for receiving research evidence’, *Worldviews Evidence Based Nursing*, vol.4, no.3, pp.156-163.

Dodson, M. 1997, ‘Land Rights and Social Justice’, in Yunupingu, G. *Our Land is Our Life: Land Rights—Past, Present and Future*, University of Queensland Press, Brisbane, pp. 39–51.

Douglas, M Watkins, S Gorman, D and Higgins, M 2011, ‘Are cars the new tobacco?’, *Journal of Public Health*, vol. 33, no. 2, pp. 160–169.

- Dooris, M 1999, 'Healthy cities and local agenda 21: the UK experience – challenges for the new millennium', *Health Promotion International*, vol. 14, pp. 365- 375.
- Dryzek, J 2005, *The politics of the Earth –Environmental Discourse*, 2nd edn, Oxford University Press. Oxford.
- 'Dugong sightings in Merimbula Lake' 2015, Sapphire Coast Tourism, viewed 10th January 2016, <http://www.sapphirecoast.com.au/blog/dugong-sightings-in-merimbula-lake/>
- Dyball, R 2015, 'The challenge - Human ecology an evolving discipline', in Dyball, R and Newell, B *Understanding Human Ecology*, Earthscan, Oxon.
- Earth Charter 2000, *The Earth Charter*, Earth Charter Initiative, viewed 27th May 2015, <http://www.earthcharterinaction.org/content/pages/Read-the-Charter.html>
- Ecological Sustainable Development Steering Committee 1992, *National Strategy for Ecologically Sustainable Development*, viewed 27th May 2015, <http://www.environment.gov.au/about-us/esd/publications/national-esd-strategy>
- Economicsonline 2015, *Sustainable growth*, viewed 30th May 2015, http://www.economicsonline.co.uk/Managing_the_economy/Sustainable_growth.html
- Egger, G and Dixon, J 2014a, 'Beyond Obesity and Lifestyle: A Review of 21st Century Chronic Disease Determinants', *Biomed Research International*, doi: 10.1155/2014/731685.
- Egger, G and Dixon, J 2014b 'The risk of addressing only risks' *Canadian Medical Association Journal*, vol. 186, no.14, pp.1045-7, doi:10.1503 /cmaj.140138.
- Ehrlich, P and Holdren, J 1971, 'Impact of population growth', *Science*, vol.171, no.3977, pp.1212-1217.
- Ehrlich PR, and Ehrlich AH 2013, 'Can a collapse of global civilization be avoided?' *Proceedings of the Royal Society*, vol.280: 20122845, <http://dx.doi.org/10.1098/rspb.2012.2845>
- Ehrlich, PR and Ehrlich, AH 2014, 'It's the numbers, stupid!', in Goldie, J Betts, K (Eds.), *Sustainable Futures linking population, resources and the environment*, CSIRO Publishing. Australia.
- Elgazzar, E and Hegazi, A 2008, 'Modeling the avian flu, lessons from complex adaptive systems in biology', *Applied Mathematics and Computation*, vol. 195, pp.351-354.
- Elkington, J 1997, *Cannibals with Forks: The Triple Bottom Line of Twenty-First Century Business*, Capstone, Oxford.

- Elliott, H and Popay, J 2000, 'How are policy makers using evidence? Models of research utilisation and local NHS policy making', *Journal of Epidemiology Community Health*, vol.54, pp. 461-468.
- Elliott, J 2013, *An introduction to sustainable development*, 4th edn, Routledge, New York.
- Ellis, E 2014, *Ecosystem*, Encyclopedia of Earth, viewed 1st January 2016, <http://www.eoearth.org/view/article/152248/>
- Engelman, R 2013, 'Beyond sustainable', in Starke, L (ed.), *State of the World 2013: Is sustainability still possible?*, Island Press, Washington.
- Environmental Protection Agency (EPA) USA 2015 Nutrient Pollution – the problem, viewed December 10th 2015, <http://www.epa.gov/nutrientpollution/problem>
- Erlinger, T and Appel, L 2003, *The Relationship Between Meat Intake and Cardiovascular Disease*, Johns Hopkins Center for a Livable Future, viewed 18th July 2016, http://www.jhsph.edu/research/centers-and-institutes/johns-hopkins-center-for-a-livable-future/_pdf/research/clf_reports/FINALERlingerFINAL.pdf
- 'Eurobodalla groups solar push' 2015, *Bay Post*, May 27th, viewed 10th October 2015, <http://www.batemansbaypost.com.au/story/3104887/shire-push-for-no-deposit-solar/>
- Eurobodalla Shire Council n.d., *Aboriginal heritage in the Eurobodalla*, viewed 10th June 2015, http://www.esc.nsw.gov.au/living-in/about/culture-and-heritage/heritage-items-and-places/Aboriginal_Heritage_Brochure.pdf
- Eurobodalla Shire Council 2013, 'Eurobodalla Shire Council Community Strategic Plan-One Community', *Eurobodalla Shire Council*, viewed 30th May 2015, <http://www.esc.nsw.gov.au/inside-council/community-and-future-planning/community-strategic-plan/Eurobodalla-Community-strategic-plan-one-community.pdf>
- Eurobodalla Shire Council 2014, 'Water safety after heavy rain', *Eurobodalla Shire Council*, viewed 10th November 2015, <http://www.esc.nsw.gov.au/home/news-and-events/media-releases/media-releases/water-safety-after-heavy-rain>
- Eurobodalla Shire Council 2015, 'Policy directions paper- Presenting draft policy directions for rural lands in Eurobodalla', *Eurobodalla Shire Council*, viewed 10th October 2015, <http://www.esc.nsw.gov.au/inside-council/project-and-exhibitions/public-exhibition/on-exhibition/draft-policy-directions-paper-for-rural-lands-strategy/Draft-Policy-Directions-Paper.pdf>
- Eurobodalla Shire Council 2016, *Our Shire*, viewed 10th January 2016, <http://www.esc.nsw.gov.au/living-in/about/our-shire>

- Eyles, J and Williams, A 2008, *Sense of place, health and quality of life*, MPG Books Ltd, Cornwall, Great Britain.
- Fahey, D and Hegglin, M 2010, 'Twenty questions and answers about the Ozone layer:2010 Update', *United Nations Environment Program*, viewed 31st December 2015, http://ozone.unep.org/Assessment_Panels/SAP/Scientific_Assessment_2010/SAP-2010-FAQs-update.pdf
- Farmer, J and Kilpatrick, S 2009, 'Are rural health professionals also social entrepreneurs?', *Social Science & Medicine*, vol.69, pp.1651–1658
- Finegood, D Johnston, L Giabbanelli, P Deck, P Froot, S Burgos-Liz, L Steinberg, M and Best, A 2015, 'Complexity and Systems Theory', *Oxford bibliographies*, doi: 10.1093/OBO/9780199756797-0049.
- Foladori, G 2011, 'Advances and Limits of Social Sustainability as an Evolving Concept', *Canadian Journal of Development Studies*, vol.26, no.3, pp.501-510.
- Folke, C 2006, 'Resilience: the emergence of a perspective for social-ecological systems analyses', *Global Environmental Change*, vol.16, pp.253-267, doi: 10.1016/j.gloenvcha.2006.04.002
- Foran, B 2011, 'Low carbon transition options for Australia', *Ecological Modelling*, vol.223, pp.72– 80.
- Friel, S Dangour, A Garnett, T Lock, K Chalabi, Z Roberts, I Butler, A Butler, C Waage, J McMichael, A. J and Haines, A 2009, 'Public health benefits of strategies to reduce greenhouse-gas emissions: Food and agriculture', *The Lancet*, vol.374, pp. 2016-20.
- Foucault, M 1980, *Power/Knowledge: selected interviews and other writings, 1972-1977*, Pantheon Books, New York.
- Gagnon, M 2010, 'Knowledge dissemination and exchange of knowledge', Canadian Institute Health Research, viewed 4th October 2015, <http://www.cihr-irsc.gc.ca/e/41953.html>.
- Gell, M 2010, 'Carbon-constrained health care enterprise', *Journal of Evaluation in Clinical Practice*, vol.16, pp. 220-227.
- Genat, B and Cripps, K 2013, 'Social determinants of Indigenous health', in Keleher, H and MacDougall, C (eds.), *Understanding health*, 3rd edn, Oxford University Press, South Melbourne.

- Gerber, PJ Steinfeld, H Henderson, B Mottet, A Opio, C Dijkman, J Falcucci, A and Tempio, G 2013, *Tackling climate change through livestock: A global assessment of emissions and mitigation opportunities*, Food and Agriculture Organization of the United Nations (FAO), Rome.
- Gertler, P Heckman, J Pinto, R. Zanolini, A Vermeerch, C Walker, S Chang, SM and Grantham McGregor, S 2013, 'Labor market returns to early childhood stimulation: A 20-year follow up to an experimental intervention in Jamaica', *World Bank Policy Research Working Paper no. 6529*, viewed 10th January 2016, <http://www.nber.org/papers/w19185>.
- Ghosh A, McDonald K and Marshall K 2013, 'Illawarra-Eurobodalla Medicare Local - Population Health Profile: 2013', *Illawarra-Shoalhaven Medicare Local*, viewed 18th May 2015, <http://www.gph.org.au/assets/Main-Site/Uploads/Resources/Improving-population-health/ISML-Population-Health-Profile-2013-FINAL.pdf>.
- Giddens, A 2002, *Runaway world: how globalisation is reshaping our lives*, London, Profile Books.
- Gietzelt, A Keating, J and Davies, H 2014, 'Oysters – An 'Aphrodisiac' For Engaging Industry and Coastal Communities in Sustainable Estuary Management', in Proceedings of the 23rd NSW Coastal Conference 2014, Forster NSW, viewed 1st January 2016, <http://www.coastalconference.com/2014/papers2014/Adam%20Gietzelt%202014.pdf>
- Gilmore Leadership Forum (GLF) 2014, 'South Coast Youth Leadership Forum', viewed November 25th 2015, <http://www.scylf.com.au/>
- Global Green and Healthy Hospitals 2016, viewed January 20th 2016, <https://noharm-global.org/issues/global/global-green-and-healthy-hospitals>.
- Goodland, R *Sustainability: Human, Social, Economic and Environmental*, Encyclopedia of Global Environmental Change, John Wiley & Sons, Ltd.
- Goodman, B 2014, The debate on climate change and health in the context of ecological public health: a necessary corrective to Costello et al.'s 'biggest global health threat', or co-opted apologists for the neoliberal hegemony?', *Public Health*, vol.128, pp.1059-1065.
- Gorman-Murray, A Darian-Smith, K and Gibson, C 2008, 'Scaling the rural: reflections on rural cultural studies', *Australian Humanities Review*, vol.45, pp.37- 52.
- Gowdy, J 2005, 'Toward a new welfare economics for sustainability', *Ecological Economics*, vol.53, pp.211-222.
- Graham, I Logan, J Harrison, M Straus, SE Tetroe, J Caswell, W and Robinson, N 2006, 'Lost in Knowledge Translation: Time for a Map?', *The Journal of Continuing Education in the Health Professions*, vol.26, pp. 13–24.

- Green, B Johnson, C and Adams, A 2006, 'Writing narrative literature reviews for peer-reviewed journals: secrets of the trade', *Journal of Chiropractic Medicine*, vol.5, no.3, pp. 101-117.
- Green, RJ 2010, *Coastal Towns in Transition: Local Perceptions of Landscape Change*, CSIRO Publishing Collingwood Victoria.
- Greenhalgh, T Robert, G Bate, P Macfarlane, F and Kyriakidou 2004, 'Diffusion of Innovations in Service Organizations: Systematic Review and Recommendations', *Milbank Quarterly*, vol. 82, No. 4, pp. 581–629.
- Greenhalgh, T Robert, G Bate, P Macfarlane, F and Kyriakidou, O 2005, *Diffusion of Innovations in Health Service Organisations: A Systematic Literature Review*, Published Malden, Mass BMJ Books/Blackwell Publisher.
- Grin, J Rotmans, J Schot, J; in collaboration with Geels, G and Loorbach, D 2010, *Transitions to Sustainable Development: New Directions in the study of long term transformative change*, Taylor & Francis, United Kingdom.
- Gross National Happiness, viewed 10th July 2016, <http://www.grossnationalhappiness.com/articles/>.
- Gruszin, S Hetzel, D and Glover, J 2012, 'Advocacy and action in public health: lessons from Australia over the twentieth century', *Public Health Information Development Unit (PHIDU)*, Adelaide.
- Guidotti, TL 2015, *Health and Sustainability- an introduction*, Oxford University Press, New York.
- Habib-Mintz, N 2009, 'Multinational Corporations Role In Improving Labour Standards In developing Countries', *Journal of International Business and Economy* vol.10, no.2, pp. 39-58.
- Haeckel, E 1866, *Generelle Morphologie der Organismen: allgemeine Grundzüge der organischen Formen-Wissenschaft, mechanisch begründet durch die von Charles Darwin reformirte Descendenz-Theorie*, Reimer, Berlin.
- Hagan J and McCarthy B 1997, *Mean Streets: Youth Crime and Homelessness*, Cambridge University Press and Juvenile Delinquency, Toronto.
- Haigh, F Ng Chok, H and Harris, P 2011, 'Housing density and health: A review of the literature and Health Impact Assessments', *Centre for Health Equity Training, Research and Evaluation (CHETRE)*, University of New South Wales, Sydney, viewed 10th December 2015, http://hiaconnect.edu.au/wp-content/uploads/2013/04/housing_density_HIA_review1.pdf.

- Haines, A McMichael, AJ Smith, K Roberts, I Woodcock, J Markandya, A Armstrong, B Campbell-Lendrum, D Dangour, A Davies, M. Bruce, N Tonne, C Barrett, M and Wilkinson P 2009, 'Public health benefits of strategies to reduce greenhouse-gas emissions: Overview and implications for policy makers', *The Lancet*, vol.374, pp.2104-2114.25.
- Hancock, T 1985, The mandala of health: A model of the human ecosystem, *Journal of Health Promotion & Maintenance*, vol.8, 30, pp. 1-10.
- Hancock, T 1989, 'Sustaining health', Background paper, York Conference on Health-Environment-Economy. Faculty of Environmental Studies, York University, Toronto.
- Hancock, T 1993, 'Health, human development and the community ecosystem: three ecological models', *Health Promotion International*, vol.8, p.41-47.
- Hancock, T 1999, 'People, partnerships and human progress: building community capital', *Health Promotion International*, vol.16, no. 3, pp. 275-280.
- Hancock, T 2009, *Act Locally: Community-based population health promotion*, for the Senate Sub-Committee on Population Health, viewed 16th July 2016, <http://www.parl.gc.ca/content/sen/committee/402/popu/rep/appendixbjun09-e.pdf>
- Hancock, T Labonté, R and Edwards, R 1999, 'Indicators that count! Measuring Population Health at the community level', *Canadian journal of Public Health*, vol.90, S 1, pp. S22-26.
- Hancock, T 2011, 'It's the environment, stupid! Declining ecosystem health is THE threat to health in the 21st century', *Health Promotion International*, vol.26, S2 pp.168-172, doi:10.1093/heapro/dar064.
- Hancock, T 2015, 'Public health in the Anthropocene: The grandest challenge, the wickedest problem', 25 September 2015, Sir Samuel Griffith Centre (N78), -1.11 Queensland Population Health in the Anthropocene, https://www.griffith.edu.au/__data/assets/pdf_file/0008/757799/PowerPoints-Public-Health-in-the-Anthropocene.pdf
- Hanuch, F 2013, 'Whose views skew the news? Media chiefs ready to vote out Labor, while reporters lean left', May 20th, *The Conversation*, viewed 3rd July 2016, <https://theconversation.com/whose-views-skew-the-news-media-chiefs-ready-to-vote-out-labor-while-reporters-lean-left-13995>.
- Harcourt, D and Einarsdottir, J 2011, 'Introducing children's perspectives and participation in research', *European Early Childhood Education Research Journal*, Vol. 19, pp.301-307.
- Hardin, G 1968, 'The Tragedy of the commons', *Science*, vol. 162, no.3859, pp. 1243-1248, DOI: 10.1126/science.162.3859.1243

- Harris, J and Goodwin, N 2001, 'Volume Introduction', in Harris, J Wise, T Gallagher, K and Goodwin, N (eds.), *A survey of sustainable development: Social and economic dimensions*, Island Press, Washington.
- Harvey, G 2006, *Animism: Respecting the Living World*, Columbia University Press, New York.
- Healthy Illawarra n.d., viewed 12th December 2015, <http://www.healthyillawarra.org.au/>
- Hediger, W 2006, 'Weak and Strong Sustainability, Environmental Conservation and Economic Growth', *Natural Resource Modeling*, vol.19, Issue 3, pp.359–394.
- Heft, H and Chawla C 2005, 'Children as agents in sustainable development: the ecology of competence', in Spencer, C and Blades, M (eds) *Children and their environments: Learning, using and designing spaces*, Cambridge University Press, Cambridge.
- Henrich, J 2001, 'Cultural transmission and the diffusion of innovations: Adoption dynamics indicate that biased cultural transmission is the predominate force in behavioural change', *American Anthropologist*, vol.103, pp. 992- 1013.
- Hill, P 2011, 'Understanding global health governance as a complex adaptive system', *Global Public Health*, vol.6, pp.593-605, doi: 10.1080/17441691003762108.
- Hirst, J 1978, 'The pioneer legend', *Historical Studies*, vol. 18, no. 17, pp.316-37.
- Hitchcock, D Mcburney, P and Parsons, S 2001, 'A Framework for Deliberation Dialogues', OSSA Conference, May 17, 2001, Archive. Paper 57, viewed 10th January 2016, <http://scholar.uwindsor.ca/cgi/viewcontent.cgi?article=1642&context=ossaarchive>
- Hobson, K 2003, 'Consumption, Environmental Sustainability and Human Geography in Australia: a Missing Research Agenda?', *Australian Geographical Studies*, vol.41, no.2, pp. 148-155.
- Horton, R Beaglehole, R Bonita, R Raeburn, J McKee, M and Will S 2014, 'From public to planetary health: a manifesto', *The Lancet*, vol.383, pp.847.
- Horrigan, L Lawrence, R Walker, P 2002, 'How Sustainable Agriculture Can Address the Environmental and Human Health Harms of Industrial Agriculture', *Environmental Health Perspective*, vol.110, pp.445–456.
- Horton, R and Lo, S 2015, 'Planetary health: a new science for exceptional action', *The Lancet*, vol.336, pp.1921-1922, doi: [http://dx.doi.org/10.1016/S0140-6736\(15\)61038-8](http://dx.doi.org/10.1016/S0140-6736(15)61038-8).
- Howard, WR 2012, *Ocean acidification*, Marine Climate Change Impacts and Adaptation Report Card for Australia 2012, viewed 28th December 2015, www.oceanclimatechange.org.au

Hugo, G 2005, 'The state of rural populations', in Cocklin, C and Dibden, J (eds.), *Sustainability and Change in Rural Australia*, University of New South Wales Press, Sydney.

Hugo, G 2011, 'Population Distribution, Migration: and climate change in Australia: An exploration- ACCARNSI Discussion Paper Node 2, Urban Management, Transport and Social Inclusion', *Australian Climate Change Adaptation Research Network for Settlements and Infrastructure (ACCARNSI)*, and *the National Climate Change Adaptation Research Facility (NCCARF)*, viewed 10th December 2015,

<https://www.nccarf.edu.au/settlements-infrastructure/sites/www.nccarf.edu.au/settlements-infrastructure/files/ACCARNSI%20Node%202%20Discussion%20Paper%20-%20Population%20Distribution%20Migration%20and%20Climate%20Change%20in%20Australia%20%20Final.pdf>

Hugo, G 2014, 'The Demographic Facts of Ageing in Australia', in Appendix Q for Aged Care Financing Authority Second Annual Report 2014, viewed December 15th 2015,

https://www.dss.gov.au/sites/default/files/documents/11_2014/002_the_demographic_facts_of_ageing_in_australia_-_revised_0.pdf

Hunt, J 2013, 'Engaging with Indigenous Australia—exploring the conditions for effective relationships with Aboriginal and Torres Strait Islander communities', Issues paper no. 5 produced for the Closing the Gap Clearinghouse, *AIHW and Australian Institute of Family Studies*, viewed 9th July 2016,

<http://www.aihw.gov.au/uploadedFiles/ClosingTheGap/Content/Publications/2013/ctgc-ip5.pdf>

Huntsdale, J 2015, 'South Coast oyster farmer recognised for setting up direct-to-restaurant cooperative', *ABC Illawarra*, Nov 6th 2015, viewed 31st December 2015,

<http://www.abc.net.au/news/2015-11-06/south-coast-oyster-farmer-recognised-for-selling-style/6918984>.

Hutchinson, M and Huberman, M 1993, *Knowledge Dissemination and Utilization in Science and Mathematics Education: A Literature Review*. National Science Foundation, Washington.

Hwacha, V 2005, 'Canada's experience in developing a national disaster mitigation strategy: a deliberative dialogue approach', *Mitigation and Adaptation Strategies for Global Change*, vol.10, no. 3, pp. 507-523.

IC3 2015, 'Be the change', *IC3*, viewed 25th Nov 2015, <http://ic3academy.org/programs/be-the-change-5-day-course/>

Ife, J 2002, *Community development: community-based alternatives in an age of globalisation*, Pearson Education, Frenchs Forest, N.S.W

Intergovernmental Oceanographic Commission of UNESCO, International Maritime Organization, Food and Agriculture Organization of the United Nations and United Nations Development Programme (IOC/UNESCO, IMO, FAO, UNDP) 2011, 'A Blueprint for Ocean and Coastal Sustainability', *IOC/UNESCO*, Paris, viewed 15th April 2015, http://www.uncsd2012.org/content/documents/180BLUE%20PAPER%20WEB_31Oct.pdf

Intergovernmental Panel on Climate Change (IPCC) 2014, 'Climate Change 2014 Synthesis Report Summary for Policymakers', *IPCC*, Viewed 15th December 2015, https://www.ipcc.ch/pdf/assessment-report/ar5/syr/AR5_SYR_FINAL_SPM.pdf.

International Fund for Agricultural Development (IFAD) 2003, 'Indigenous Peoples and Sustainable Development, Roundtable Discussion Paper for the Twenty-Fifth Anniversary Session of IFAD's Governing Council, (IFAD), viewed 18th January 2016, <http://www.ifad.org/gbdocs/gc/26/e/ip.pdf>

International Union for Conservation of Nature and Natural Resources (IUCN) 1980, 'The world conservation strategy', *IUCN*, viewed April 8th 2015, <https://portals.iucn.org/library/efiles/html/wcs-004/cover.html>.

Involve 2009, 'Case Study: World Wide Views on Climate Change: Comparative deliberative engagement on a global level', *Involve*, viewed 7th January 2016, <http://www.involve.org.uk/wp-content/uploads/2011/04/2.3-WWV-on-Climate-Change.pdf>.

IRIS Research, viewed 8th August 2015, <http://www.iris.org.au/index.pl?page=224>.

Jabareen, Y 2008, 'A new conceptual framework for sustainable development', *Environment, Development and Sustainability*, vol.10, pp.179–192.

Jansen, M De Leeuw, E Hoeijmakers, M and De Vries, N 2012, ' Working at the nexus between public health policy, practice and research. Dynamics of knowledge sharing in the Netherlands', *Health Research Policy and System*, vol.10, pp.33, viewed 18th January 2016, <http://www.health-policy-systems.com/content/10/1/33>.

Jervis Bay Territory Acceptance Act 1915, viewed 10th July 2016, <http://foundingdocs.gov.au/item-sdid-111.html>

Johnson RB and Onwuegbuzie, AJ 2004, 'Mixed methods research: A research paradigm whose time has come', *Educational Researcher*, vol.33, No.7, pp.14–26.

Johnstone, MJ 2007, 'Research ethics, reconciliation, and strengthening the research relationship in Indigenous health domains: An Australian perspective', *International Journal of Intercultural Relations*, vol.31, pp. 391–406.

- Keleher, H and MacDougall, C 2016, *Understanding Health*, 4th edn, Oxford University Press, Melbourne.
- Kickbusch, I 1989, 'Approaches to an ecological base for public health', *Health Promotion International*, vol.4 no.4, pp.265-268.
- King, M 1990, 'Health is a sustainable state', *The Lancet*, vol., 336, pp. 664-667
- King, S 2014, 'Let's have a proper debate about the NBN to the bush', *The Conversation*, August 28th, viewed 8th February 2016, <http://theconversation.com/lets-have-a-proper-debate-about-the-nbn-to-the-bush-30995>
- King, M and Elliott, C 1997, 'To the point of farce: a Martian view of the Hardian taboo- the silence that surrounds population control', *BMJ*, vol.3,no.15, pp. 1441-3.
- Kingdon, J 2003, *Agendas, alternatives, and public policies* (2nd edn.), Longman New York.
- Kingsley, J Townsend, M Phillips, R and Aldous, D 2008, "'If the land is healthy": it makes the people healthy': The relationship Between caring for Country and health for the YortaYorta Nation, Boonwurrung and Bangerang Tribes', *Health & Place*, vol.15, pp.291–299.
- Kirk, D 1996, 'Demographic transition theory', *Population Studies* (Cambridge), vol.50, no.3, pp.361-87.
- Kjærgård, B Land, B and Pedersen, KB 2014, 'Health and Sustainability', *Health Promotion International*, vol. 29, no.3, pp. 558-568.
- Koestler, A 1967, *Ghost in the machine*, Fortius LTD, Aylesbury.
- Kola-Olusanya, A 2012, 'Young adults, the environment and sustainability: Challenges for the future', *British Journal of Arts and Social Sciences*, vol.4, no.2, p.209.
- Koori Coast n.d., 'Welcome to the Koori Coast', *The Living Knowledge Project*, viewed 8th January 2016, http://livingknowledge.anu.edu.au/learningsites/kooricoast/01_welcome.htm.
- Kostas, A and Sofos, A 2012, 'Internet mediated communities of practice; identifying a typology of critical elements', in Dardoumis, T Demetriadis, S and Xhafa, F (Eds) *Intelligent adaptation and personalization techniques in Computer supported learning*, Springer, Berlin, Heidelberg.
- Kotter, J 1996, *Leading Change: Why transformation efforts fail*, Harvard Business Press, United States of America.
- Kovats, R and Hajt S 2008, 'Heat stress sand public health: a critical review', *Annual Review of Public Health*, vol.29, pp.41-55.

- Krieger, N 2008, 'Proximal, Distal, and the Politics of Causation: What's Level Got to do with it?', *Public Health*, vol.98, pp.221–230, doi:10.2105/AJPH.2007.111278)
- Kuhn, TS 2012, *The structure of scientific revolutions*, 4th edn, University of Chicago Press, Chicago.
- Kuzel, AJ 1999, 'Sampling in Qualitative Inquiry', in Crabtree, BF and Miller, WL (eds.), *Doing Qualitative Research*, Sage Publications, Thousand Oaks, CA.
- Labonté, R 1991a, 'Econology: integrating health and sustainable development – Part 1', *Health Promotion International*, vol.6, pp.49- 65.
- Labonté, R 1991b, 'Econology: integrating health and sustainable development – Part 2', *Health Promotion International*, vol.6, pp. 47-156.
- Landcare Australia n.d., *Australian Framework for Landcare Australia*, viewed 31st December 2015, <http://www.landcareonline.com.au/wp-content/uploads/2010/09/landcare-framework-post-consultation-pages-1-5.pdf>
- Lang T and Rayner, G 2012, 'Ecological Public Health: The 21st century's big idea? An essay by Tim Lang and Geof Rayner', *BMJ*, vol. 345, pp. e5466.
- Larson, A 2011, 'Doing more for fewer: Health care for declining rural communities', in Luck G, Race, D and Black, R (eds.), *Demographic Change in Australia's Rural Landscapes*, Springer, CSIRO Publishing New York.
- Last, J 1998, *Public Health and Human Ecology*, 2nd edn, McGraw Publishing, Toronto.
- Laverack, G 2006, 'Improving health outcomes through community empowerment: a review of the literature', *Journal of Health Population and Nutrition*, vol.24, no.1, p113-20.
- Lavis, J Robertson, C Woodside, C McLeod, C and Abelson J 2003, 'How Can Research Organizations More Effectively Transfer Research Knowledge to Decision Makers?', *The Milbank Quarterly*, vol. 81, pp.221–48.
- Lavis, J Davies, H Oxman, A Denis, J Golden-Biddle, K. and Ferlie, E 2005, 'Towards systematic reviews that inform health care management and policy-making', *Journal of Health Services Research and Policy*, vol.10, S1, pp.35e-48.
- Lavis, J Boyko, J and Gauvin, F 2014, 'Evaluating deliberative dialogues focussed on healthy public policy', *BMC Public Health*, vol. 14, pp.1287, doi:10.1186/1471-2458-14-1287.
- Lélé, S 1991, 'Sustainable Development: A Critical Review', *World Development*, vol.19, no.6, pp.607-621.

- Lett, G 2015, 'National MTB champ crowned king of Tathra' *Bega District News*, June 8, viewed 20th Nov 2015, <http://www.begadistrictnews.com.au/story/3132069/national-mtb-champ-crowned-king-of-tathra-enduro-photos-video/>
- Levine, P 2003, *The New Progressive Era: Toward a Fair and Deliberative Democracy*, Rowman & Littlefield, USA.
- Leyshon, M 2002, 'On being 'in the field': practice, progress and problems in research with young people in rural areas', *Journal of Rural Studies*, vol.18, pp. 179–191
- Liamputtong, P 2009, *Qualitative Research Methods*, 3rd edn, Oxford University Press. London.
- Lincoln, Y S and Guba, EG 1985, *Naturalistic inquiry*, SAGE Publications, Newbury Park, CA.
- Lindenmayer, D and Burgman, M 2005, *Practical Conservation Biology, Vegetation loss and degradation*, CSIRO Publishing, Melbourne.
- Littig, B and Grießler E 2005, 'Social sustainability: a catchword between political pragmatism and social theory', *Int. J. Sustainable Development*, vol. 8, no. 1/2, pp.65- 79.
- Local Aboriginal Land Councils (LALCs), viewed 10th July 2016, <http://www.alc.org.au/land-councils/overview.aspx>
- Local Land Services 2015, 'On-ground Seasonal Conditions Report – December 2015', viewed 31st December 2015, http://www.lls.nsw.gov.au/__data/assets/pdf_file/0008/587231/Local-Land-Services-On-ground-Seasonal-Condition-November-2015-report.pdf
- Loh, J Green, R Ricketts, T Lamoreux, J Jenkins, M Kapos, V and Randers, J 2005, 'The Living Planet Index: using species population time series to track trends in biodiversity', *Philosophical Transactions of the Royal Society*, vol.360, pp. 289-295
- London, S 2016, 'Thinking Together: The Power of Deliberative Dialogue', *Scott London*, viewed 16th January 2016, <http://www.scottlondon.com/reports/dialogue.html>
- Lowe, I 2012, *Bigger or Better?: Australia's population debate*, Queensland University Press, Australia.
- Luck G Black, R and Race, D 2011a, 'Demographic change in rural Australia: Future opportunities and challenges', in Luck G, Race, D and Black, R (eds.), *Demographic Change in Australia's Rural Landscapes*, Springer, CSIRO Publishing New York
- Luck G Race, D and Black, R 2011b, *Patterns, Drivers and Implications of Demographic Change in Rural Landscapes*, Springer, New York.

- Luck, L Jackson, D & Usher, K 2006, 'Case study: A bridge across the paradigms', *Nursing Inquiry*, vol.13. no.2, pp.103-109.
- Machlis, GE and Field, DR 2000, *National Parks and Rural Development, practice and policy in the United States*, Island Press, USA
- Machovina, B and Feeley K 2014, 'Livestock: limit red meat consumption', *Nature*, vol. 508, p.186
- Machovina, B Feeley K Ripple, WJ 2015, 'Biodiversity conservation: The key is reducing meat consumption', *Science of Total Environment*, vol. 536, pp.419-31. doi: 10.1016/j.scitotenv.2015.07.022. Epub 2015 Jul 29.
- Magalhães Bosi, M and Gastaldo, D 2011, 'Building bridges between research, policy and practice in public health', *Revista de Saúde Pública*, vol.45, pp. 1197-120
- Magee, S n.d., 'Moruya A Short History', *Moruya and District Historical Society Inc*, viewed 8th September 2015, <http://www.mdhs.org.au/history.html#agric>.
- Magis K 2009, 'Global Civil Society', in Dillard, J Dujon , V and King, MC *Understanding the Social dimension of Sustainability*, Routledge, Oxon.
- Magis, K and Shinn C, 2009, ' Emergent principles of social sustainability', in Dillard, J Dujon , V and King, MC, *Understanding the Social dimension of Sustainability*, Routledge, Oxon.
- Malthus, TR 1798, 'An Essay on the Principle of Population, An essay on the Principle of population as it Affects the Future Improvement of Society with Remarks on the Speculations of Mr. Godwin, M. Condorcet, and other Writers', *Electronic Scholarly Publishing Project, 1998*, viewed 10th December 2014, <http://www.esp.org/books/malthus/population/malthus.pdf>
- Manitoba Education and Training 2000, 'Education for a Sustainable Future: A Resource for Curriculum Developers, Teachers, and Administrators', viewed 18th December 2015, <http://www.edu.gov.mb.ca/k12/abedu/perspectives/index.html>
- Marinova, D Lozeva, S and Seemann, K 2010, 'Community Conversations for Sustainability in the Desert: Leonora, Western Australia,' *Journal of Economic and Social Policy*, vol.13, pp. 1-18.
- Marmot M, Atkinson T, Bell J Black, C Broadfoot, P Cumberlege, J Diamond, I Gilmore, I Ham, C Meacher, M Mulgan, G 2010, *Fair Society, Healthy Lives: The Marmot Review*, Strategic Review of Health Inequalities in England post-2010, London.

Marshall, C and Rossman, G 2011, *Designing qualitative research*, 5th edn, SAGE Publications, California.

Mâsse, L Nieman, D and Naylor P 2013, 'From policy to practice: implementation of physical activity and food policies in schools', *International Journal Behaviour, Nutrition and Physical Activity*, vol.3, no.10, p.71. doi: 10.1186/1479-5868-10-71.

Matofska B n.d., 'What is the Sharing Economy?', viewed 10th Aug 2015, <http://www.thepeoplewhoshare.com/blog/what-is-the-sharing-economy/#sthash.tBmqvNok.dpuf>.

McBride, B Brewer, C Berkowitz, A and Borrie, W 2013, 'Environmental literacy, ecological literacy, Eco literacy what do we mean and how do we get there', *Ecosphere*, vol.4, pp.1-20.

McDaniel, R Lanham, H Jordan and Anderson, R 2009, 'Implications of complex adaptive systems theory for the design of research on health care organizations', *Health Care Management Review*, vol.34, No.2, pp.191-9.

McEwen, C and Schmidt, J 2007, 'Leadership and the corporate sustainability challenge: Mindsets in action', *Avastone Consulting*, Rothwell, viewed 10th December 2015, http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1118071

McKenzie, S 2004, 'Social Sustainability: Towards some definitions. Working paper 27', *Hawke Research Institute*, Magill, South Australia.

McLaren, L and Hawe, P 2005, 'Ecological perspectives in health research', *Journal of Epidemiology and Community Health*, vol.59, pp.6–14.

McLoyd, V and Wilson, L 1991, 'The strain of living poor: parenting, social support and child mental health', in Hutson, A (ed.) *Children in poverty: Child Development and Public Policy*, Cambridge University Press, Cambridge.

McMichael, AJ 1993, *Planetary overload: global environmental change and the health of the human species*, Cambridge, Cambridge University Press.

McMichael, AJ Powles, JW 1999, 'Human numbers, environment, sustainability, and health', *BMJ*, vol.319, pp.977–80.

McMichael, AJ 2001, *Human frontiers, environments and disease: past patterns, uncertain futures*, Cambridge, Cambridge University Press.

McMichael, A Woodruff, R and Hales S, 2006, 'Climate change and human health: present and future risks', *The Lancet*, vol.367, pp. 859–69.

McMichael, A and Butler, C 2011, 'Promoting global population while constraining the environmental footprint', *Annual Review of Public Health*, vol. 32, pp. 179-97

- McMichael, AJ 2013, 'Human health: bottom line integrator of impacts of the population, resources and climate change', in Goldie, J and Betts, K (eds.), *Sustainable Futures*, CSIRO Publishing, Collingwood.
- McMichael, A 2013b, 'Globalization, climate change and human health', *New England Journal of Medicine*, vol.368, no.14, pp. 1335-1343.
- McMichael AJ, Berry HL, Butler C 2014, 'Climate change. IPCC Impacts report staring into the abyss', *World Nutrition*, vol.5, no.5, pp.432-435.
- McMichael, AJ 2014, 'Population health in the Anthropocene: gains, losses and emerging trends', *The Anthropocene Review*, vol.1, pp.44-56.
- McMichael, A Butler, C Dixon J 2015, 'Climate change, food systems and population health risks in their eco-social context', *Public Health*, vol. xxx, pp.1-8.
- Meadows, D 2008, *Thinking in Systems: A primer*, Sustainability Institute, Chelsea Green Publishing, Vermont.
- Meadows, D Meadows, DL Randers, J Behrens, WW 1972, *The Limits to Growth*, Universe Books, New York.
- Menegaki, A and Tsagarakis, K 2015, 'Rich enough to go renewable, but too early to leave fossil energy?', *Renewable and Sustainable Energy Reviews*, vol.41, pp.1465–1477.
- Menzies, R Burgess, M Durrheim, D 2012, 'Controlling measles in NSW: how are we doing in the context of other countries in the western pacific?', *NSW Public Health Bulletin*, vol.23, pp. 169-170.
- Mercer, A 2014, *Infections, Chronic disease, and Epidemiological Transition*, University of Rochester, USA.
- Michaux, S 2014, 'The coming radical change in mining practice', in Goldie, J and Betts, K (eds.) *Sustainable Futures, linking population, resources and the environment*, CSIRO Publishing, Collingwood, Victoria.
- Milio, N 1988, 'Making healthy public policy; developing the science by learning the art: an ecological framework for policy studies,' *Health Promotion International*, vol. 2, no.3, pp.263-274.
- Millennium Ecosystem Assessment 2003, *Ecosystems and Human Well-being: A Framework for Assessment*, Island Press, Washington.
- Millennium Ecosystem Assessment, 2005a *Ecosystems and Human Well-being: Synthesis*. Island Press, Washington, DC.

- Millennium Ecosystem Assessment, 2005b 'Living beyond our means: Natural assets and human wellbeing', *Millennium Ecosystem Assessment*, United Nations Environment Programme (UNEP), viewed 10th May 2015, <http://www.unep.org/maweb/en/BoardStatement.aspx>
- Molden, D (ed.) 2007, *Comprehensive Assessment of Water Management in Agriculture. 2007. Water for Food, Water for Life: A Comprehensive Assessment of Water Management in Agriculture*, Earthscan, and Colombo: International Water Management Institute, London.
- Moloney, S Horne, R and Fien, J 2010, 'Transitioning to low carbon communities—from behaviour change to systemic change: Lessons from Australia', *Energy Policy* vol.38, pp. 7614–7623.
- Moore, M., Yeatman, H and Pollard, C 2013, 'Evaluating success in public health advocacy strategies', *Vietnam Journal of Public Health*, vol.1, pp. 66-75.
- Morens, DM Folkers, GK, and Fauci, AS 2004, 'The challenge of emerging and re-emerging infectious diseases', *Nature*, vol.430, pp.242–249.
- Morris, G 2010, 'Ecological public health and climate change policy', *Perspectives in Public Health*, vol. 130, no.1, pp.34-40
- Morris, J Wilkinson, P Dangour, A Deeming, C and Fletcher, A 2007, 'Defining a minimum income for healthy living (MIHL): OLDER AGE, England,' *International Journal of Epidemiology*, vol.36, pp.1300-1307.
- Morse, R 2006, 'Community Learning' in Buss, T Redburn S Guo, J (eds.) *Modernizing Democracy: Innovations' in citizen participation*, National Academic Public Administration, Routledge, Taylor & Francis Group, New York.
- Moseley, MJ 2003, *Rural development: principles and practice*, SAGE, London.
- Murphy, K 2012, 'Social pillar of sustainable development: a literature review and framework for policy analysis', *Sustainability: Science, Practice and Policy*, vol. 8, no.1, pp.15-29.
- National Aboriginal Health Strategy Working Party 1989, *A national Aboriginal health strategy*, Canberra, National Aboriginal Health Strategy Working Party.
- National Institute of Economic and Industry Research (NIEIR) 2014a, Shoalhaven City Council, in .id the population, *Welcome to Shoalhaven City Economic Profile*, viewed 12th July 2015, <http://economy.id.com.au/shoalhaven>.

National Institute of Economic and Industry Research (NIEIR) 2014b, Eurobodalla Shire Council, in .id the population, *Welcome to Eurobodalla Shire Council Economic Profile*, viewed 12th July 2015 <http://economy.id.com.au/eurobodalla>.

National Institute of Economic and Industry Research (NIEIR) 2014c, Bega Valley Shire Council, in .id the population, *Welcome to Bega Valley Shire Council Economic Profile*, viewed 12th July 2015, <http://economy.id.com.au/bega-valley>.

National Public Health Partnership (NPHP) 1998, 'Public health in Australia: the public health landscape: person, society, environment', *NPHP*, Melbourne.

National Public Health Partnership (NPHP) 2006, 'The Language of Prevention', *NPHP*, viewed 15th January 2016, http://www.health.vic.gov.au/archive/archive2014/nphp/publications/language_of_prevention.pdf

National Research Council (US) 2008, 'Tackling Marine Debris in the 21st Century, Committee on the Effectiveness of International and National Measures to Prevent and reduce marine debris and its impacts', *National Academic Press*, viewed 10th January 2016, http://docs.lib.noaa.gov/noaa_documents/NOAA_related_docs/marine_debris_2008.pdf

National Rural Health Alliance (NRHA) 2006, 'Healthy regions, healthy people- position paper', *NRHA*, viewed 8th February 2016, [http://ruralhealth.org.au/sites/default/files/position-papers/position-paper-06-08-21\(2\).pdf](http://ruralhealth.org.au/sites/default/files/position-papers/position-paper-06-08-21(2).pdf)

National Rural Health Alliance (NRHA) 2010, 'Fact sheet 23 – Measuring the metropolitan-rural inequity', *NRHA*, viewed 8th February 2016, http://ruralhealth.org.au/sites/default/files/fact-sheets/Fact-Sheet-23-%20measuring%20the%20metropolitan-rural%20inequity_0.pdf

National Strategic Framework for Rural and Remote Health 2012, *Australian Government*, viewed 24th April 2015, [http://www.ruralhealthaustralia.gov.au/internet/rha/publishing.nsf/Content/EBD8D28B517296A3CA2579FF000350C6/\\$File/NationalStrategicFramework.pdf](http://www.ruralhealthaustralia.gov.au/internet/rha/publishing.nsf/Content/EBD8D28B517296A3CA2579FF000350C6/$File/NationalStrategicFramework.pdf)

Netherwood, K Buchanan, J Palmer, D Stocker, L and Down, B 2009, 'Valuing diversity in children's voice: A case study of children, stewardship and mapping the care of special places in western Australian cluster', in Lovat T and Toomey, R (eds) 2009, *Values Education and Quality Teaching*, Springer Science Business Media, BV.

Nilsen, P 2015, 'Making sense of implementation theories, models and frameworks', *Implementation Science*, vol.10, p.53, doi 10.1186/s13012-015-0242-0

Nguyen, TT 2010, *Knowledge Economy and Sustainable Economic Development: A critical review*, Walter de Gruyter GmbH & Co. KG, Berlin / New York.

Norman, B Steffen, W Webb, R Capon, A Maher, W Woodroffe, C Rogers, K Tanton, R Vidyattama, Y Lavis, J Sinclair, H and Weir, B 2012, *South East Coastal Adaptation (SECA) : Coastal urban climate futures in SE Australia from Wollongong to Lakes Entrance*, National Climate Change Adaptation Research Facility, Gold Coast.

Norval, M Lucas, R Cullen, A Gruijl, F Longstreth, J Takizawa, Y and van der Leun, J 2011, 'The human health effects of ozone depletion and interactions with climate change', *Photochemical & Photobiological Sciences*, vol.10, no. 2, pp.199-225.

NSW Government *Aboriginal Land Rights Act 1983 No 42*, viewed 10th July 2016, <http://www.legislation.nsw.gov.au/inforce/55f683dc-ec68-4987-d582-d1b771295ad4/1983-42.pdf>

NSW Government *Protection of the Environment Administration ACT 1991 No. 60*, viewed 18th February 2015, <http://www.legislation.nsw.gov.au/acts/1991-60.pdf>

NSW Government Department of Environment and Conservation 2006, Learning for Sustainability NSW Environmental Education Plan 2007–2010

NSW Government Local Land Services 2016, State Strategic Plan 2016-2026, viewed 10th July 2016, <http://www.lls.nsw.gov.au/about-lls/state-strategic-plan>

NSW Government Office of Environment & Heritage 2011, Building sustainable communities- ideas for inclusive projects', *Office of Environment and Heritage*, viewed 10th April 2015, <http://www.environment.nsw.gov.au/resources/communities/110563-Building-Sustainable-Communities.pdf>.

NSW Government Office of Environment and Heritage 2011, *South East Corner Bioregion*, NSW Government, viewed 10th December 2015, <http://www.environment.nsw.gov.au/bioregions/SouthEastCornerBioregion.htm>

NSW Government Office of Trade and Investment 2014, 'Breakwater Wharf Extension, Snug Cove, Eden, October 2014', Issue 1, *Office of Trade and Investment and Crown Lands*, viewed 30th November 2015, http://www.lpma.nsw.gov.au/__data/assets/pdf_file/0006/199203/breakwater-wharf-extension-eden.pdf

- NSW Government Office of Trade and Investment 2015, Economic Profile, Hunter, prepared for the Economic Development Strategy for Regional NSW, *Office of Trade and Investment*, viewed 18th August 2016, https://www.industry.nsw.gov.au/__data/assets/pdf_file/0006/67704/4.-Hunter_Regional-Economic-Profile_Feb2015.pdf
- Nurse, J 2010, ‘An ecological approach to promoting population mental health and well-being – A response to the challenge of climate change’, *Perspectives in Public Health*, vol. 130, no.1, pp. 27-33.
- Nurse, K 2006, ‘Culture as the Fourth Pillar of Sustainable Development’, Institute of International Relations, viewed 10th October 2015, <http://citeseerx.ist.psu.edu/viewdoc/download?rep=rep1&type=pdf&doi=10.1.1.183.5662>
- O’Connor, P 2010, *Energy Transitions*, Boston University, Boston.
- O’Connor, J 2015, Moruya SAGE farmers market wins again, Bay Post July 28th 2015, viewed December 15th 2015, <http://www.batemansbaypost.com.au/story/3240896/sage-market-wins-top-award-again/>
- Odum, E and Barrett, G 2004, *The fundamentals of Ecology*, 5th edn, Cengage Learning Inc. United States.
- Oita, A Malik, A Kanemoto, K Geschke, A Nishijima, S and Lenzen, M 2016, ‘Substantial nitrogen pollution embedded in international trade’, *Nature geoscience*, vol.9, pp.111-117,
- Omran, AR. 1971, ‘The epidemiologic transition: a theory of the epidemiology of population change’, *Milbank Quarterly*, vol.49, no.4, pp.509–538.
- Organisation for Economic Co-operation and Development (OECD) 2002, Glossary of statistical terms, Externalities, *OECD*, viewed 10th July 2016, <https://stats.oecd.org/glossary/detail.asp?ID=3215>
- Organisation for Economic Co-operation and Development (OECD) 2014, Better Life Index 2014, *OECD*, viewed 25th April 2015, <http://www.oecdbetterlifeindex.org/countries/australia/>
- Organisation for Economic Co-operation and Development 2015, ‘Regional Development’, *OECD*, viewed 30th April 2015, <http://www.oecd.org/gov/regional-policy/regionaldevelopment.htm>
- Ortiz, I and Cummins, M 2011, ‘Global Inequality: Beyond the Bottom Billion – A Rapid Review of Income Distribution in 141 Countries’, *United Nations Children’s Fund* (UNICEF), New York, viewed 20th December 2015, http://www.networkideas.org/networkideas/pdfs/global_inequality_ortiz_cummins.pdf

- Osbourne, K Baum, F Brown, L 2013, 'What works? A review of actions addressing the social and economic determinants of Indigenous health', *AIHW*, Issues Paper no. 7 produced for the Closing the Gap Clearinghouse, viewed 18th December 2015, <http://www.aihw.gov.au/uploadedFiles/ClosingTheGap/Content/Publications/2013/ctgc-ip07.pdf>
- Osterweil, M 2011, 'Realpolitik vs the Long(er) Duree of Cultural and Epistemological Shifts', *Development*, vol. 54, no.2, pp. 202–204.
- Oxford English Dictionary Online (OED) 2015a, Economic, *Oxford English Dictionary*, Oxford: Oxford University Press, viewed 30th May 2015, <http://www.oxforddictionaries.com/definition/english/economic>
- Oxford English Dictionary Online (OED) 2015b, Sustainable, *Oxford English Dictionary*, Oxford: Oxford University Press, viewed 30th May 2015, <http://www.oxforddictionaries.com/definition/english/sustainable>
- Oxford English Dictionary Online (OED) 2015c, Sustainability, *Oxford English Dictionary*, Oxford: Oxford University Press, viewed 30th May 2015, <http://www.oxforddictionaries.com/definition/english/sustainability>
- Oxford English Dictionary Online (OED) 2016a, Ecology, *Oxford English Dictionary*, Oxford: Oxford University Press, viewed 30th June 2016,
- Oxford English Dictionary Online (OED) 2016b, Ecological, *Oxford English Dictionary*, Oxford: Oxford University Press, viewed 30th June 2016,
- Oxford English Dictionary Online (OED) 2016c, Transition, *Oxford English Dictionary*, Oxford: Oxford University Press, viewed 30th June 2016, <http://www.oxforddictionaries.com/definition/english/transition>
- Pahl-Wostl, C Craps, M Dewulf, A Mostert, E Tbara, D and Taillieu, T 2005, 'Social learning and water resource management', *Ecology and Society*, vol.12, no.2, viewed 8th February 2016, <http://www.ecologyandsociety.org/vol12/iss2/art5/>
- Parkes, M Panelli, R and Weinstein, P 2003, 'Converging paradigms for environmental health theory and practice', *Environmental Health Perspectives*, vol.111, pp.669–675.
- Patrick, R and Smith, J 2011, 'Core health promotion competencies in Australia: are they compatible with climate change action?', *Health Promotion Journal of Australia*; vol.22, pp. S28-S33.
- Pattanayak, S Pongsiri, M Romanelli, C Soucat, A Vega, J Yach, D 2015, 'Safeguarding human health in the Anthropocene epoch: report of The Rockefeller Foundation–Lancet Commission on planetary health', *The Lancet*, [http://dx.doi.org/10.1016/S0140-6736\(15\)60901-1](http://dx.doi.org/10.1016/S0140-6736(15)60901-1).

- Patton, MQ 2002, *Qualitative Evaluation and Research Methods*, 2nd edn, SAGE Publications, Newbury Park, USA.
- Penn, S 2007, 'The Influence of the Bush on European-Australian Identity in Australian children's literature', *The Looking Glass New Perspectives on Children's Literature*, vol.11, no.3, viewed April 30th 2015, <http://www.lib.latrobe.edu.au/ojs/index.php/tlg/article/view/9/9>
- Peters, D 2014, 'The application of systems thinking in health: why use systems thinking?', *Health Research Policy and Systems*, vol. 12, p.51 <http://www.health-policy-systems.com/content/pdf/1478-4505-12-51.pdf>.
- Pilgrim, S Samson, C & Pretty J 2010, 'Ecocultural revitalization: replenishing community connections to the land', in Pilgrim, S & Pretty J (eds.) *Nature and Culture: Rebuilding Lost Connections*, Earthscan, London.
- Pinto, P 2013, 'Why inequalities matter', in Genevey, R Pachauri, R Tubiana, L (Authors), *Reducing Inequalities: A Sustainable Development Challenge (A Planet for Life)*, The Energy and Resources Institute, TERI.
- Pirnea, IC Olaru, M and Moisa, C 2011, 'Relationship between corporate social responsibility and social sustainability', *Economy Transdisciplinary Cognition*, vol. XIV, no.1; pp.36-43.
- Plamondon, K Bottorff, J and Cole, D 2015, 'Analyzing Data Generated through Deliberative Dialogue: Bringing Knowledge Translation into Qualitative Analysis', *Qualitative Health Research*, vol.25, pp.1529–1539.
- Plesk, P and Greenhalgh, T 2001, 'The challenge of complexity in health care' *BMJ*, vol.323, pp.625–628.
- Polese, M and Stren, R (Eds.) 2000, *The social sustainability of cities: diversity and management of change*, Toronto CA University of Toronto Press, Toronto.
- Power, A 1999, 'Linking ecological sustainability and world food needs', *Environment, Development and sustainability*, vol.1, pp.185-196.
- Popay, J Whitehead, M and Hunter, D 2010, 'Injustice is killing people on a large scale—but what is to be done about it?', *Journal of Public Health*, vol. 32, No.2, pp.48-149, doi: 10.1093/pubmed/fdq029
- Potvin, L 2007, 'Managing uncertainty through participation', in McQueen, D Kickbusch, I Potvin, L Pelikan, J Balbo, L and Abel, T (eds), *Health and Modernity. The Role of Theory in Health Promotion*, Springer, New York.

- Powell R 1997, 'Market Economies and Small Towns', *Regional & Enterprise Development Network, Centre for Australian Regional and Enterprise Development*, vol. 2., no.1, Centre for Australian regional and enterprise development, Southern Cross University, Lismore.
- Powell, WW and Snellman, K, 2004, 'The knowledge economy', *Annual Review Sociology*, vol.30, pp.199–220.
- Price, E 1997, *SUPRAMEDICINE: From Health Outcomes to Outcome Medicine*, 2nd edn, Murray David Publishing, NSW
- Profile.id Community Profile 2015a, *Welcome to Shoalhaven City Community Profile*, viewed 8th May 2015, <http://profile.id.com.au/shoalhaven>.
- Profile.id Community Profile 2015b, *Welcome to Eurobodalla Shire Community Profile*, viewed 8th May 2015, <http://profile.id.com.au/eurobodalla>.
- Profile.id Community Profile 2015c, *Welcome to Bega Valley Shire Community Profile*, viewed 8th May 2015, <http://profile.id.com.au/bega-valley>.
- Prior, M Farmer, J Godden, D and Taylor, J 2011, 'More than health: The added value of health services in remote Scotland and Australia', *Health and Place*, vol.16, pp.1136–1144.
- Public Health Advocacy Institute of Western Australia 2013, *Advocacy in Action: a tool kit for Public Health Professionals*, 3rd edn, viewed 20th December 2015, www.phaiwa.org.au.
- Public Health Information Development Unit (PHIDU) 2015, 'Social Health Atlas of Australia 2011-2013', *PHIDU*, viewed 8th October 2015, http://www.publichealth.gov.au/phidu/current/data/sha-aust/notes/phidu_data_sources_notes.pdf
- Putnam, R 1993, *Making Democracy Work*, Princeton University Press, Princeton.
- Rae, C and Bradley, F 2012, 'Energy autonomy in sustainable communities—A review of key issues', *Renewable and Sustainable Energy Reviews*, vol.16, pp.6497–6506.
- RARE 2015, *University of Sydney, School of Business*, viewed 20th November 2015, http://sydney.edu.au/business/study/opportunities/RARE/2015_rare_projects
- Raworth, K 2013, 'Defining a safe and just space for humanity', in World Watch Institute, *State of the World 2013: Is sustainability still possible?*, Island Press, Washington.
- Rayner, G and Lang, T 2012, *Ecological public health reshaping the conditions for good health*, Earthscan, Routledge, Oxon.
- Rayner, G and Lang, T 2015, 'Ecological Public Health – leaders movements and ideas to shift the boundaries between the normal and the desirable', in Butler, C Dixon, J and Capon, A. (eds) *Health of people, places and planet: reflections based on Tony McMichael's four decades of contribution to epidemiological understanding*, ANU Press, Acton, Canberra.

- Regional Australia Institute 2015, *Population Dynamics in Regional Australia, January 2015*, Regional Australia Institute, Barton ACT Australia, viewed 10th December 2015, <http://www.regionalaustralia.org.au/wp-content/uploads/2015/01/FINAL-Population-Dynamics-in-Regional-Australia.pdf>
- Reinhardt, F 2000, 'Sustainability and the firm', *Interfaces*, vol.30, pp. 26-41.
- Reardon, R Lavis, J and Gibson, J 2006, 'From Research to Practice: A Knowledge Transfer Planning Guide', *Institute for Work & Health*, viewed 4th October 2015, <http://www.iwh.on.ca/from-research-to-practice>.
- Regional Development Australia Far South Coast, 2012, *Strategic Regional Plan*, viewed 10th October 2015, http://rdafsc.wpengine.com/wp-content/uploads/2014/03/RDA-Strategic-Regional-Plan-13-18_Web.pdf
- Regional Development Australia, viewed 30th April 2015, <https://rda.gov.au/>
- Repower Shoalhaven, viewed 10th October 2015, <http://www.repower.net.au/>
- Richardson, A 2009, *Plankton and climate Encyclopaedia of Ocean Sciences*, 2nd edn, Academic Press, pp. 455–464, doi.org.ezproxy.flinders.edu.au/10.1016/B978-012374473-9.00659-7.
- Rickards, L 2011, 'Rural Health: Problems, Prevention and Positive Outcomes', in H, Sykes (ed.), *Health, Future Leaders*, Australia.
- Rittel H and Webber M 1973, 'Dilemmas in a general theory of planning', *Policy Sciences*, vol.4, pp.155-169.
- Robertson, T 1971, *Innovative Behavior and Communication*. Holt, Rinehart and Winston, London.
- Robinson, L 2012, *Changeology*, Scribe Publications LTD, Brunswick Australia.
- Rockström, J Steffen, W Noone, K Persson, Å Chapin, III, FS Lambin, E Lenton, T. M Scheffer, M Folke, C Schellnhuber, H Nykvist, B De Wit, CA Hughes, T van der Leeuw, S Rodhe, H Sörlin, S. Snyder P K, Costanza, R Svedin, U Falkenmark M., Karlberg, L. Corell, R. Fabry V. J, Hansen, J Walker, B Liverman, D Richardson, K Crutzen, P and. Foley. J 2009, 'Planetary boundaries: exploring the safe operating space for humanity', *Ecology and Society*, vol. 14, no.2, 32, viewed 31st Dec 2015, <http://www.ecologyandsociety.org/vol14/iss2/art32/>.
- Rogers, E 2003, *The Diffusion of Innovations*, 5th edn, The Free Press, New York.
- Röling, N Ascroft, J and Chege, F 1976, 'The diffusion of innovations and the issue of equity in rural development', *Communication Research*, vol. 3, pp.155-170.

- Romanelli, C Cooper, D Campbell-Lendrum, D Maiero, M Karesh, W Hunter, D and Golden, C 2015, 'Connecting global priorities: biodiversity and human health: a state of knowledge review', *World Health Organization and Secretariat of the Convention on Biological Diversity*, viewed 10th December 2015, http://apps.who.int/iris/bitstream/10665/174012/1/9789241508537_eng.pdf.
- Rowley, S and Ong, R 2012, 'Housing affordability, housing stress and household wellbeing in Australia,' *Australian Housing and Urban Research Institute Melbourne*, viewed 18th July 2015, http://www.ahuri.edu.au/downloads/publications/EvRevReports/AHURI_Final_Report_No192_Housing_affordability_housing_stress_and_household_wellbeing_in_Australia.pdf.
- Rosenberg, J and Yates, P 2007, 'Schematic representation of case study research designs', *Journal of Advanced Nursing*, vol. 60, No.4, pp.447–452.doi: 10.1111/j.1365-2648.2007.04385.x
- Sachs JD 2015, *The Age of Sustainable Development*, Columbia University Press, New York.
- SAGE Farmers Market 2015, *SAGE Farmers Market Economic Impact Study 2014-2015*, viewed 10th December 2015, www.sagefarmersmarket.org.au
- Sale, JE Lohfeld, LH and Brazil, K 2002, 'Revisiting the quantitative–qualitative debate: Implications for mixed methods research', *Quality & Quantity*, vol.36, pp.43–53.
- Sandelowski, M 1995, 'Sample size in qualitative research', *Nursing and health*, vol. 18, No.2, pp. 179-183.
- Sapphire Coast Tourism 2010, *Sapphire Coast Heritage Tourism strategy 2011-2015*, viewed 16th June 2015, <http://sapphirecoastculturaltourism.blogspot.com.au/2010/12/sct-heritage-strategy-released.html>
- Sapphire Coast Visitor Profile and Satisfaction Report: Summary and Discussion of Results, 2011, viewed 30th November 2015, <http://www.destinationnsw.com.au/wp-content/uploads/2014/05/Sapphire-Coast.pdf>
- Schor, J 2014, 'Debating the Sharing Economy', *The Great Transition Initiative, Tell Us Institute*, viewed 20th October 2014, <http://www.greattransition.org/publication/debating-the-sharing-economy>
- Scrinis, G and Lyons, K 2010, 'Nanotechnology and the Techno-Corporate Agri–food paradigm', in Lawrence, G Lyons, K and Vallington, T, *Food security, Nutrition and sustainability*, Earthscan, United Kingdom.

- Shaharir, MZ 2012, 'A New Paradigm of Sustainability', *Journal of Sustainable Development*, vol. 5, no. 1, pp. 91-99
- Shoalhaven City Council n.d., *History of the Shoalhaven*, viewed 19th July 2015, <https://www.shoalhaven.nsw.gov.au/Discover-Shoalhaven/Local-history>.
- Shoalhaven City Council 2011, *State of the Environment 2011*, viewed 10th June 2015, <http://www.environment.gov.au/science/soe/2011-inbrief/australian-environment#ib1>
- Shoalhaven City Council 2013, 'Shoalhaven 2023- Community Strategic Plan', *Shoalhaven City Council*, viewed 5th April 2015, <https://www.shoalhaven.nsw.gov.au>
- Shoalhaven City Council 2012, *Tourism Master Plan 2012-2017*, viewed 10th June 2015, <http://shoalhavenholidays.com.au/wp-content/uploads/2012/07/Shoalhaven-Tourism-Masterplan-2012-2017.pdf>
- Simon, J 1998, *The ultimate resource 2*, Princeton University Press, New Jersey,
- Smith, G Brett J 1998, 'Nation, authenticity and social difference in Australian popular music: folk, country, multicultural', *Journal of Australian Studies*, vol. 22, no.58, pp. 3-17
- Smith, P Collier, G and Storey, H 2011, 'As Aussie as Vegemite: Building the Capacity of Sustainability Educators in Australia', *Australian Journal of Environmental Education*, vol. 27, no. 1, pp. 175-185.
- Sobels, J Curtis, A and Lockie, S 2001, 'The role of Landcare group networks in rural Australia: exploring the contribution of social capital', *Journal of Rural Studies*, vol. 17, pp. 265–276.
- So, S Parker, D and Xu, H 2012, 'A conceptual framework for adopting sustainability in the supply chain', *ANZAM*, viewed 8th January 2016, https://espace.library.uq.edu.au/view/UQ:276360/UQ276360_fulltext.pdf.
- South Coast Tourism Ltd Constitution 2014, viewed 30th November 2015, <http://www.sapphirecoast.com.au/>
- South Coast Tourism, n.d., 'Welcome to the Sapphire Coast', viewed November 30th 2015, <http://www.sapphirecoast.com.au/>
- Southern Rivers Catchment Management Authority 2013, *Healthy Estuaries, Healthy Oysters - NSW South Coast*, online video, viewed 1st January 2016, <https://www.youtube.com/watch?v=g10mZMvoNlg>
- Stanton, W 2003, *The rapid growth of human population 1750-2000*, Multi science Publishing Company Ltd, UK.

- Stanger, N 2011, 'Moving "eco" back into socio-ecological models: A proposal to reorient literacy into human developmental models and school systems', *Human Ecology Forum*, vol.18, no.2, pp. 167-173.
- Stavins, RN Wagner, AF and Wagner, G 2003, 'Interpreting sustainability in economic terms: dynamic efficiency plus intergenerational equity', *Economic Letters*, vol.79, pp.339-343
- Stevens, CJ Leach, AM, Dalea, S and Galloway, JN 2014, 'Personal nitrogen footprint tool for the United Kingdom', *Environmental Science Processes and Impacts*, vol.16, pp.1563–1569.
- Stedman, R and Ingalls, M 2014, 'Topophilia, biophilia and greening in the red zone', in Tidball, K and Krasny, M (eds.), *Greening in the Red Zone: disaster resilience and community greening*, Springer, London.
- Steffen, W Persson, A Deutsch, L Zalasiewicz, J Williams, M Richardson, K Crumley, C Crutzen, P Folke, C Gordon, L Molina, M Ramanathan, V Rockström, J Scheffer, M Schellnhuber, HJ and Svedin, U 2011, 'The Anthropocene: From global change to planetary stewardship', *Ambio*, vol. 40, pp. 739-61.
- 'Students diagnosed with German Measles' 2015, *Bay Post*, Feb 4th, viewed 8th February 2016, <http://www.batemansbaypost.com.au/story/2861501/student-diagnosed-with-german-measles/>
- Sustainable Europe Research Institute (SERI) 2009, 'Overconsumption? Our use of the world's natural resources', *GLOBAL 2000, Friends of the Earth Europe*, viewed 20th December 2015, <http://www.foe.co.uk/sites/default/files/downloads/overconsumption.pdf>
- Stake, RE 1995, *The art of case study research*, SAGE Publications Inc., Thousand Oaks, CA.
- Sutton, P 2004, 'A perspective on environmental sustainability?', *Victorian Commissioner for Environmental Sustainability*, viewed 10th April 2015, <http://www.green-innovations.asn.au/A-Perspective-on-Environmental-Sustainability.pdf>
- Sveiby, KE 2009, 'Aboriginal Principles for Sustainable Development as Told in Traditional Law Stories', *Sustainable Development*, vol.17, no.6, pp. 341-356.
- Tait, P McMichael, AJ Hanna, EG, 2014, 'Determinants of health: the contribution of the natural environment', *Australian and New Zealand Journal of Public Health*, vol.38 no.2 pp.104-107.

- Talberth, J Cobb, C and Slattery, N 2007, *The Genuine Progress Indicator 2006: A Tool for Sustainable Development*, Redefining Progress, 2007 viewed 20th June 2013, <http://rprogress.org/index.htm>.
- Talbot, L and Verrinder, G 2010, *Promoting Health-the primary health care approach*, 4th edn, Churchill Livingstone, Elsevier, Australia.
- Tarowski, S 2009, 'Human ecology and public health', *European Journal of Public Health*, vol. 19, no. 5, p. 447.
- Tashakkori, A and Teddlie, C 1998, *Mixed Methodology: Combining Qualitative and Quantitative Approaches*, Sage Publications, USA.
- Tharawal Aboriginal Corporation n.d., *Our history*, viewed 15th August 2015, <http://tacams.com.au/#>
- Thompson, R Moore, C vom Saal, F and Swan, H 2009, 'Plastics, the environment and human health: current consensus and future trends', *Philosophical Transactions of the Royal Society*, vol.364, pp. 2153–2166.
- Thwink.org, 2014, *Economic Sustainability*, viewed 10th April 2014, <http://www.thwink.org/sustain/glossary/EconomicSustainability.htm>.
- Thwink.org, 2014, *Environmental Sustainability*, viewed 10th April 2014, <http://www.thwink.org/sustain/glossary/EnvironmentalSustainability.htm>.
- Timma, L Bariss, U Blumberga, A and Blumberga, D 2015, 'Outlining Innovation Diffusion Processes in Households Using System Dynamics. Case Study: Energy Efficiency Lighting', *Energy Procedia*, vol. 75, pp.2859-2864.
- Tobin, G and Begley, C 2004, 'Methodological rigour within a qualitative framework', *Journal of Advanced Nursing*, vol. 48, No.4, pp.388-396.
- Tong, A Sainsbury, P Craig, J 2007, 'Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups', *International Journal for Quality in Health Care*; vol. 19, No.6, pp.349–357.
- Townsend, R Howarth, R Bazzaz, F Booth, M Cleveland, C Collinge, S Dobson, A Epstein, P Holland, E Keeney, D Mallin, M Rogers, C Wayne, P and Wolfe, A 2003, 'Human Health Effects of a Changing Global Nitrogen Cycle', *Ecosystem and Conservation Sciences Faculty*, Publications. Paper 9, viewed 8th December 2015, http://scholarworks.umt.edu/decs_pubs/9.

Tremblay, N and Richard, L 2011, 'Complexity: a potential paradigm for a health promotion discipline', *Health Promotion International*, vol. 29, no. 2, pp.378-388, doi:10.1093/heapro/dar054

United Nations General Assembly, *Convention on the Rights of the Child, 20 November 1989*, United Nations, Treaty Series, vol. 1577, p. 3, viewed 7th January 2016, <http://www.refworld.org/docid/3ae6b38f0.html>

United Nations 1982, General Assembly A/RES/37/7 48th Plenary Meeting, 28th October 1982 viewed 10th May 2015, <http://www.un.org/documents/ga/res/37/a37r007.htm>

United Nations 2000, Resolution adopted by the General Assembly, 55/2, *United Nations Millennium Declaration*, United Nations, New York.

United Nations General Assembly 70/1 2015, Transforming our world: the 2030 Agenda for Sustainable Development, A/ RES/70/1 25th September 2015, viewed 8th February 2015, http://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E

United Nations 2015a, *The History of Sustainable Development in the United Nations*, viewed 12th May 2015, <http://www.uncsd2012.org/history.html>.

United Nations 2015b, *Open Working Group Proposal for Sustainable Development Goals*, viewed 27th May 2015, <https://sustainabledevelopment.un.org/content/documents/1579SDGs%20Proposal.pdf>

United Nations 2016, 'The UN Academic Impact (UNAI) and the Sustainable Development Solutions Network (SDSN) join forces to advance the SDGs', *United Nations*, viewed 8th February 2016, https://academicimpact.un.org/sites/academicimpact.un.org/files/UNAI%20and%20SDSN%20Statement%20of%20Collaboration%208%20February%202016_0.pdf

United Nations, Department of Economic and Social Affairs, Population Division 2015a 'World Urbanization Prospects: The 2014 Revision', *United Nations*, viewed 14th December 2015, <http://esa.un.org/unpd/wup/FinalReport/WUP2014-Report.pdf>

United Nations, Department of Economic and Social Affairs, Population Division 2015b, *The World's population wall chart 2015*, viewed 15th Dec 2015, http://esa.un.org/unpd/wpp/Publications/Files/World_Population_2015_Wallchart.pdf

United Nations Department of Economic and Social Affairs, Population Division 2015a, *World Urbanization Prospects: The 2014 Revision*, (ST/ESA/SER.A/366), viewed 14th December 2015, <http://esa.un.org/unpd/wup/FinalReport/WUP2014-Report.pdf>

United Nations Department of Economic and Social Affairs, Population Division 2015b, *The World's population wall chart 2015*, viewed Dec 15th 2015,

http://esa.un.org/unpd/wpp/Publications/Files/World_Population_2015_Wallchart.pdf

United Nations Education, Scientific and Cultural Organization (UNESCO) 2015, *Culture and Development*, viewed 8th February 2015,

<http://www.unesco.org/new/en/brasil/culture/culture-and-development/culture-in-sustainable-development/>

United Nations Environmental Programme (UNEP) n.d., 'Children and youth in sustainable development', *UNEP*, viewed 10th December 2015,

<http://www.unep.org/documents.multilingual/default.asp?DocumentID=52&ArticleID=73&language=en>

United Nations Environment Program (UNEP), Declaration of the United Nations Conference on the Human Environment 1972, viewed 12th May 2015,

<http://www.unep.org/Documents.Multilingual/Default.asp?documentid=97&articleid=1503>

United Nations Environmental Programme (UNEP) 2002, 'UNEP in 2002', *UNEP*, viewed 10th January 2016, http://www.unep.org/gc/gc22/Media/UNEP_Annual_Report_2002.pdf

United Nations Environmental Programme (UNEP) 2011a, *Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication - A Synthesis for Policy Maker*, UNEP, viewed 8th February 2016, www.unep.org/greeneconomy

United Nations Environmental Programme (UNEP) 2011b, *Visions for Change Recommendations for Effective Policies on Sustainable Lifestyles: The Global Survey on Sustainable Lifestyles*, UNEP, viewed 10th December 2015,

<http://www.unep.fr/shared/publications/pdf/DTIx1321xPA-VisionsForChange%20report.pdf>

United Nations Environmental Programme (UNEP) 2011c, *Recommendations for Effective Policies on Sustainable Lifestyles: The Global Survey on Sustainable Lifestyles*, UNEP, ISBN: 978-92-807-3116-3, viewed December 10th 2015,

<http://www.unep.fr/shared/publications/pdf/DTIx1321xPA-VisionsForChange%20report.pdf>

United Nations, General Assembly 66/288 2012, *The future we want*, A/ RES/ 66/288, 27 July 2012, viewed 7th February 2016, [http://daccess-dds-](http://daccess-dds-ny.un.org/doc/UNDOC/GEN/N11/476/10/PDF/N1147610.pdf?OpenElement)

[ny.un.org/doc/UNDOC/GEN/N11/476/10/PDF/N1147610.pdf?OpenElement](http://daccess-dds-ny.un.org/doc/UNDOC/GEN/N11/476/10/PDF/N1147610.pdf?OpenElement)

United Nations, Rio+20 2012, 'Blue Economy Concept Paper 2012', viewed 10th August 2015, <https://sustainabledevelopment.un.org/content/documents/2978BEconcept.pdf>

United Nations, Sustainable development 1992, *Agenda 21*, United Nations Conference on Environment and Development (UNCED), 3-14 June 1992, Rio de Janeiro, Brazil, United Nations, viewed 4th January 2014,
<https://docs.google.com/gview?url=http://sustainabledevelopment.un.org/content/documents/Agenda21.pdf&embedded=true>.

United Nations World Summit for Sustainable Development (WSSD) 2002, *Plan of Implementation of the World Summit on Sustainable Development*, United Nations, viewed 8th February 2016,
http://www.un.org/esa/sustdev/documents/WSSD_POI_PD/English/WSSD_PlanImpl.pdf

United Nations, World Tourism Organization (UNWTO) 1994, *Agenda 21 for Travel and Tourism: Towards Environmentally Sustainable Tourism*; WTO, WTTC and the Earth Council, London.

Vaismoradi, M Turunen, H and Bondas, T 2013, 'Content analysis and thematic analysis: Implications for conducting a qualitative descriptive study', *Nursing and Health Sciences*, vol.15, pp.398–405.

Vallance, S Perkins, HC and Dixon, J 2011, 'What is social sustainability? A clarification of concepts', *Geoforum*, vol.42, pp.342–348.

Vanclay, F and Lawrence, G 1994, 'Farmer rationality and the adoption of environmentally sound practices; A critique of the assumptions of traditional agricultural extension', *European Journal of Agricultural Education and Extension*, vol. 1, no.1, pp.59-90.

Van de Kerk, G and Manuel 2008, 'A comprehensive index for a sustainable society: The SSI — the Sustainable Society Index', *Journal of Ecological Economics*, vol.66, pp. 228-242.

Verrinder, G 2012, 'System challenges for public health in a sustainability transition', PhD thesis, viewed 10th January 2016,
<http://arrow.latrobe.edu.au:8080/vital/access/manager/Repository/latrobe:34563>

Verrinder, V Nicholson, R and Pickett, R 2003 'Acting for Sustainability and Health', *Environmental Health*, vol.3, pp. 67-76.

Vining, J Merrick, M and Price, E 2008, 'The Distinction between Humans and Nature: Human Perceptions of Connectedness to Nature and Elements of the Natural and Unnatural', *Human Ecology Review*, vol. 15, no. 1, pp.1-11.

Vos, R 2007, 'Perspective Defining sustainability: a conceptual orientation', *Journal of Chemical Technology and Biotechnology*, vol. 82, pp. 334–339.

Wackernagel, M and Rees W 1998, *Our Ecological Footprint: Reducing Human Impact on the Earth*, New Society Publishers, Gabriola Island BC.

Wakeman, J Humphreys, J Wells, R Kuipers, P Entwistle, P and Jones, J 2006, 'A Systematic Review of Primary Health Care Delivery Models in Rural and Remote Australia 1993-2006', *Australian Primary Health Care Research Institute*, Canberra, viewed 8th February 2016,
http://www.anu.edu.au/aphcri/Domain/RuralRemote/Final_25_Wakeman.pdf

Wallace, B 2005, 'Exploring the meaning(s) of sustainability for community based social entrepreneurs', *Social Enterprise Journal*, vol.1, pp.78-89.

Washington, H, 2015, *Demystifying Sustainability: Towards real solutions*, Earthscan Routledge, New York.

Washington, H. and Twomey, P (Eds) 2016, *A Future Beyond Growth: Towards a Steady State Economy*, Routledge., London. Waterston, T and Lenton, S 2000, 'Sustainable development, human induced global climate change, and the health of children', *Archives of Disease in Childhood*, vol.82, pp. 93–97.

WBM Oceanics 2004, 'Tuross Estuary and Coila Lake Estuary Management Study', *WBM*, viewed 31st December 2015, http://www.esc.nsw.gov.au/living-in/about/our-natural-environment/estuaries-of-eurobodalla/tuross-river-estuary-and-coila-lake/Section_5.pdf.

Wellesley, L Happer, C and Froggatt, A 2015, '*Changing Climate, Changing Diets Pathways to Lower Meat Consumption*', Chatham House Report, Royal Institute of International Affairs, viewed 18th July 2016,
https://www.chathamhouse.org/sites/files/chathamhouse/publications/research/CHHJ3820%20Diet%20and%20climate%20change%2018.11.15_WEB_NEW.pdf

Western Health Sustainability Report 2013-2014, viewed January 5th 2016,
<http://www.westernhealth.org.au/AboutUs/CorporatePublications/Documents/Western%20Health%202013-14%20Sustainability%20Report.pdf#search=sustainability>.

White, MA 2013, 'Sustainability: I know it when I see it', *Ecological Economics*, vol. 86, pp.213–217.

Whitmee, S Haines, A Beyrer, C Boltz, F Capon, A Ferreira de Souza Dias, B Ezeh, A

- Frumkin, H Gong, P Head, P Horton, R Mace, G Marten, R Myers, S Nishtar, S, Osofsky, S Pattanayak, SK Pongsiri MJ, Romanelli, C Soucat, A Vega J, and Yach D 2015, 'Safeguarding human health in the Anthropocene epoch: report of The Rockefeller Foundation-Lancet Commission on planetary health', *The Lancet*, vol. 14; pp.1973-2028.
- Wicks, A 2013, 'RFBI Basin View Masonic Village Aquaponics Garden poster', *University of Wollongong*, viewed 10th May 2015, <https://ahsri.uow.edu.au/content/groups/public/@web/@chsd/documents/doc/uow153932.pdf>
- Wiggins, S and Keats, S 2014, 'Rural wages in Asia Report', Overseas Development Institute, viewed 18th December 2015, <http://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/9186.pdf>.
- Wijkman A and Rockström, J 2012, *Bankrupting nature: denying our planetary Boundaries*, Routledge London.
- Wilkinson RG and Marmot M, 2003, (eds.), *Social Determinants of Health*, 2nd edn, Oxford University Press, Oxford.
- Wilkinson, P Smith, K Joffe, M and Haines, A 2007, 'A global perspective on energy: health effects and injustices', *The Lancet*, vol. 370, pp.965-78.
- Wilkinson, R, and Pickett, K 2009, *The spirit level: why more equal societies almost always do better*, Allen Lane, London.
- Wilkinson, R and Pickett, K, 2010, *The spirit level: why greater equality makes societies stronger*, Penguin Books, London.
- Williams, B Wilmshurst, T and Clift, R 2011, 'Sustainability reporting by local government in Australia: Current and future prospects' *Accounting Forum*, vol.35, pp.176– 186.
- Wilson, EO 1984, *Biophilia*, Harvard University Press, Cambridge.
- Woodcraft, S Bacon, N Caistor-Arendar L, and Hackett, T 2011, Design for Social Sustainability, Social Life, viewed 30th May 2015, http://www.social-life.co/media/files/DESIGN_FOR_SOCIAL_SUSTAINABILITY_3.pdf .
- World Bank 2015, *Energy use (kg of oil equivalent per capita*, viewed 20th December 2015, <http://data.worldbank.org/indicator/EG.USE.PCAP.KG.OE>
- World Commission on Environment and Development (WCED) (1987) *Our Common Future*, Oxford University Press, Oxford, UK.

World Energy Council 2014, 'Global Energy Transitions, a comparative analysis of key countries and implications for the international energy debate', *World Energy Council*, viewed 20th December 2015, <https://www.atkearney.com/documents/10192/5293225/Global+Energy+Transitions.pdf/220e6818-3a0a-4baa-af32-8bfbb64f4a6b>

World Health Organization 1948, Preamble to the Constitution of the World Health Organization as adopted by the International Health Conference, New York, 19-22 June, 1946; signed on 22 July 1946 by the representatives of 61 States (Official Records of the World Health Organization, no. 2, p. 100) and entered into force on 7 April 1948.

World Health Organization (WHO) 1978, *Declaration of Alma-Ata*, viewed 10th July 2010, <http://www.who.int/hpr/NPH/docs/declarationalmaata.pdf>

World Health Organization 1986, *The Ottawa Charter for Health Promotion*, viewed 10th April 2015, http://www.who.int/hpr/NPH/docs/ottawa_charter_hp.pdf

World Health Organization 2000, 'Behavioural Factors in Immunization', viewed 30th December 2015, http://www.who.int/mental_health/media/en/28.pdf

World Health Organization 2007, 'Health of indigenous peoples Fact Sheet N°326', *World Health Organization*, viewed 15th December 2015, <http://www.who.int/mediacentre/factsheets/fs326/en/>

World Health Organization 2012, 'Early childhood development and disability: discussion paper', *World Health Organization and UNICEF*, viewed 10th January 2016, http://apps.who.int/iris/bitstream/10665/75355/1/9789241504065_eng.pdf.

World Health Organization 2015, 'Reducing Global Health Risks Through Mitigation of Short-Lived Climate Pollutants. Scoping Report for Policy-makers', *World Health Organization*, viewed 18th December 2015, http://apps.who.int/iris/bitstream/10665/189524/1/9789241565080_eng.pdf?ua=1.

World Health Organization 2016, 'WHO Director-General summarizes the outcome of the Emergency Committee regarding clusters of microcephaly and Guillain-Barré syndrome', *World Health Organization*, viewed 5th February 2016, <http://www.who.int/mediacentre/news/statements/2016/emergency-committee-zika-microcephaly/en/>

World Values Survey, viewed 10th July 2016, <http://www.worldvaluessurvey.org/wvs.jsp>

World Wild Fund (WWF) 2015, 'WWF Living Forest Report: chapter 5 -Saving forests at risk', *WWF*, viewed 15th December 2015, <http://www.wwf.org.au/?13400/Eastern-Australia-listed-as-global-front-for-deforestation>

World Watch Institute 2004, 'Is Meat Sustainable?', *World Watch Magazine*, Vol.17, No. 4, viewed 18th July 2016, <http://www.worldwatch.org/node/549>

Yin, RK 2014, *Case study research: Design and methods*, 5th edn, SAGE Publications Inc., Los Angeles.